

Causativization and Event Structure*

Ekaterina Lyutikova

Sergei Tatevosov

Moscow State University

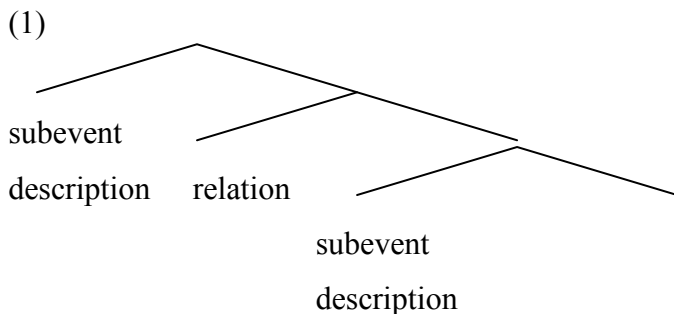
Central to this study is a question of how the conceptual distinction between direct and indirect causation is manifested in the grammar of natural languages. Since the early years of the study of causativization phenomena, one line of inquiry has been especially prominent: this distinction is to be derived from something else. 40 years ago, many syntacticians and semanticists (Lakoff 1965, Fodor 1970, McCawley 1971, 1972, Shibatani 1973) put much effort in relating the semantic type of causation to the part of the grammar where causativization happens: lexical causatives were widely believed to imply directness, while indirectness was considered a signature of syntactic causatives. Most recently, Ramchand (this volume) proposed that the distinction is epiphenomenal of the way the event structure is spelled-out. If two subevents are lexicalized by the same piece of morphology, the relation between them is bound to be that of direct causation. When each subevent receives its own spell-out, causation is indirect.

We believe, however, that there are good empirical reasons for the opposite view: the relation between subevents in the event structure is directly represented in the grammar. Language after language, we observe that the direct/indirect causation dichotomy possess all the hallmarks of *grammatically relevant* conceptual distinctions. As what happens to other linguistics categories, directness/indirectness has consequences for the morphology, is conditioned by grammatical factors (in particular, by the syntactic configuration), and interacts in lots of ways with other grammatical mechanisms of a language (e.g., with its the case system).

We will assume without further argument that causation is a relation on events. We will also assume that recognizing different types of causal relations does not amount to causal pluralism (e.g., Wolff, this volume): (in)directness can be thought of in terms of intermediate events separating causes and effects in a chain of causally related eventualities. For the semantics, therefore, direct and indirect causation need not be primitive notions (cf. Thomason (this volume)). However, linguistic evidence seems to support the view that languages grammaticize these notions as elementary.

* We are grateful to the audience at the Forces in Grammatical Structure Workshop (Université Paris 8 — CNRS — ENS, Paris, January 18-20, 2007) for valuable feedback and discussion. The paper has benefited much from detailed comments from the anonymous reviewers of this volume. We are indebted to Shigeru Miyagawa whose suggestions encouraged us to make a number of refinements to the original version of this paper. The study has been supported by Russian Foundation for Basic Research (grant # 11-06-00489-a).

In this article, relying on evidence from Karachay-Balkar (Altaic, Turkic), we will propose that in the articulated event structure relations between subevents (and, as a special case, direct and indirect causal relations) are represented independently from subevent descriptions. Following Kratzer 2005, we will argue that those relations are introduced by derivational morphemes located in between syntactic heads that determine descriptive content of the event structure:



For the syntax, those relational morphemes are primitive — in the same sense as are primitive tense, aspectual or modal morphemes. Being pieces of derivational morphology, they can impose their own restrictions on the morphosyntactic and/or semantic environment they occur within. Their inventories can be subject to cross-linguistic variation, both in terms of distribution and interpretation. They can possess whatever characteristics we commonly ascribe to pieces of derivational morphology.

In what follows, we will go through the following path. As a point of departure, in Section 2 we take Liina Pylkkänen’s (2002) dissertation, which offers a comprehensive syntactic theory of the causative with an elaborated semantic component. In Section 3, we argue that while being successful in dealing with the structure and interpretation of the causative in a variety of languages, it faces a fundamental complication in not providing a satisfactory account for the direct/indirect distinction, hence calls for improvement. As a necessary prerequisite for the improvement, in Section 4 we challenge Pylkkänen’s suggestion that the causative falls under exactly one of the three structural types, Root-selecting, Verb-selecting and Phase-selecting and establish, following many current proposals found in the literature, that being a causative morpheme equals to being *v*. In Sections 5-6 we propose a novel architecture of the verbal domain whereby relations between subevents in a syntactically represented event structure are introduced independently from subevent descriptions.

1. Pylkkänen's (2002) theory of causativization

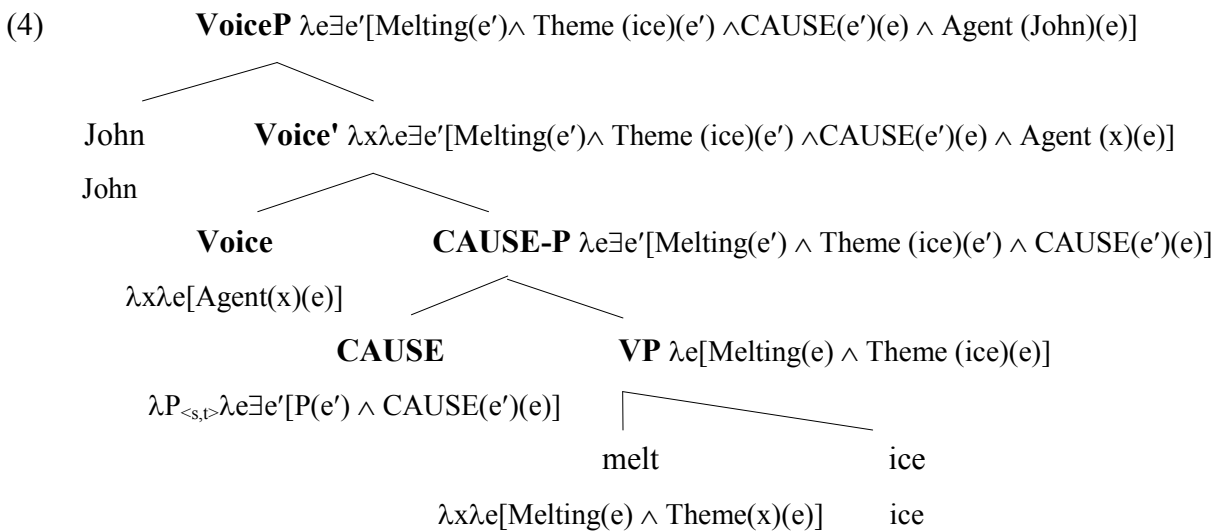
Pylkkänen (2002) indicates that “what universally distinguishes causative verbs from their noncausative counterparts is a syntactically implicit event argument ranging over *causing events*... Causative constructions involve the head CAUSE which combines with noncausative predicates and introduces a causing event to their semantics...” (Pylkkänen 2002: 75). In her syntactic analysis of causativization coupled with the semantic interpretation within the event semantics framework, the

causative element projects a phrase, and the CAUSE head is interpreted as a modifier that maps an event predicate to another event predicate, the one denoting causing events:

(2) **CAUSE**: $\lambda P_{\langle s,t \rangle} \lambda e \exists e' [P(e') \wedge \text{CAUSE}(e')(e)]$

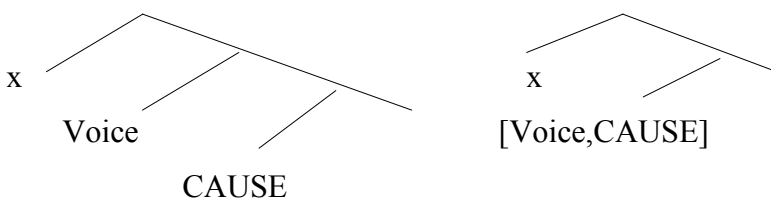
Following Marantz (1984) and Kratzer (1996), Pylkkänen assumes that an argument of the causing event is introduced by the Voice head that takes CAUSE-P as its complement. The sentence in (3) is thus analysed as in (4), where the Voice head denotes a thematic relation between individuals and events that combines with an event description denoted by CAUSE-P through Event Identification (Kratzer 1996).

(3) John melted the ice.



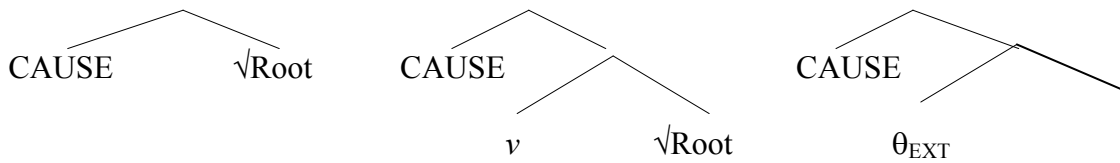
Relying on typological observations, Pylkkänen proposes that cross-linguistic variation in the domain of causativization can be reduced to two parameters, Voice-bundling and Selection. The first parameter separates Non-Voice-bundling causatives (e.g., in Japanese and Finnish) where Voice and CAUSE are represented as distinct syntactic heads from Voice-bundling causatives (e.g., in English) in which these adjacent functional heads are “bundled” into a single morpheme:

(5) a. NON-VOICE-BUNDLING CAUSATIVE b. VOICE-BUNDLING CAUSATIVE



More significant for our purposes is the second parameter. Pylkkänen argues that causatives fall into three types depending on what kind of constituent the CAUSE head takes as its complement:

(6) a. ROOT-SELECTING CAUSE b. VERB-SELECTING CAUSE c. PHASE-SELECTING CAUSE



In (6a), CAUSE selects for a category-neutral root. In (6b), the complement of CAUSE is a VP that lacks an external argument, and (6c) involves a more articulated structure containing an external argument.

This theory, simple and elegant, accounts convincingly for a huge amount of causativization phenomena, including morphological make-up of causative verbs in a number of languages, the existence of unaccusative causatives (e.g., adversity causatives in Japanese and desiderative causatives in Finnish), different types of adverbial modification, etc. However, it faces a fundamental difficulty: assuming a universal causative element in (2) the theory fails to capture the difference between direct and indirect causation. The CAUSE relation on events in (2) must show up in all types of causative configurations. This is not the case, however: the same causative element produces an indirect interpretation in some environments, but not in others. In the next section we discuss these challenging data in more detail.

2. Direct and indirect causatives in Karachay-Balkar

In Balkar, any verb, be it unaccusative, unergative or transitive, allows for causativization^{1,2}.

- (7) alim cojun-nu tol-dur-du.
 Alim pot-ACC fill.intr-CAUS-PST.3SG
 ‘Alim filled the pot.’
- (8) ustaz alim-ni cap-tir-di.
 teacher Alim-ACC run-CAUS-PST.3SG
 ‘The teacher made Alim run.’
- (9) ana-si alim-ge baxca-si-n sür-dür-dü.
 mother-3 Alim-DAT field-3-ACC plow-CAUS-PST.3SG
 ‘The mother made Alim plow the field.’

¹ Two regular causative markers are *-t-* and *-tir-*. Their distribution is conditioned phonologically: *-t-* attaches after vowel (i) and multisyllabic sonorant (iiib) stems, *-tir-* occurs after obstruents (ii) and after monosyllabic sonorant stems (iii). *-t-* and *-tir-* are thus exponents of the same morpheme, henceforth TYR.

- | | |
|-----------------------------------|--|
| (i) Vowel stems | (ii) Consonant stems |
| eri ‘melt.intr’ → eri-t ‘melt.tr’ | ös ‘grow.intr’ → ös-tür ‘grow.tr’ |
| oqu ‘read’ → oqu-t ‘make read’ | erik ‘get tired’ → erik-tir ‘make tired’ |
- (iii) Sonorant stems:
- | | |
|--------------------------------|--------------------------------------|
| a. monosyllabic | b. multisyllabic |
| ür ‘bark’ → ür-dür ‘make bark’ | qıçır ‘shout’ → qıçır-t ‘make shout’ |

² Causative verbs can be further causativized producing “double” and even “triple” causatives

- (i) direktor ustaz-dan alim-ge eşik-ni ac-tir-t-ti.
 director teacher-ABL Alim-DAT door-ACC open.tr-CAUS-CAUS-PST.3SG
 ‘The director caused the teacher to make Alim open the door.’
- (ii) fatima ana-si-dan madina-ğa et-ni eri-t-tir-t-ti.
 Fatima mother-3-ABL Madina-DAT meat-ACC melt-CAUS-CAUS-CAUS-PST.3SG
 ‘Fatima caused her mother to make Madina unfreeze the meat.’

Depending on the type of stem final segment, double and triple causatives are built with *-t-tir-/tir-t-* and *-t-tir-t-* or *-tir-t-tir-* strings respectively:

- (iii) a. *sin* ‘break, intr.’ → *sin-dir* ‘break, tr.’ → *sin-dir-t* ‘make sbd. break sth.’ →
sin-dir-t-tir ‘cause sbd. to make sbd. break sth.’
- b. *eri* ‘melt.intr’ → *eri-t* ‘melt.tr’ → *eri-t-tir* ‘make sbd. melt smth.’ → *eri-t-tir-t* ‘cause sbd. to make sbd. melt sth.’

The crucial property of Karachay-Balkar and similar languages is that semantics of the relation between causing and caused subevents is different for causatives of unaccusatives and causatives of transitives/unergatives.

Consider (10) where the unaccusative verb *öl* ‘die’ undergoes causativization. (10) is only compatible with the scenario in which the agent’s action is an immediate cause of the patient’s death. This is exactly what happens with the lexical verb *kill* in English. In contrast, the causative in (11) accepts two scenarios: in (11.1) there still is an immediate causal relation between the teacher’s acting and Alim’s running, but in (11.2) the causal chain connecting these two events contains intermediate causes (e.g. convincing the coach that Alim is a good runner, the coach making his decision, etc.)

(10) alim direktor-nu öl-dür-dü.

Alim director-ACC die-CAUS-PST.3SG

1. ‘Alim killed the director.’

2. * ‘{Having paid \$10,000 to the killer,} Alim organized the director’s assassination.’

(11) ustaz alim-ni erişiü-le-de cap-tır-dı.

teacher Alim-ACC competition-PL-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 terms of Ginet (1990) and Kratzer (2005), in (10.1), Alim’s activity is *a causing of* the director’s being dead, while in (10.2) paying \$10,000 is the event that *causes* the director’s being dead. In (11.1), again, we are dealing with an event which is a causing of Alim’s running, while in (11.2) the event that causes Alim’s running is referred to.

This distinction is more commonly known under the label of direct/indirect causation, as well as under a few other labels (manipulative vs. directive (Shibatani 1976), contactive vs. distant (or non-contactive) (Xolodovič (ed.) 1969, Saksena 1982), immediate vs. mediated (Kulikov 2001), causer-controlled vs. causee-controlled (Wierzbicka 1988, Shibatani 2002)). The distinction has been a constant topic in the studies of causativization phenomena since the late 1960s and one of the central issues surrounding the debate on lexical and syntactic causatives (Lakoff 1965, Fodor 1970, McCawley 1971, 1972, Cruse 1972, Shibatani 1973, Yang 1976, see a recent discussion in Miyagawa 2012). The direct/indirect causation dichotomy is clearly not confined to Karachay-Balkar: it is extensively documented in typological and formal literature since Nedjalkov, Sil’nickij 1969 and Shibatani 1973 (cf. Kulikov 2001 and references therein), see, e.g., the relevant discussion of the semantic difference between *have* and *make* causatives in English in Ritter, Rosen 1993: 529-532, as

well as Saksena 1982 on Hindi, Randriamasimanana 1986 on syntactic causatives in Malagasy, Martin 1991 on Creek, among many others.

Semantically, as Wunderlich (1997:38) takes it, “direct causation is at issue when the agent controls the final result, whereas indirect causation holds when the agent controls the input situation but not all intervening stages”.³ However, Pykkänen’s (2002) semantics for the causative in (2) is universal, that is, has to be present in any semantic representation of any causative configuration. Assuming that the semantic derivation of causative predicates goes along the lines of (4), for (10) and (11), semantic representations in (12) and (13) obtain:

(12) $\lambda e \exists e' [\text{Agent}(\text{Alim})(e) \wedge \text{Theme}(\text{director})(e') \wedge \text{dying}(e') \wedge \text{CAUSE}(e')(e)]$

(13) $\lambda e \exists e' [\text{Agent}(\text{teacher})(e) \wedge \text{Agent}(\text{Alim})(e') \wedge \text{running.at.the.competition}(e') \wedge \text{CAUSE}(e')(e)]$

The only difference between (12) and (13) is that participants of caused events, e' , differ thematically: ‘the director’ in (12) is the theme of dying, while Alim in (13) is the agent of running. But the relation between causing, e , and caused, e' , events is exactly the same. Whatever definition this relation is given, (19) and (20) are not predicted to differ as to the type of causation. Therefore, there is no obvious way of deriving the direct/indirect distinction in Pykkänen’s system and of accounting for the semantic difference between causatives like *öldür* ‘kill’ and *captir* ‘make run’.⁴

We conclude therefore that Pykkänen’s theory cannot handle the whole range of causativization phenomena and calls for extension.

The story about causativization we tell in the subsequent sections consists of two parts. First, in Section 3 we claim that the causative element does not create a special type of functional projection but is rather a spellout of the ν head. Assuming that ν can take either VP or another ν P as its complement, we obtain correct predictions about a wide variety of causativization phenomena in languages like Karachay-Balkar. This leads us to abandoning one of the Pykkänen’s basic

³ Thomason (this volume) shows that this and similar views definitely involve an oversimplification. For one thing, it is not necessarily the case that the agent of a complex telic eventuality must be the agent of all of its causally related parts even in simplest cases like ‘open’. Conversely, the mere existence of a relatively long causal chain e', e'', \dots, e^n connecting a volitional activity e_0 of individual x and the outcome e_{fin} does not prevent x from being identified as an agent of the whole complex event, even if x is not an agent in e', e'', \dots, e^n . (Thomason discusses Rube Goldberg’s machines as a source of scenarios of this sort.) However, nothing in what we say below relies on the assumption that if x is an agent in e , it has to control all intermediate stages of e . We hope that whatever the right solution for Thomason’s puzzles is, this would at least be compatible with our proposal.

assumptions, that the causative element must have rigid selectional restrictions. Secondly, in Section 4 we introduce an essential claim of this paper: in the event structure, subevents are represented independently from relations between them. Contra Pykkänen, the inventory of these relations is not limited to the CAUSE relation in (2). We propose that subevents in the articulated event structure can be connected by at least three distinct relations, INCR(emental), CAUSING, and CAUSE. In Section 5 we develop a formal system in which the labor of building up the event structure is divided between two types of syntactic heads: heads introducing subevent descriptions and those associated with relations between subevents. This leads us to a theory of the *v*P domain from which properties of causatives follow as a special case. Section 6 completes our proposal by providing compositional semantic derivations for the relevant types of causatives.

3. The causative element as *v*

3.1. Selection

Before going to the main ingredient of our proposal, we need to spend some time spelling out a number of background assumptions about the syntax of the causatives and fixing problems that Pykkänen's (2002) theory creates for Balkar and similar languages. We have already seen that the directness of causation corresponds to the type of configuration being causativized: the causative morpheme yields direct causatives when combined with unaccusatives, and indirect causatives otherwise. For Pykkänen 2002 (see also Tubino Blanco 2011), this would amount to postulating two distinct causative morphemes. Let us see why.

In her system, any causative morpheme must belong to one of the three mutually exclusive types, Phase-selecting, Verb-selecting, or Root selecting, each of which is characterized by a bulk of characteristics distinct from the other two. However, if there is exactly one causative in Balkar, its type is impossible to determine.

The defining property of Phase-selecting causatives is that they allow for any type of adverbial modification below CAUSE, licensing root-level, VP-level, and agent-oriented adverbials. Crucially, only Phase-selecting causatives are predicted to allow two readings of agent-oriented adverbials. On one reading, which all types of causatives share, they take scope over the activity performed by the causer. On another reading, specific to Phase-selecting causatives, they scope below CAUSE, modifying the activity of the causee.

⁴ Of course, one can stipulate that the causation must be direct, if the causee is the theme, as in (12), and indirect otherwise. Building the direct/indirect distinction into the meaning of thematic relations AGENT and THEME does not seem to be supported by what we independently know about thematic relations, however (see, e.g., Dowty 1991).

The examples in (14) show that the controller of the agent-oriented goal adverbial (of the form “DP + *acıwka*” ‘to spite smb.’) can either be the agent of the causing subevent or the agent of the caused subevent. Relying on evidence from examples like (14) we have to conclude that the TYR causative is Phase-selecting.

- (14) a. fatima madina-*ka* aciwka lejla-*ka* qaxit-ni zaz-dır-di.
 Fatima Madina-DAT to.spite Leila-DAT letter-ACC write-CAUS-PST.3SG
 ‘To spite Madina, Fatima made Leila write a letter (i.e., Fatima acted intending to spite Madina).’
- b. fatima lejla-*ka* madina-*ka* aciwka qaxit-ni zaz-dır-di.
 Fatima Leila-DAT Madina-DAT to.spite letter-ACC write-CAUS-PST.3SG
 ‘Fatima made Leila write a letter to spite Madina (i.e., Leila acted intending to spite Madina).’

Right the other way round, examples like that in (15) suggest that the TYR causative has to be Verb- or Root-selecting.

- (15) alim kerim-ni tuşman-la-*ka* aciwka öl-dür-dü.
 Alim Kerim-ACC enemy-PL-DAT to.spite die-CAUS-PST.3SG
1. ‘Alim killed Kerim to spite enemies.’
 2. * ‘Alim made Kerim [die to spite enemies].’

As we see from (15), the agent-oriented modifier cannot be controlled by the Causee. According to Pylkkänen, this indicates that the causative in (15) is not Phase-selecting.

In Karachay-Balkar, any causative of unergative and transitive verbs pattern with (14), whereas causatives from unaccusatives resemble that in (15). Since being a Root- or Verb-selecting and Phase-selecting causative are mutually exclusive options, we are forced to postulate at least two distinct TYR-causatives:

- (16) Phase-selecting TYR causativizes unergatives and transitives;
 Root or verb selecting TYR causativizes unaccusatives.

But if identity of form implies identity of function, unless we have strong evidence for the opposite, such an analysis is not a preferable option. Note that what happens in (14)-(15) is by no means limited to Karachay-Balkar. Same or similar patterns are widely attested cross-linguistically; see, e.g. Dubinsky *et al.* 1998 on Oromo.

Attempting to determine whether the causative of unaccusatives, like the one in (15), is Verb-selecting or Root-selecting faces one more problem, since different Pytkänen’s diagnostics yield controversial results.

Pytkänen argues that Verb-selecting causatives license any type of adverbial modification below CAUSE except the agent-oriented one. So if causatives of unaccusatives are Verb-selecting, the analysis predicts that, e.g., time-span adverbials like ‘in 5 minutes’ and rate adverbials like ‘quickly’ can modify either above or below CAUSE, yielding ambiguity. This prediction is not borne out, however:

(17) *alim beř minut-xa cojun-nu tol-dur-du.*
 Alim five minute-DAT pot-ACC fill.intr-CAUS-PST.3SG

1. ‘Alim filled the pot in five minutes.’
2. * ‘Alim made the pot [fill in five minutes].’
- 3.* ‘In five minutes, Alim performed an action that made the pot fill (e.g., in two seconds).’

(18) *alim terk cojun-nu tol-dur-du.*
 Alim quickly pot-ACC fill.intr-CAUS-PST.3SG

1. ‘Alim filled the pot quickly.’
2. * ‘Alim caused the pot [to fill quickly].’
3. * ‘Alim quickly performed an action that made the pot fill (possibly slowly).’

Given (17)-(18), one has to conclude that causatives like *toldur* ‘fill’ are not Verb-Selecting, hence are Root-selecting. But a characterizing property of Root-selecting causatives is that no verbalizing morphology can occur between the root and the causative morpheme. Consider, however, denominal unaccusatives in Karachay-Balkar in (19):

(19)	a.	<i>buz</i> ice ‘ice’	<i>buz-la</i> ice-VRB ‘freeze.intr’	<i>buz-la-t</i> ice-VRB-CAUS ‘freeze.tr’	* <i>buz-dur</i> ice-CAUS
	b.	<i>azɨn</i> thin ‘thin’	<i>azɨn-la</i> thin-VRB ‘grow thin, loose weight’	<i>azɨn-la-t</i> thin-VRB-CAUS ‘exhaust, deplete, drain’	* <i>azɨn-t</i> thin-CAUS
	c.	<i>aqırın</i> slow ‘slow’	<i>aqırın-la</i> slow-VRB ‘slow down, intr.’	<i>aqırın-la-t</i> slow-VRB-CAUS ‘slow down, tr.’	* <i>aqırın-t</i> slow-CAUS
	d.	<i>tezin</i> quick	<i>tezin-le</i> quick-VRB	<i>tezin-le-t</i> quick-VRB-CAUS	* <i>tezin-t</i> quick-CAUS

	‘quick(ly)’	‘hurry, quicken, hasten, intr.’	‘hurry, accelerate, tr.’	
e.	žalan	žalan-la	žalan-la-t	žalan-t
	bare	bare-VRB	bare-VRB-CAUS	bare-CAUS
	‘bare, nude’	‘undress, intr.’	‘undress, tr.’	

As (19) illustrates, verbs like *buz-la* ‘freeze, intr.’, *azbin-la* ‘grow thin’, etc., are derived from roots like *buz* ‘ice’ and *azbin* ‘thin’, etc., by the verbalizing suffix *-la*. Just like non-derived unaccusatives (e.g., *tol* ‘fill, intr.’), such verbs require causativization to produce a transitive clause, and the TYR morpheme attaches outside the verbalizer. Obviously, here we are dealing with verb-selecting behavior.⁵ Therefore, what seems to be happening in (17)-(19) is that the TYR causative of unaccusatives shares properties of Root- and Verb-selecting causatives. But this possibility is not admitted in Pylkkänen 2002.

To fix this, we want to argue that the causative morpheme which heads, according to Pylkkänen, its own phrase is better analysed as a realization of *v*. To show this we take the following line of argumentation. Having compared a certain class of causatives (namely, causatives of unaccusatives) with a certain class of lexical verbs (namely, transitive result verbs) we find that their syntactic and semantic properties are identical and conclude, naturally, that these two types of configurations must be structurally identical. Given that transitive result verbs are arguably associated with a configuration that contains *vP* (e.g., Chomsky 1995: 315-316) but crucially lacks anything like CAUSE-P, the identity can only be explained if the causative morpheme is a spellout of *v*. Relying on the reasonable assumption that identical syntactic heads require identical spellout, and the other way around, identical spellout signals identity of the syntactic content, we further suggest that causatives of transitives and unergatives also involve the causative *v*, the one taking another *vP* as its complement. Then, we return

⁵ Applying the root-selecting analysis to the zero causative in English, which, by hypothesis, derives transitives like *melt* from corresponding unaccusatives, Pylkkänen (2002: 103) faces a complication. There are derived verbs in English that license both unaccusative and transitive uses, yet contain verbalizing morphology, as in *hard-en*. If *-en* is a realization of the verbalizing head, the zero causative cannot be root-selecting, and must be verb-selecting:

(i) [[[hard] en] \emptyset_{CAUSE}]]

To get round this problem, Pylkkänen (2002: 103) proposes to treat *-en* as a phonological realization of the CAUSE head, not as a piece of verbalizing morphology, as in (ii). (As a consequence, the intransitive *hard-en* is analyzed as derived by a different, but homophonous suffix *-en_{INTR.}*).

(ii) [[hard] en_{CAUSE}]]

No matter if this is a true story about the causative-inchoative alternation in English, it cannot be extended to Balkar examples like (16a-e). Unlike *harden*, verbs like *buzla* ‘freeze’ only occur in the intransitive configuration, hence there is no way of treating the *-la* suffix as a realization of \emptyset_{CAUSE} . Therefore, we still have a piece of morphology between the root and the causative suffix, which is problematic if this suffix is root-selecting. We are grateful for the anonymous reviewer for turning our attention to this issue.

to a set of data from Section 2 problematic for Pylkkänen's approach and show that these data are dealt with successfully by a theory we assume.

3.1. Causatives of unaccusatives vs. non-derived result verbs

The basic tenet of Pylkkänen's theory is that the causative element always projects a phrase distinct from any other type of functional structure:

(20) [... [_{CAUSE-P} CAUSE [...]]]

This type of approach contrasts sharply with another family of theories where the causative is thought of as a spellout of some or other piece of structure independently required in the syntax (Baker 1988, Harley 1995, 2008, Travis 2000, 2005, Folli, Ramchand 2003, Lidz 2004, Ramchand 2008, Miyagawa 2012). Thus, Lidz (2004), Harley (2008 and elsewhere), and Ramchand (2008) while offering quite distinct analyses of the causative configuration all agree (up to notational details) that the causative is essentially a realization of the *v* head:

(21) [... [_{vP} [_v CAUSE] ...]]

A significant piece of empirical evidence that determines our choice between the options in (20)-(21), not much discussed in the literature, is that (20)-(21) make totally different predictions as to whether (some classes of) causatives pattern together with (some classes of) underived verbs. With (20), this can hardly be the case, since non-derived verbs never project CAUSE-P. In contrast, if the causative element is *v*, then causatives identical semantically and syntactically to a certain class of non-derived verbs should exist, as schematized in (22):

(22) a. [... [_{vP} [_v V+CAUSE] [_{VP} Ψ ...]]]
 b. [... [_{vP} [_v V+v] [_{VP} Ψ ...]]]

(22a-b) have the same structure except that in (22a) *v* is spelled out by the causative element while verbs corresponding to (22b) should be able to spell out *v* by themselves, with no extra piece of morphology. As a matter of fact, the pattern predicted by (22a-b) does indeed occur across languages, and Karachay-Balkar is one of them. One easily finds causative verbs possessing non-derived counterparts that exhibit the same syntactic and semantic behavior, hence the theory in (21) has an advantage over (20).

Let us compare causatives of unaccusatives with non-derived result verbs in terms of Rappaport Hovav, Levin (1998 and elsewhere), that is, transitive verbs like ‘open’, ‘tear’, etc. Examples in (23)-(27) show their identity as to the argument structure, derivational potential, and subevental make-up, including semantic characteristics of the causing activity.

First of all, in both (23a) with the causative *sindir* ‘break’ and (23b) with the non-derived *ac* ‘open.tr’ argument DPs bear the same thematic relations, agent and theme, to the events referred to, and the same case morphology, Nominative and Accusative:

- (23) a. alim illew-nü sîn-dîr-dî.
 Alim.NOM toy-ACC break-CAUS-PST.3SG
 ‘Alim broke the toy.’
- b. alim eşik-ni ac-tî.
 Alim.NOM door-ACC open-PST.3SG
 ‘Alim opened the door.’

The further parallelism between causatives of unaccusatives and non-derived result verbs is revealed in their ability to undergo passivization and (further) causativization:

- (24) a. illew alim-ni kücü ble sîn-dîr-îl-dî.
 toy Alim-GEN by break.intr-CAUS-PASS-PST.3SG
 ‘The toy was broken by Alim.’
- b. eşik alim-ni kücü ble ac-îl-dî.
 door Alim-GEN by open-PASS-PST.3SG
 ‘The door was opened by Alim.’
- (25) a. kerim alim-ge illew-nü sîn-dîr-t-tî.
 Kerim Alim-DAT toy-ACC break.intr-CAUS-CAUS-pst.3sg
 ‘Kerim made Alim break the toy.’
- b. kerim alim-ge eşik-ni ac-tîr-dî.
 Kerim Alim-DAT door-ACC open-CAUS-pst.3sg
 ‘Kerim made Alim open the door.’

But the most significant similarity between causatives like *sindir* ‘break’ and non-derived verbs like *ac* ‘open’ has to do with their subevental structure, as is evidenced by the tests on cooccurrence with adverbials like ‘almost’, ‘again’ and other diagnostics cited in the literature at least since Dowty 1979. Consider examples (26)-(27) with *zañidan* ‘again’:

- (26) alim zañıdan illew-nü sin-dır-dı.
 Alim again toy-ACC break.intr-CAUS-PST.3SG
 1. ‘Alim broke the toy again (the toy broke twice).’
 2. ‘Again, Alim broke the toy (Alim broke the toy twice).’
- (27) alim zañıdan eşik-ni ac-ti.
 Alim again door-ACC open.tr-PST.3SG
 1. ‘Alim opened the door again (the door opened twice).’
 2. ‘Again, Alim opened the door (Alim opened the door twice).’

In (26)-(27), the adverb *zañıdan* ‘again’ is scopally ambiguous. On the repetitive interpretation in (26.2)-(27.2), both sentences entail that the agent’s activity and the change of state in the theme occur twice. On the restitutive reading in (26.1) and (27.1), ‘again’ only takes scope over the change of state, hence agents and their activities can be different. Furthermore, the first occurrence of the breaking/opening event need not be brought about by the agent at all: a possible restitutive scenario involves these events happening by itself. As the huge literature on the predicate decomposition tells us (see especially von Stechow 1996), this pattern indicates that both underived verb in (27) and causative in (26) are associated with the same subevental structure involving at least activity and change of state subevents.

Semantically, *sındır* ‘break’ and *ac* ‘open’ have one more characteristic in common: in both cases descriptive properties of the activity are underspecified. The lexical meaning of the verb *ac* ‘open’ in (b) examples in (23)-(27) only characterizes a state attained by the theme, but the manner of action is not rigidly fixed, and the same is true of the causative in the (a) examples. Moreover, as commonly happens to result verbs (see the discussion in Kratzer 1996, Alexiadou *et al.* 2006, Nash 2006), thematic characteristics of the external argument are flexible – not only agents, but also natural forces, events and a certain class of instruments are licensed as subjects in sentences like (23a-b), as in *The wind opened the door* or *The wind broke the tree*, etc. (For the sake of space, we leave out corresponding Karachay-Balkar examples.)

A clear-cut generalization from examples like (23)-(27) is: causatives of unaccusatives are Levin, Rappaport Hovav’s (1998 and elsewhere) result verbs derived through causativization. If *sındır* ‘break’ and *ac* ‘open’ are associated with the same syntactic configuration, this generalization follows. One specific way of making the parallelism between *sındır* ‘break’ and *ac* ‘open’ fully explicit is to assume with Ramchand (2008) that transitive result verbs (*init-proc-res* verbs in her original terminology), either non-derived or created by causativization, are associated with the partial *vP* structure in (28a-b), which represent sentences like (23a) and (23b), respectively.

- (28) a. ... [_{VP} Alim [_v *sin*+TYR] [_{VP} illew *sin* ...]]
 b. ... [_{VP} Alim [_v *ac*+*v*] [_{VP} ešik *æ* ...]]

If, on the other hand, the causative configuration contains a projection that its non-causative counterpart lacks, one inevitably runs into a danger of obtaining distinct event structures for causatives of unaccusatives and non-derived result verbs. Assuming with Pylkkänen the $\sqrt{\text{---}} \text{---} \text{V} \text{---} \text{CAUS} \text{---}$ Voice hierarchy of lexical and functional heads, we get either (29a) or (29a') for (23a) depending on whether the TYR causative is analyzed a Root-selecting or Verb-selecting. The lexical verb *ac* 'open' in (23b) would be analyzed as in (29b).

- (29) a. ...[VoiceP Alim [Voice *sin*+TYR+Voice] [CAUSE-P [CAUSE *sin*+TYR] [_{VP} illew *sin* ...]]]
 a'. ...[VoiceP Alim [Voice *sin*+TYR+Voice] [CAUSE-P [CAUSE *sin*+TYR] [_{VP} illew *sin* ...]]]
 b. ...[VoiceP Alim [Voice *ac*+Voice] [_{VP} ešik *æ* ...]]

Regardless of whether the causative is analyzed as in (29a) or as in (29a'), one can hardly derive identity of subevental structure of *sindir* and *ac*, as (29a-a') are more complex than (29b). Looking at (29a)-(29a')-(29b) and keeping in mind that CAUSE introduces a subevent, we have to admit that causatives have one subevent more than non-derived result verbs, because (29a) and (29a') contain one head more than (29b). But the data in (23)-(27) lend no support to this conclusion.

To get round this problem, one can assign a complex event structure consisting of two subevents to lexical verbs like *ac* 'open', but a simplex event structure to lexical verbs like *sin* 'break'. The VP in (29b) will then denote complex event predicates like $\lambda e \exists e' [\text{cause}(s)(e) \wedge \text{opening}(\text{door})(e')]$, while VP in (29a) or $\sqrt{\text{P}}$ in (29a') — simplex predicates like $\lambda e [\text{breaking}(\text{toy})(e)]$. After CAUSE adds a causing subevent to the latter, we end up with apparently similar event structures for *sindir* 'break' and *ac* 'open'. But in this case the mechanism of scope taking for adverbials like 'almost' and 'again' is considerably complicated. In (29a-a'), CAUSE-P and VP/ $\sqrt{\text{P}}$ provide appropriate adjunction sites for 'again', giving rise for repetitive and restitutive readings in (26). But to get the same range of interpretations of lexical result verbs like *ac* 'open', one has to allow the adverbial to take scope at the lexical level. Otherwise the restitutive reading for 'open', where the adverbial scopes below CAUSE, is impossible to derive. Clearly, this is a source of quite a number of additional *ad hoc* stipulations. Furthermore, there is no straightforward way of capturing the fact that for both types of verbs descriptive properties of the causing subevent are underspecified. In (29a) and (29a') this subevent is introduced by the CAUSE head, but in (29b) it has to be a part of the lexical representation of the verb

ac ‘open’. As a result, the fact that in both cases properties of the causing subevent are essentially similar comes out as a pure coincidence.

None of these complications emerges if we assume the analysis along the lines of (28). (28a) and (28b) only differ as to the spellout of the *v* head, the rest of the structure being identical. Therefore, both of our crucial generalizations fall out with no additional effort: (28a) and (28b) are correctly predicted to involve the same amount of subevents and same descriptive properties of the causing activity. This line of reasoning will be elaborated in more detail in Section 3.3. At the moment, a closer look at causatives of transitive and unergatives is due.

3.2. Causatives of transitives and unergatives

So far, we have discussed why we believe that the causative-as-*v* analysis is superior to the analysis in terms of CAUSE-P. If the above line of reasoning is correct, the suggestion about the structure of causatives of unergatives and transitives (as well as about ‘double’ causatives like the one in (9)) follows naturally. If one assumes as a reasonable null hypothesis that the same pieces of productive derivational morphology spell out the same syntactic heads, then in all its occurrences, TYR should be analyzed as *v*. But unlike causatives of unaccusatives, causatives of transitives and unergatives involve the causative *v* taking another *v*P as its complement (see Lidz 2004 for a similar treatment of causatives in Kannada). The relevant part of the structure of (30) could be analyzed as in (31):

(30) *ustaz alim-ni cap-tir-di.*
 teacher Alim-ACC run-CAUS-PST.3SG
 ‘The teacher made Alim run.’

(31) ... [_{vP} *ustaz* [_v *cap*+TYR] [_{vP} *Alim cap* ...]]

A nice consequence of this analysis is that it predicts correctly that this type of causative shows the whole range of phenomena associated with two *v*P configurations. Harley (2008) argues independently for the structure in (31) on Japanese material. She points out that if one “identifies *v*P as the locus of the relevant syntactic properties that suggest a biclausal approach”, two *v*Ps provide two distinct sites for the adjunction of temporal, manner, agent-oriented and a few other types of adverbials, two distinct domains for subject-oriented reflexive binding, etc. (See also similar facts observed by Aissen (1974:ch.2) for Turkish, Martin (1991) for Creek, and Falk (1991) cross-linguistically)⁶.

⁶ Horvath and Siloni (2010) discuss causativization in Hungarian, showing that causatives of transitives and unergatives consistently lack bi-clausal properties that could justify an analysis along the lines of Harley 2008. They propose that derivation of the causative is subject to parametric variation: languages like Japanese make use of syntactic causativization, while languages like Hungarian opt for creating causatives in the lexicon. If this is indeed the case, what we say below only

Thus, for instance, if subject-oriented binding preferences are associated with ν P, we can expect that clauses based on causatives of transitives and unergatives contain two possible antecedents for the subject-oriented reflexive. This expectation is fulfilled:

- (32) *ustaz_i madina- κ _{a_j} kesi-kesi-n_{i, j} maxta-t-ti.*
 teacher Madina-DAT self-self-ACC praise-CAUS-PST.3SG
 ‘The teacher made Madina praise him || herself.’

In (32), the reflexive pronoun *kesi-kesin* can be bound by both Causer and Causee. Crucially, as (33a-b) show, *kesi-kesin* must have a clausemate antecedent and cannot be bound by anything except the subject DP.

- (33) a. *ustaz_i madina- κ _{a_j} [PRO_j kesi-kesi-n*_{i, j}*
 teacher Madina-DAT self-self-ACC
maxta- κ _a] bujruq ber-di.
 praise-INF permission give-PST.3SG
 ‘The teacher gave permission to Madina to praise herself || *him.’
- b. *ustaz_i madina- κ _{a_j} kesi-kesi-ni_{i, *j} üsünden sor-du.*
 teacher Madina-DAT self-self-GEN about ask-PST.3SG
 ‘The teacher asked Madina about himself || *herself.’

Therefore, (31) offers a principled explanation for (32) since it provides a configuration where two subject DPs, those in Spec of lower ν P and in Spec of matrix ν P are contained within a single clause.

We do not cite other diagnostics for two ν Ps here, see Lyutikova *et al.* 2006 for more detail.

Let’s take stock of what we have observed so far. Causatives of unaccusatives are best analysed on a par with non-derived result verbs, whereby the causative element is an exponent of the ν head.

Causatives of transitives and unergatives involve two ν P shells, where the causative element takes another ν P as its complement.

We see that this type of analysis makes a number of correct predictions about semantic and syntactic behaviour of the causative in languages like Karachay-Balkar. But its most significant consequence is that Pylkkänen’s distinction between Root-selecting, Verb-selecting and Phase-selecting causatives can no longer be maintained. In the proposed system, in line with Harley 2008 and Miyagawa 2012,

applies to the languages of the first type. If our story (as well as Harley’s (2008), Miyagawa’s (2012) and many other recent analyses of Japanese) can be extended to languages of the second type, still remains to be seen.

the causative element, being a spellout of v , can take either VP or v P as its complement and so has no selectional restrictions on its own. Rather, the causative morpheme can take whatever complement independently allowed for v by the syntax of a given language.

3.3. Interim summary

Assuming the analysis outlined in two previous sections we do not have to postulate two distinct TYR-causatives, as in (16). Two different causative morphemes is an artefact of Pylkkänen’s (2002) theory that assigns rigid selectional restrictions to any causative element. Having abandoned this assumption for independent reasons, we achieve a perfect match between form and function: the same TYR morpheme uniformly spells out the v head.

Another complication, exemplified in (14)-(16), does not emerge under current set of assumptions either. Causatives of unaccusatives can not be adequately characterized as either Root-selecting or Verb-selecting. The adverbial diagnostic in (17)-(18) suggests that this type of causative has to be Root-selecting while the morphological diagnostic in (19) indicates that it must be Verb-selecting. On Pylkkänen’s analysis, this looks like a mixture of characteristics that calls for additional stipulations. On the analysis advocated above this is exactly what we expect.

Assuming that rate and temporal adverbials like ‘quickly’, ‘in two hours’ (and other event-external functional modifiers in terms of Ernst 2002), etc., merge at the v P level, we have an explanation for why they do not yield ambiguity combined with causatives of unaccusatives. The structure of such causatives only contains one v P hence provides a single adjunction site for such adverbials:

- (34) $alim_i$ [v P $terk$ t_i [v P $cojun-nu$ tol]-[v dur]]- du .
 Alim quickly pot-ACC fill.intr-CAUS-PST.3SG
 1. ‘Alim filled the pot quickly.’
 2. * ‘Alim caused the pot [to fill quickly].’
 3. * ‘Alim quickly performed an action that made the pot fill (possibly slowly).’

The fact that verbalizing morphology can occur between the root and the causative morpheme is not unexpected either. If verbalization of category neutral roots happens at the VP level, and the verbalizing morphology merges as the V head, verbs like *buz-la* ‘freeze.intr’ and their causatives like *buz-la-t* ‘freeze.tr’ (see (19)) can be analyzed as in (35)-(36):

- (35) et_i [v P t_i [$Root$ buz]-[v la]] - di .
 meat ice VRBL PST.3SG
 ‘The meat froze’

(36) Alim_i [_{vP} t_i [_{VP} et-ni [_{Root} buz] [_V -la]] [_v -t]] -t_i.
 Alim meat-ACC ice -VRBL -CAUS PST.3SG
 ‘Alim froze the meat.’

(36) differs from Marantz 1997 and much further work including Pylkkänen 2002 in labelling the verbalizing head (V vs. *v*), but shares a fundamental assumption with them: vocabulary items like *buz* enter the derivation as category-neutral roots and acquire a syntactic category in the syntax. (35)-(36) is thus not a major conceptual departure from Pylkkänen’s original proposal, but they give us a significant advantage. (35)-(36) explain straightforwardly the pattern problematic for Pylkkänen: the complement of the causative element in (36) possesses sufficient structure to host the verbalizing morphology, but the whole *vP* still is a single adjunction site for temporal and rate adverbials. (See also a relevant observation in Harley (2009: 336) who indicates that the verbalizing head is really the lower V in the split-VP configuration.)

A number of problems mentioned in Section 3.1 have thus been successfully solved. Two basic types of causatives — causatives of unaccusatives and causatives of transitives/unergatives — are now analysed as in (37)-(38).

(37) [... [_{vP} [_v TYR] [_{VP} V ...]]]

(38) [... [_{vP} [_v TYR] [_{vP} *v* [_{VP} V ...]...]]]

However, the central question we started out with in Section 2 — why do (10)-(11) involve different interpretations of the causal relation — is still there. As long as the causative element has the semantics in (2), both (10) and (11) are bound to have the same causal relation between the causing and caused subevents. In the next section we will offer a possible answer to this challenging question. As we will see shortly, attempting to account for the meaning of the causal relation will lead us to a radical revision of the whole organization of the event structure, not only of causative verbs, but also of their lexical counterparts.

4. Subevents and their relations

4.1. Semantic composition

In principle, the problem of why different types of causatives are associated with different causal relations can be approached from different perspectives. One way of getting round this problem is to say that causatives of unergatives/transitives and causatives of unaccusatives merely involve distinct causal relations in the first place. In other words, the causative element in (2) is not universal after all: the derivation of causatives is based on two distinct causative morphemes:

(39) Direct causatives:

D-CAUSE: $\lambda P_{\langle s,t \rangle} \lambda e \exists e' [P(e') \wedge \text{DCAUSE}(e')(e)]$

(40) Indirect causatives:

I-CAUSE: $\lambda P_{\langle s,t \rangle} \lambda e \exists e' [P(e') \wedge \text{ICAUSE}(e')(e)]$

With (39)-(40), given appropriate definitions of DCAUSE and ICAUSE, the right semantics for causatives of unergatives/transitives in (38) will trivially be derived by applying the function in (40) to the denotation of its complement νP . The derivation of the causative of unaccusatives in (37) would then involve the function in (39). This type of analysis, however, simply reformulates the problem rather than solves it.

First, we have to stipulate a mechanism guaranteeing that (39) is only invoked to interpret the ν head that takes VP as its complement, while (40) comes into play as the denotation of the higher ν in a double νP configuration. Evidently, this move can hardly, if at all, be independently motivated. Secondly, and more significantly, the problem of uniform treatment of all occurrences of the causative TYR morpheme reappears immediately. Assuming (39)-(40) amounts to saying that we are still dealing with two distinct causative elements that happen mysteriously to be associated with the same phonological exponent. As the form-meaning correlation is a preferable theoretical option, an analysis along the lines of (39)-(40) is to be avoided, if we can make an alternative analysis work.

The solution we propose can be formulated as the following slogan:

(41) Severe subevents from relations between them.

Let us make clear what we mean by (41). One of the fundamental assumptions that virtually all semantic theories of syntactically represented event structure share (especially Pykkänen 2002, Ramchand 2008) is that subevent descriptions always show up together with their relations to a subordinate subevent. Thus, both Pykkänen and Ramchand assume that eventive heads (the CAUSE head in Pykkänen 2002, any head in Ramchand 2008 except *Res*) contribute a (sub)event and a causal relation.

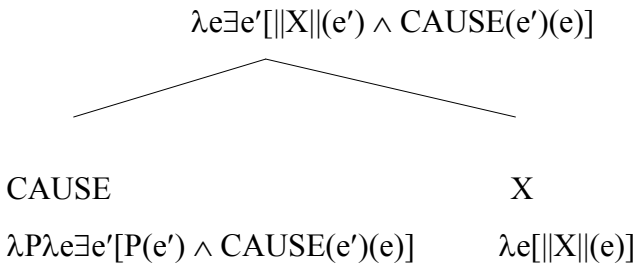
(42) a. Pykkänen 2002: $\| \text{CAUSE} \| = \lambda P \lambda e \exists e' [\underline{\text{CAUSE}}(e')(e) \wedge P(e')]$

b. Ramchand 2008: $\| \nu \| = \lambda P \lambda x \lambda e \exists e' [\underline{\nu'}(e) \wedge \text{initiator}(x)(e) \wedge e \rightarrow e' \wedge P(e')]$

where events introduced by a head are in **boldface**, embedded events are *italicized*, relations are underlined.

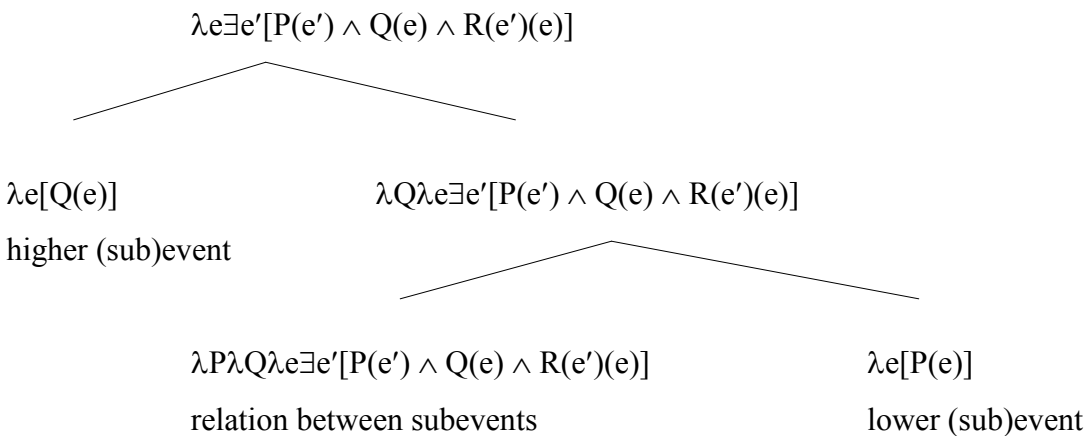
Subevents are combined as shown in (43).

(43) Combining causing and caused subevents:



We propose instead that subevents and their relations to other subevent are introduced independently, as in (44):

(44) Proposed structure (first approximation; to be refined below):



This architecture allows us to derive right semantics for different types of causatives in languages like Karachay-Balkar. We will show how this works shortly, but first a brief discussion of (44) is due.

4.2. Aktionsart heads

The idea that subevents can be represented independently of their relations is not completely new. In the literature one can find a few proposals closely related to the one we are putting forward here. Kratzer (2005) suggests that in resultative configurations (e.g., (45a)) result XPs ('teapot empty') are related to events denoted by the verb ('drink') by a derivational morpheme that bears the [cause] feature.

- (45) a. John drank the teapot empty.
 b. [Voice [V [CAUSE [XP]]]]

Extending Kratzer (2005), Alexiadou *et al.* (2006) argue that any result states, not only those realized as an overt XP, are related to events that bring them about by the causative morpheme. Any verbal predicate that contains the result state is syntactically decomposed into three heads, as in (46):

(46) [Voice[CAUSE [Root]]]

In Alexiadou *et al.*'s system, CAUSE introduces a causal relation between a causing event and the resultant state denoted by the verbal root. Unlike in Pylkkänen 2002, CAUSE is supposed to be present in the structure of any predicates containing the result state in their semantic representation, not only in the structure of causatives. Voice is responsible for introducing the external argument and bears features relating to agentivity and manner.

Our proposal in (44) can be conceived of as a further generalization of Kratzer's and Alexiadou *et al.*'s analyses: we suggest that any subevents in the syntactically represented event structure are related by an Aktionsart morpheme located in between eventive heads. We argue that grammars of natural languages are endowed with different inventories of such derivational morphemes and that their distribution is subject to cross-linguistic variation along different dimensions (Tatevosov and Lyutikova, to appear). The function of these morphemes is to introduce different types of relations between subevents which the event structure consists of. Relations, we argue, are to be recognized as pieces of structure of the very same nature as a lot of other structure building and structure-changing derivational devices available in natural languages. Derivational morphemes like semelfactives extract atoms out of a certain type of activities. Derivational morphemes like inchoatives map events to other events where the former come to existence. Derivational morphemes we are interested in introduce specific ways in which events are brought about.

This view, called radical predicate decomposition in Tatevosov and Lyutikova (to appear), contrasts with many other approaches where the burden of identifying the type of relation between subevents is imposed on some external mechanism. Ramchand (this volume) argues that directness of causation is not manifested in the grammar. In her analysis of Hindi/Urdu causatives, it is fully epiphenomenal of how the event structure is lexicalized: "For a result subevent to be interpreted *obligatorily* as 'directly caused' by a process, the same root must identify both the 'process' and the 'result' subevents". We will briefly mention how our analysis can handle Hindi/Urdu data in Section 5. For the moment, we want to briefly mention one non-trivial prediction of the two types of approaches. If relations between subevents are derivational morphemes, we expect their distribution to be constrained in the ways characteristic of derivational morphemes. We should not be surprised if some of them exhibit different selectional properties than others, and are spelled-out in different ways (Lyutikova, Tatevosov, to

appear). This is not what we expect if directness of causation is a by-product of the lexicalization pattern, since such patterns cannot have any morphosyntactic distribution on their own. We believe that causativization facts from Balkar lend support to the view advocated in this paper, and that this view is at least compatible with Hindi/Urdu facts.

We assume, in the spirit of Ramchand 2008, that an articulated event structure generated at the *vP* level can contain up to three subevents, agent's activity in *v*, process in the theme in *V*, and result state in *R*. In addition, there are Aktionsart elements in between the subevents, which yields a hierarchy of projections in (47).

(47) [_{vP} ... *v* [_{AktionsartP} ... Aktionsart [_{VP} ... *V* [_{AktionsartP} ... Aktionsart [_{RP} ... *R* ...]]]]]

We propose that semantically, eventive heads *v*, *V*, and *R* introduce descriptive properties of (sub)events, while Aktionsart heads specify relations between them. We will elaborate on this shortly. Note at the moment that the term “Aktionsart” does not presuppose any particular theoretical view of what Aktionsart in natural languages is. It is merely a convenient label reflecting an intuition that these elements create a particular event type out of subevental ingredients.

Syntactically, the lower Aktionsart can be conceived of as identical to Kratzer's (2005) and Alexiadou et al's (2006) CAUSE head, and in what follows we do not have to say much about this head. As for the Aktionsart located in between *v* and *V* in (47), which is crucial for our purposes, in the literature one can find a number of proposals independently motivating the existence of a functional projection in this position. Harley (1995) assumes the AgrO head responsible for the assignment of case to the object and for the checking of objective agreement features. Also, AgrO is supposed to be a landing site for the movement in ECM configurations (see also Fujita 1993, 1996 for the analysis of the causative involving AgrO). Bowers (2002) locates his Tr head in the same position that makes a crucial contribution to the derivation of transitive and impersonal clauses. Travis (2000, 2005, 2010) suggests that *v* and *V* are mediated by the (inner) Asp. Comparing and evaluating these proposals goes far beyond the scope of this paper. We believe that what we say about semantic and syntactic characteristics of our Aktionsart head is at least compatible with essential aspects of these theories.

Thus, for instance, a clear connection between Bowers' Tr head and Aktionsart proposed here is through the event structure. Aktionsart establishes a relation between subevents introduced by *v* and *V* (see (44)) and in this way determines a subevental makeup of the whole event structure. To the extent that transitives and impersonals, which are one of the testing areas for Bowers' theory, are each associated with a unique subevental configuration, different types of Tr can be reconstructed through different types of Aktionsart. The accusative-checking capacity attributed to Tr (and to AgrO in other theories) can be naturally ascribed to Aktionsart, too: establishing a relation between a subevent

detoted by the VP and a subevent introduced by ν , Aktionsart determines transitivity of the whole structure, hence the case of the internal argument.

The closest structural analogue of our Aktionsart, however, is Travis' (2000, 2006, 2010) inner Asp projection which is thought of as a place where the eventuality type of the complex verbal predicate is computed: "ASP is the point, Travis (2010: 117) indicates, where the culmination of Moens and the BECOME of Dowty will be encoded". Travis' V_1 (= ν in (47)) and V_2 (= V in (47)) heads are responsible for representing the preparatory process and consequent state, respectively. Needless to say, this characterization highlights the relational nature of Asp, which is thought of as providing a link between the activity part and the rest of a complex event description. Elaborating on this idea, Travis (2006: 118 *et seq.*) makes clear that the labor of building up the event structure is divided between different structural positions: in her system, the V_1 (= ν) head identifies an eventuality as \pm process, and in AspP, the telicity of the predicate is computed. As will be made clear shortly, when our semantics for Aktionsart heads is presented, the theory we are assuming is much in the spirit of this proposal, although its implementation is different. We will argue that the ν head introduces a causing process, and Aktionsart specifies how this process is related to a caused process. Therefore, our Aktionsart contributes to the computation of telicity indirectly, through the semantic derivation of a complex verbal predicate with a certain properties, rather than through direct specification of the [\pm telic] feature, as in Travis' system.⁷ If (47) is an elaborated version of syntactically represented event structure at the ν P level, then a configuration consisting of two ν Ps, which, by hypothesis, underlies causatives of transitives and unergatives (see (38)), would have an analysis in (48):

(48) [ν P ... ν [$Aktionsart$ P ... Aktionsart [ν P ... ν [$Aktionsart$ P ... Aktionsart [ν P ...]]]]]

In (48) two ν heads are "mediated" by Aktionsart in a similar way as in (47), where Aktionsart occurs in between ν and V . Again, this structure resembles the one proposed by Travis (2010) whereby the

⁷ It is somewhat less clear to what extent the relational semantics of the Aktionsart projection conforms with another ingredient of Travis' system. Travis (2000, 2010) and Duffield (this volume) argue that [Spec, Asp] is a position where inadvertent causes (as opposed to plain causers/agents) are merged (e.g., *The flowers make the house beautiful*). If the Aktionsart head invariably introduces a relation between events, we expect that an individual argument occurring in its specifier would render the structure uninterpretable for type reasons. Tentatively, we can hypothesize that Aktionsart morphemes can have deficient counterparts. They do not take a subevent description as one of its arguments, as in (44), but establish a relation to particulars, e.g., $\lambda P\lambda x\lambda e'[P(e') \wedge R(e')(x)]$. In this case, the application of the Aktionsart morpheme does not increase event-structural complexity, and the relation in question is reduced essentially to a thematic relation. We leave elaboration of this idea for another occasion.

event-introducing head (Event, in her terminology) must always take an AspP complement, yielding the “Event — Asp — Event — Asp — ... ” configuration for causatives of transitives.

Before proceeding to the detailed analysis of the causativization facts from Sections 2-3, we have to look at a wider set of phenomena. In the next section we examine intricate interactions between the semantics of causation and another component of the meaning of the verbal predicate, namely, the manner specification. Generalizations derived from this type of phenomena will provide an important evidence supporting the analysis in (44). Besides, these generalizations will reveal significant constraints on how the meaning of causatives is organized and open a way of addressing it from a wider perspective.

4.3. Two dimensions of meaning

Our central claim in this paper is that subevents are represented independently from their relations to other subevents, as in (44). What kind of evidence can we present to support this claim? One can have a good reason to believe that two entities are conceptually and representationally independent if these entities *vary* independently. And the crucial generalization we want to establish in this section is that characteristics of (sub)events and of their relations to other (sub)events do in fact vary independently. Two basic parameters of variation are the specification of descriptive properties of subevents, or *manner specification*, and *the semantic type of the relation* between subevents. This generalization provides an essential argument for the suggestion that subevents are to be separated from their relations, on the one hand, and allows us to identify significant restrictions on the semantic makeup of causatives, both direct and indirect, on the other.

To begin with, let us consider lexical transitive verbs. Extensive work by Beth Levin and Malka Rappaport Hovav (Levin 1993, Levin, Rappaport Hovav 1995, Rappaport Hovav, Levin 1998, 2010, etc.) has established that such verbs differ as to whether they positively specify the manner of action or its result (see also Haspelmath 1993:94, Hale, Keyser 1993:90-93, and Harley 2005: 60-64 for related observations). Verbs like *eat*, *write*, *wipe* define descriptive properties of the activity whereas verbs like *break*, *open*, etc., only fix properties of the result state. The way this state is attained is left underspecified. The manner specification parameter is informally represented in (49).

(49) Manner specification:

- a. +manner: the descriptive properties of the causing (sub)event are specified.
- b. -manner: the descriptive properties of the causing (sub)event are not specified.

Independently, verbal predicates differ in how subevents in their denotation are related. The three relations we explore in the present paper are INCR(emental), CAUSING and CAUSE in (50):

(50) Relations between subevents

- a. **INCR**: (sub)events are related incrementally; agent's activity and the change of state of the theme are temporally co-extensive.
- b. **CAUSING**: activity (sub)event is an immediate cause of a process (sub)event; no intermediate causes are available; the change of state can occur at the final part of the activity.
- c. **CAUSE**: one (sub)event is casually dependent on another; intermediate causes are available.

Within complex verbal predicates created by lexical transitive verbs one only finds the former two, INCR and CAUSING (our explanation for why they are never based on the CAUSE relation will wait until Section 5). Let us take a closer look at these relations, therefore.

An example of a predicate based on the incremental relation is *read a novel*. When one reads a novel, every part of the reading activity corresponds to some part of the process of getting read, and *vice versa*, and related parts of these subevents have identical running times. This relation, which thus involves a one-to-one correspondence between parts of the activity and parts of the process, is discussed in great detail in Rothstein 2004⁸.

The causing relation characterizes predicates like *break the window*, whereby the activity subevent is an immediate cause of the window's getting broken but the temporal progress of the activity need not (and in many cases cannot) correspond to that of a caused change of state: in general, these two subevents are not temporally co-extensive. (As we saw in Section 3.1, this relation is entailed by causatives of unaccusatives like *sindir* 'break' in (23a) as well.)

Crucially, the semantic type of the relation between subevents cannot be generally predicted from the manner specification. Nor does, the other way round, the relation between subevents determine whether the manner of action is specified or not. Thus, among incremental predicates we find not only those specified for manner (e.g., *eat a sandwich*, *read a novel*, etc.) but also those for which the manner is underspecified (e.g. *assemble a model*). Besides, predicates based on the CAUSING relation fall into the same two groups as to the manner specification. While *break the window*, *open the door*, etc., paradigmatic examples of Rappaport Hovav, Levin's result verbs, are not specified for manner, predicates like *curse* clearly are: they entail a specific type of agent's (verbal) activity and easily admit activity uses, as in (51a). On transitive accomplishment uses, as in (51b), however, before the activity

⁸ Note that the incremental relation on events à la Rothstein 2004 is to be kept distinct from incremental thematic relations, e.g., the incremental theme/gradual patient in Krifka 1989, 1992, 1998. The latter are relations between individuals and events, not between two events. See Tatevosov, Ivanov 2009 for the discussion of why the event-to-event incrementality cannot generally be reconstructed in terms of the incremental theme.

is completely performed, the theme retains its initial state, hence the relation between activity and change of state is not INCR, but CAUSING.

- (51) a. I stood beside him while he cursed at the keys and thumped the side window. [BNC]
 b. I remember a friend of mine whose father had cursed him. [BNC]

Another example is the verb *cut*: it is positively specified for the manner (e.g., Nash 2006), but it is not the case that the process in the theme must unfold in parallel with the cutting activity: in *cut the thread* or *cut the tree* the thread/tree is not cut until the minimal final part of the activity⁹. (See Levin, Rappaport Hovav 2010 for a different account of English *cut*.) The four options are summarized in Table 1.

Table 1. Dimensions of meaning of non-derived transitive verbs.

	+manner	-manner
INCR	‘read a novel’	‘assemble the model’
CAUSING	‘curse one’s enemy’	‘break the window’

Assuming that subevents are represented independently from their relations provides a principled explanation for this variation, since what we see in Table 1 is a Cartesian product of the two sets of semantic characteristics, {INCR, CAUSING} and {+manner, -manner}. This is one of the most significant pieces of evidence supporting our analysis in (44).

With this in mind, let us look at parameters of the meaning of causatives. In general, causatives differ from lexical verbs both in terms of manner specification and of the relation between subevents. We have already seen that causatives show two types of relations, those of direct and (possibly) indirect causation, CAUSING and CAUSE in (50b-c). While causatives of unaccusatives are based on the CAUSING relation, in case of causatives of transitives and unergatives, as we saw earlier in (10)-(11), subevents are less tightly connected: not only are their running times distinct, but one subevent needs not to be an immediate cause of the other. Furthermore, the CAUSE relation informally defined in (50c) is unique to causatives: lexical verbs, as the extensive body of work on lexical semantics teaches us, do not admit indirect causation.

⁹ Languages other than English provide more examples of this type. In Russian, for instance, verbs like *ugovorit* ‘convince’ entail that the agent performs a specific talking activity (*ugovorit* ‘convince’ is derivationally related to ‘talk, speak’), but again, the whole change of state subevent can occur at the very final part of this activity, hence should be analyzed in terms of CAUSING rather than INCR.

Another thing that separates lexical transitive verbs from causatives is that causatives are never associated with the incremental relation. To the best of our knowledge, the latter observation has not been made in the literature on causativization, yet its significance is difficult to overestimate. Whatever causative predicate we take, we find that its meaning does not entail temporal co-extensiveness of causing and caused subevents. Take *sindir* ‘break-CAUS’ from (24a) as an example again. This causative is compatible with scenarios where the change of state of the theme occurs at the final part of the agent’s activity: it is not the case that every part of the activity necessarily brings about some part of the toy’s getting broken and *vice versa*.

As for the manner specification, in languages like Karachay-Balkar, causatives never supply the descriptive content of the causing subevent, as has been recognized in the literature at least since Shibatani 1973:330-331. This is true of both direct and indirect causatives: they allow for a wide variety of activities to be associated with the causing subevent, and the precise nature of the activity can only be recovered from the context (cf. Bjerre 2001). This is further evidenced by the fact that both types of causatives readily accept manner specifying adjuncts.

(52) alim illew-nü söz-üp || ur-up sin-dir-di.
 Alim toy-ACC throw-CONV hit-CONV break-CAUS-PST.3SG
 ‘Alim broke the toy by throwing || hitting it’.

(53) ustaz alim-ni telefon bla söleş-ip ||
 teacher Alim-ACC telephone with speak-CONV
 qaşıt zaz-ip erişiü-le-de cap-tır-di.
 letter write-CONV competition-PL-LOC run-CAUS-PST.3SG
 ‘The teacher made Alim run at the competition by making a phone call || by writing a note.’

Semantic characteristics of causatives are summarized in Table 2.

Table 2. Dimensions of meaning of causatives

	+manner	-manner
CAUSING	—	causatives of unaccusatives
CAUSE	—	causatives of transitives and unergatives

Merging data from Tables 1 and 2 into Table 3 reveals one area of overlap: [-manner] predicates based on the CAUSING relation. These are lexical result verbs and causatives of unaccusatives.

Table 3. Manner specification vis-à-vis the type of relation between subevents.

	+manner	-manner
INCR	‘read a novel’	‘assemble a model’
CAUSING	‘curse an enemy’	‘break the window’, causatives of unaccusatives
CAUSE	—	causatives of transitives and unergatives

We have already seen in Section 3.1 that these types of predicates are strictly parallel semantically and syntactically, and this is what one can expect given that both dimensions of their meaning are identical. Note as well that “CAUSING -manner” causatives are exactly the type referred to in the literature as “lexical causatives”, the term reflecting their perceived similarity to a specific kind of lexical transitives.

Now the causativization phenomena we are interested in is integrated into a bigger picture enriched by our new observations: causatives are underspecified for manner, and cannot be based on the incremental relation. Lexical verbs, in contrast, can be specified for manner, and exclude the relation of indirect causation. As we will see in a moment, this bigger picture provides us with all we need to answer our central question: why do causatives of unaccusatives involve direct causation, and causatives of transitives and unergatives indirect causation. In what follows we develop a formal system based on the assumptions in (49)-(50) that derives all possible combinations of properties in Tables 1-3, and from this system, characteristics of causatives fall out as a special case.

5. The formal system

The analysis we propose in this section consists of the following components: semantics for relations between subevents in (50), which, by hypothesis (see (47)-(48)), are syntactically represented as Aktionsart morphemes, semantics of manner specification, which is part of the denotation of the v head, inventory of vocabulary items inserted into terminal nodes of the syntactic tree, and the mechanism of spellout of the structure, which we adopt from the Distributed Morphology theory.

5.1. Semantics for Aktionsart morphemes

We start by providing semantics for the three relations between subevents in (54):

- (54) a. $\| \text{CAUSE}(e')(e) \| = 1$ iff e' depends causally on e , that is, e' would not have occurred if e had not.
 b. $\| \text{CAUSING}(e')(e) \| = 1$ iff e is an event of causing e' , that is, e is the sum of all the members of some causal chain with maximal element e' (Kratzer 2005).

$$c. \parallel \text{INCR}(e')(e) \parallel = 1 \text{ iff } \text{CAUSING}(e')(e) \wedge \text{MSbSE}(\text{CAUSING}) \wedge \text{MSoSE}(\text{CAUSING})$$

We suggest that CAUSE, the relation of not necessarily immediate causation, can be reduced to a general relation of causal dependence. Following the tradition going back to Lewis 1973, we assume a counterfactual definition of causal dependence. (We do not provide details of Lewis' original definition; for our purposes, its quasi-formal paraphrase in (54a) will suffice. See Kistler (this volume) for alternative conceptions of causation.) What is of significance is that if e' is causally dependent on e , e need not be an immediate cause of e' (Dowty 1979, Kratzer 2005): intermediate causes are possible in between two eventualities.

In contrast, the way the CAUSING relation adopted from Kratzer 2005 is defined guarantees that no intermediate causes can intervene between e and e' , since e contains all the members of the causal chain including e' itself.

Relying on the CAUSING relation in (54b), we define the INCR(emental) relation in the following way. Events e and e' are incrementally related iff e is a causing of e' and the CAUSING relation satisfies two additional conditions we call Mapping to subordinate subevents with temporal coincidence (MSbSE) and Mapping to superordinate subevents with temporal coincidence (MSoSE):

(55) The relation R on events is a mapping to subordinate subevents with temporal coincidence, MSbSE(R), iff

$$\forall e \forall e' \forall e'' [R(e')(e) \wedge e'' < e \rightarrow \exists e''' [e''' < e' \wedge R(e''')(e'') \wedge \tau(e''') = \tau(e'')]]$$

(56) The relation R on events is a mapping to superordinate subevents with temporal coincidence, MSoSE(R), iff

$$\forall e \forall e' \forall e'' [R(e')(e) \wedge e'' < e' \rightarrow \exists e''' [e''' < e \wedge R(e'')(e''') \wedge \tau(e''') = \tau(e'')]]$$

What we get is a special type of immediate causation whereby two eventualities are causally related down to their proper parts and temporally co-extensive: by (55), any part of the causing eventuality has to bring about some temporally co-extensive part of the caused eventuality, and by (56), any part of the caused eventuality is to be brought about by some temporally co-extensive part of the causing eventuality. A significant property of the system of relations in (54) is worth noting at this point: the INCR relation is a subset of the CAUSING relation, which is in turn a subset of the CAUSE relation. It follows from the definitions in (54b) and (54c) that if e is incrementally related to e' , then e is a causing of e' , and definitions in (54a) and (54b) guarantee that if e is a causing of e' , then e' depends causally on e . Therefore, the entailment pattern in (57) obtains:

(57) $\text{INCR}(e')(e) \rightarrow \text{CAUSING}(e')(e) \rightarrow \text{CAUSE}(e')(e)$

INCR is thus the most specific, and CAUSE is the most general causal relation. As we will see shortly, these subset-superset relations mirror constraints on the spellout of Aktionsart heads.

The INCR relation (as opposed to the more general CAUSE relation) is comparable but not identical to Shibatani's (1975) controlled causation. For Shibatani, the defining property of the latter is a control that the causer exercises over the development of the event. The definition in (54c)-(56) is different.

First, INCR is defined as a relation on events, which does not make any reference to the causer; secondly, it does not rely on the notion of control, hence, unlike controlled causation, covers processes incrementally caused by natural forces and other inanimate entities. Talmy's (2000) extent-durational causation seems to better approximate what we mean by the INCR relation. Commenting on the example *The carton slid across the grass from the wind blowing on it*, Talmy (2000: 491) indicates that extent-durational causation obtains if "the Figure's tendency to rest is continuous through an extent of time, potentially realizable at any point thereof; and the instrumental force's overcoming of this tendency is also continuous through that extent of time, manifest at every point thereof".

With the semantics for CAUSE, CAUSING and INCR relations established, we can focus on the content of the heads that introduce subevent descriptions. In the next section, we discuss mechanisms of interpretation of v and other eventive heads.¹⁰

5.2. Semantics for v

So far we have developed a semantic analysis of Aktionsart heads. Now we are in a position of specifying semantic representation of eventive heads, those related by Aktionsart heads. In Section 4.1, we have assumed a system in which event predicates are decomposed into three components (activity, process and result state), and, with Ramchand 2008, suggested that these components come out as denotations of v , V and R(esult) heads, respectively, see (47). Ramchand's semantics for v , V, and R heads (*init*, *proc*, and *res* heads in her original terminology), slightly simplified, is given in (58)¹¹:

¹⁰ Copley and Harley (this volume) develop a force-dynamic treatment of events that makes causal relations superfluous. In their system, the denotation of v P's 'X break Y' would be a predicate of *forces* of type $\langle\langle s, s \rangle, t \rangle$ where forces are functions from situations to situations of type $\langle s, s \rangle$. The v P contains a state description 'Y broken' (of type $\langle s, t \rangle$) which is conceived of as the final state of the force introduced by v (of type $\langle\langle s, t \rangle, \langle e, \langle\langle s, s \rangle, t \rangle \rangle \rangle$). While this treatment is very appealing in providing a new way of thinking about the progressive, non-culminating accomplishments, frustratives and related phenomena, how the distinction between direct and indirect causation should be reconstructed with this framework remains to be seen.

¹¹ We remain agnostic as to whether inchoative/unaccusative verbs like intransitive *break* or *open* project a v_{BECOME} "flavor" of the v head, or there is no v P projection at all. Ramchand (2008) opts for the latter possibility. On the other hand, Harley

- (58) a. $\| \nu \| = \lambda P \lambda x \lambda e \exists e_1 [v'(e) \wedge \text{Agent}(x)(e) \wedge e \rightarrow e_1 \wedge P(e_1)]$
 b. $\| V \| = \lambda P \lambda x \lambda e \exists e_1 [V'(e) \wedge \text{Theme}(x)(e) \wedge e \rightarrow e_1 \wedge P(e_1)]$
 c. $\| R \| = \lambda x \lambda s [R'(s) \wedge \text{Resultee}(x)(s)]$

What we propose differs from Ramchand's (2008) theory in a few respects. Since the relations between subevents are introduced by Aktionsart morphemes, they are not part of the denotation of eventive heads. Therefore, our semantics for R is identical to (58c), since, being the most embedded head, it is not endowed with any relation to begin with. The V head does not contain the "e → e₁ ∧ P(e₁)" part of (58b) and does not take an event predicate as its first argument. Therefore, V is of the same logical type <e, <s,t>> as R: it is interpreted as a relation between individuals and events $\lambda x \lambda e [V'(e) \wedge \text{Theme}(x)(e)]$

Our analysis of the semantic contribution of ν is a more significant departure from Ramchand 2008. First, we follow Pylkkänen 2002, Kratzer 1996 and Marantz 1997 in assuming that external arguments are introduced by Voice rather than by ν itself. Secondly, we suggest that the semantics for ν has to accommodate the [+/- manner] distinction, since, as we saw earlier, verbal predicates differ as to whether they specify descriptive properties of the activity subevent, and it is a non-accidental property of causatives that they are invariably [-manner]. We propose that [+/- manner] reflects distinct mechanisms of interpretation of the ν head, a locus of the activity subevent:

(59) Semantics for ν

- a. $\| \nu_{+MANNER} \| = \lambda e [v'(e) \wedge \text{Process}(e)]$
 b. $\| \nu_{-MANNER} \| = \lambda e [Q_\nu(e) \wedge \text{Process}(e)]$

where v' is an event predicate specified in the Encyclopedia that yields descriptive properties of the activity subevent; Q_ν is a free variable over event predicates of type <s,t>.

(1995), Folli, Harley (2005, 2007) and Travis (2005), among others, argue that causative-inchoative alternation phenomena are best accounted for if one does assume ν_{BECOME} . Chierchia (2004) sets out semantic arguments that inchoatives are inherently causative, which amounts to the claim that the decompositional structure for such verbs must contain νP . Alexiadou and Anagnostopoulou 2004, Alexiadou et al. 2006, Alexiadou 2010 rely on cross-linguistic evidence to establish the claim that the inchoative can come, in fact, in both varieties. In our line of argument nothing forces us to take a specific stand on the issue; presumably, our account is compatible (possibly, with minor adjustments) with either alternative. See also the discussion of cross-linguistic data in Section 6.3.

Whereas [+manner] predicates involve v with a fixed, context independent interpretation, [-manner] verbs are based on v interpreted relative to the context.¹² Technically, we suggest that for [+manner] verbs the semantic representation assigned to a head in the Encyclopedia contains a constant of type $\langle s, t \rangle$, that is, a predicate over events with a fixed interpretation. In contrast, in case of [-manner] verbs, the semantic representation assigned to a head contains a free variable over event predicates interpreted by the assignment function; interpretation of this predicate is thus made context-dependent¹³. We believe that here world knowledge starts playing a crucial role, since it is this knowledge that gives content to Q_v , hence narrows down a potentially unrestricted set of causing processes.

5.3. Vocabulary items

So far we have been discussing semantic interpretation of various components of the event structure. Now we have to make clear how different pieces of structure fit together, how they are realized morphosyntactically, and how the spellout mechanism works. We assume a Distributed Morphology view of the architecture of grammar (Halle, Marantz 1993 and much further work) based on Late Insertion and Underspecification. On this view, the spellout is essentially an insertion of Vocabulary Items into morphemes, terminal nodes in the syntactic tree. A Vocabulary Item is inserted into a morpheme if it is specified for a subset of morphosyntactic features of that morpheme. This means that

¹² In their recent (2010) article, Rappaport Hovav and Levin propose a different view of the manner parameter. The notion of manner, they argue, can be reduced to the non-scalar change: “What we have called manner verbs are verbs that lexicalize non-scalar changes which are complex in this sense. That is, manner verbs do not lexicalize a scalar change” (Rappaport Hovav, Levin 2010: 32-33). We are not trying to build this idea into the semantics in (59). Presumably, we can get the correct result if (59a) is endowed by a meaning postulate saying that events in the extension of v' are not ordered by any relation on any scale that can be meaningfully associated with events of the event type in question. At any rate, it should be pointed out that the system we are developing here offers an elegant treatment of the data potentially problematic for Rappaport Hovav and Levin’s new understanding of manner. Arguing that the non-scalar change underlies semantics of manner predicates, they only cite verbs like *jog* and *waltz*. A question immediately arises whether what they say can be extended to *write (a letter)*, *paint (the wall)* and other incremental predicates that specify a manner of action, but do apparently describe a gradable change related to the spatial extent of the theme. Separating subevents and their relations enables us to suggest that the apparent gradability of such predicates comes from the INCR relation, not from the activity subevent description. The description as such is non-scalar — exactly as Rappaport Hovav and Levin suggest.

¹³ A possible alternative to (59b) would be (i), in which [-manner] verbs lack descriptive content altogether, only being specified as non-stative:

(i) $\| v_{\text{-MANNER}} \| = \lambda e[\text{Process}(e)]$

The reason why we do not believe that (i) captures the meaning of the [-manner] verbs, e.g., *wake up* in *John woke Bill up* adequately that, intuitively, it is not the case that this sentence refers to *any* (non-stative) event that causes Bill’s being awake. Rather, it is an event that does have a certain descriptive properties, but we only know what these properties are from the context and world knowledge.

more than one Vocabulary Item can be a candidate for insertion, and according to Underspecification, the candidate specified for more relevant features wins.

What we need at this point are, first, the list of features involved in the derivation at the vP level, and, secondly, Vocabulary Items that realize Aktionsart and v morphemes. We suggest that the complete specification of event structure can be reduced to different configurations of features specified on the V head. The features we assume are listed in (60).

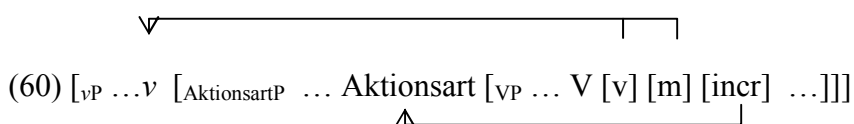
- (60) Verb features: [v]
 [incr(emental)]
 [m(anner)]

The [v] feature determines if V occurs in a transitive or an unaccusative configuration; it can be thought of as roughly corresponding to Alexiadou *et al.*'s (2006) "externally caused property". We assume that [m] and [incr] features are subordinate to [v] in a sense that V can only be specified as [incr] and / or [m] if it bears the [v] feature. This assumption captures the intuition that if V does not "know" that a subevent it introduces must be externally caused, it cannot "foresee" properties of the causing event, neither its manner, nor the incrementality. So characteristics like incrementality and manner specification only meaningfully apply to V, if V enters a transitive configuration in which v introduces a causing subevent. The [incr] and [m] features are not hierarchically related, and all the four logically possible combinations of them ($\{\emptyset\}$, {[m]}, {[incr]}, {[m], [incr]}) are allowed for [v] V's. This predicts precisely those combinations of incrementality and manner specification we have observed in Table 1, repeated with minor adjustments as Table 4.

Table 4. Incrementality and manner specification

	+manner	-manner
incremental	'read a novel'	'assemble the model'
non-incremental	'curse one's enemy'	'break the window'

The feature setting of the V head contributes to the spellout and interpretation of the event structure in two ways, by specifying characteristics of Aktionsart and by identifying an appropriate type of v , as represented in (60):



We suggest that the insertion of Aktionsart Vocabulary Items is determined by features of V, the head of the complement of Aktionsart in (47), as shown in (61).

(61) Vocabulary items that compete to realize Aktionsart

- a. INCR: $\emptyset \leftrightarrow$ AKTIONSART / [_{AktP} ____ [_{VP} ... V_[incr]]] Interpretation: INCR in (54c)
- b. CAUSING: $\emptyset \leftrightarrow$ AKTIONSART / [_{AktP} ____ [_{VP} ... V ____]] Interpretation: CAUSING in (54b)
- c. CAUSE: $\emptyset \leftrightarrow$ AKTIONSART / Elsewhere Interpretation: CAUSE in (54a)

In (61), Aktionsart Vocabulary Items are phonologically null elements that are inserted into the Aktionsart morpheme subject to two conditions: whether there is the V head in the local configuration and whether this head is specified as [incr]. The INCR item gets inserted into the Aktionsart morpheme if V in its complement bears the [incr] feature; as we saw earlier, this type of Aktionsart is interpreted by the INCR relation. The CAUSING item requires that there be a V head in its complement, and CAUSE is a default item inserted if conditions for INCR and CAUSING are not met. This only happens if Aktionsart takes a vP complement; if the complement is VP, CAUSE always loses to CAUSING and/or INCR. We believe that a significant advantage of this analysis of Aktionsart Vocabulary Items is that it achieves a perfect match between semantic interpretation of Aktionsart and its morphological realization. Aktionsart that bears the INCR relation, the most specific relation among INCR, CAUSING, and CAUSE, is associated with the most specific conditions on Vocabulary Insertion. The other way round, the least specific semantic relation, CAUSE, is treated as an Elsewhere case, the CAUSING Aktionsart having an intermediate status. (Note that this result can be thought of as an independently motivated reconstruction of Ritter and Rosen’s (1993: 534 et seq.) generalizations about *have* and *make* causatives in English. In their system, the “distance” between the causative element, *have* or *make*, and V reflects the directness of causation: *have* takes a VP complement yielding what they call “one-event” causatives, whereas *make*, separated from V by I, creates “two-event” causatives.)

Vocabulary Items that compete to realize *v* are listed in (62).

(62) Vocabulary items that compete to realize *v*

- a. $\emptyset_{+MANNER} \leftrightarrow v / [v \text{ ____ } [_{AktP} \dots [_{VP} \dots V_{[v][m]}]]]$ Interpretation: (59a)
- b. $\emptyset_{-MANNER} \leftrightarrow v / [v \text{ ____ } [_{AktP} \dots [_{VP} \dots V_{[v]}]]]$ Interpretation: (59b)
- c. TYR $\leftrightarrow v /$ Elsewhere Interpretation: (59b)

The basic idea underlying the system of items in (62) is: the *v* is spelled out as TYR, “the causative marker” in the traditional terminology, if there is no V specified as [v] in a sufficiently local

configuration. The crucial question here is of course what it means that V is “sufficiently local” to *v*. As (62a-b) indicate, we suggest the relevant configuration involves not immediately adjacent heads, but rather heads separated by exactly one Aktionsart head. This configuration is local in a sense that such heads create a minimal complete piece of complex event structure, that is, two subevents connected by a particular relation.

Given (62a-c), we have two special cases where TYR is called for to spell-out *v*. First, *v* and V are separated by exactly one Aktionsart head, that is, are sufficiently local, but V does not bear the [v] feature. What this means is that V by itself does not license projection of transitive *v*P, hence needs to be “causativized” to do so. Another case obtains if *v* and V are not local, with more than one Aktionsart being located in between. If this happens, TYR, according to (62c), spells out *v* no matter what featural content of V is. Essentially, this view reflects the intuition that the event structure is built monotonically. Neither spellout nor interpretation of *v* can be sensitive to properties of V if V is “too far”, that is, is separated from *v* by additional subevental material.

Besides, conditions on the insertion of Vocabulary Items in (62) include the [m] feature on V guaranteeing that $\emptyset_{+MANNER}$ can only spell out *v* if the “sufficiently local” V is specified as [m]. The reason why causatives are always interpreted as lacking positive descriptive properties of the activity (see Table 2), that is, as -manner, becomes now clear. The V head can only say something about characteristics of the activity subevent in *v*, if it needs this subevent for building a well-formed event structure in the first place. We capture this by saying that V is specified as [m] only if it is specified as [v] as well. Since, by (62c), causativization happens if there is no local V that bears the [v] feature, causativization and manner specification are mutually exclusive.

With these ingredients, we have everything we need to provide derivations of relevant types of event structures, to determine their semantic interpretation and in this way to solve causativization puzzles discussed in Section 2.

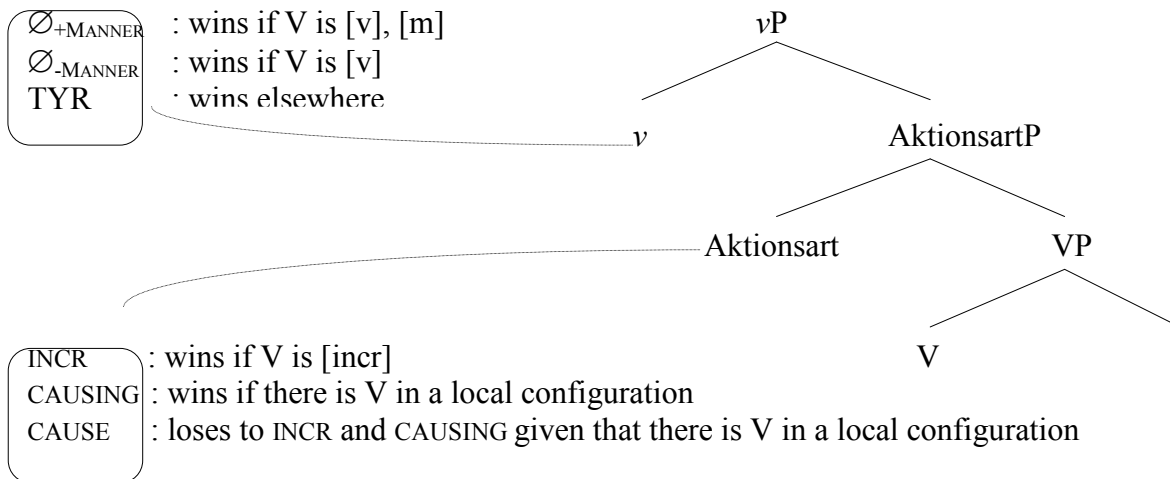
6. Deriving causative configurations

6.1. Putting ingredients together

Let us see what the analysis developed in the previous section predicts as to the structure and interpretation of two types of configurations discussed above, that is, *v*P dominating VP and *v*P dominating another *v*P. As was discussed in Section 3, these two types of structure correspond to causatives of unaccusatives, on the one hand, and to causatives of unergatives and transitives, on the other.

The scheme in (63) illustrates how the Vocabulary Insertion works in the former case.

(63) *v* – Aktionsart – V configuration: manner verbs, result verbs, causatives of unaccusatives



Of three candidates for insertion into the Aktionsart morpheme, one, CAUSE, always loses, according to (62a-c), to the other two, INCR and CAUSING, since the complement of Aktionsart is VP. The choice between INCR and CAUSING is determined by the [incr] feature on V: if the verb is [incr], INCR wins, otherwise it is not a suitable candidate for insertion and Aktionsart is spelled out by CAUSING.

A winning candidate for insertion into the *v* node is determined by two features, [v] and [m]. If the verb is not specified as [v], the elsewhere TYR Vocabulary Item is the only candidate, and what we get is a “causative verb”. Assuming that it is the class of unaccusatives that lack [v], we predict, correctly, that for such verbs the only way of building a transitive configuration is causativization. The specification of [v] on V signals that the verb is capable of projecting *v*P by itself, and the basic choice in that case has to do with the manner specification. The [m] feature makes $\emptyset_{+MANNER}$ a winning candidate, while its absence leaves us with $\emptyset_{-MANNER}$ as a realization of *v*.

Given these assumptions, the analysis predicts the following types of transitive *v*Ps:

Table 5. Transitive *v*Ps

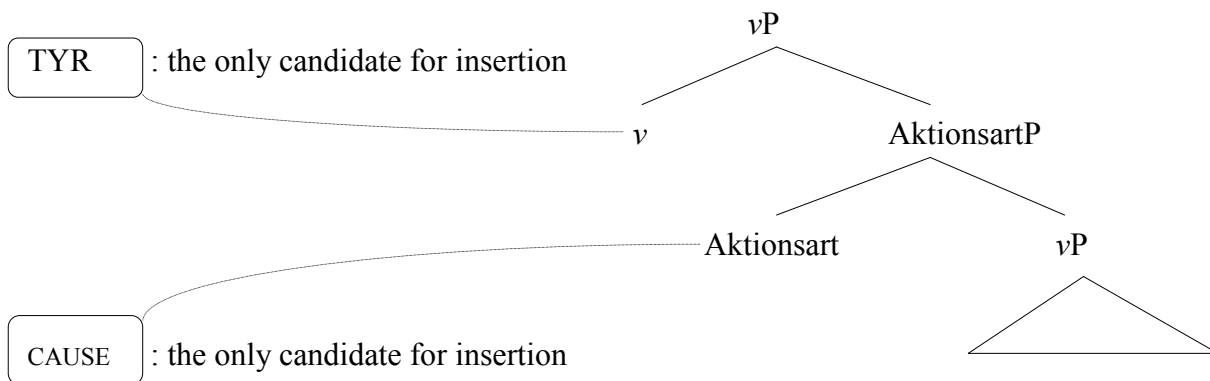
Feature specification on V	Aktionsart	<i>v</i>	Example
not specified	CAUSING	TYR	‘break.intr’-CAUS
[v]	CAUSING	$\emptyset_{-MANNER}$	‘open’
[v], [incr]	INCR	$\emptyset_{-MANNER}$	‘assemble’
[v], [m]	CAUSING	$\emptyset_{+MANNER}$	‘curse’
[v], [incr], [m]	INCR	$\emptyset_{+MANNER}$	‘write’

Table 5 summarizes possible configurations of transitive *v*Ps depending on feature specifications of the V head. It is worth noting two characteristics of non-derived verbs and causatives of unaccusatives the analysis predicts. First, it generates four types of lexical transitive verbs, and these are exactly the

types we independently identified in Section 4.3, see Table 1. Secondly, up to the spellout of v , the structure of lexical transitive verbs only specified as $[v]$ (e.g., *ac* ‘open’ in Balkar in (24b)) is identical to that of causatives of unaccusatives (e.g. *sin-dir* ‘break’ in (23a)). As we saw in 3.1, capturing this identity is problematic for Pylkkänen 2002 but it follows naturally in our system.

Now we can figure out what happens to a configuration consisting of two v ’s with the Aktionsart located in between:

(64) v – Aktionsart – v configuration: causatives of transitives/unergatives



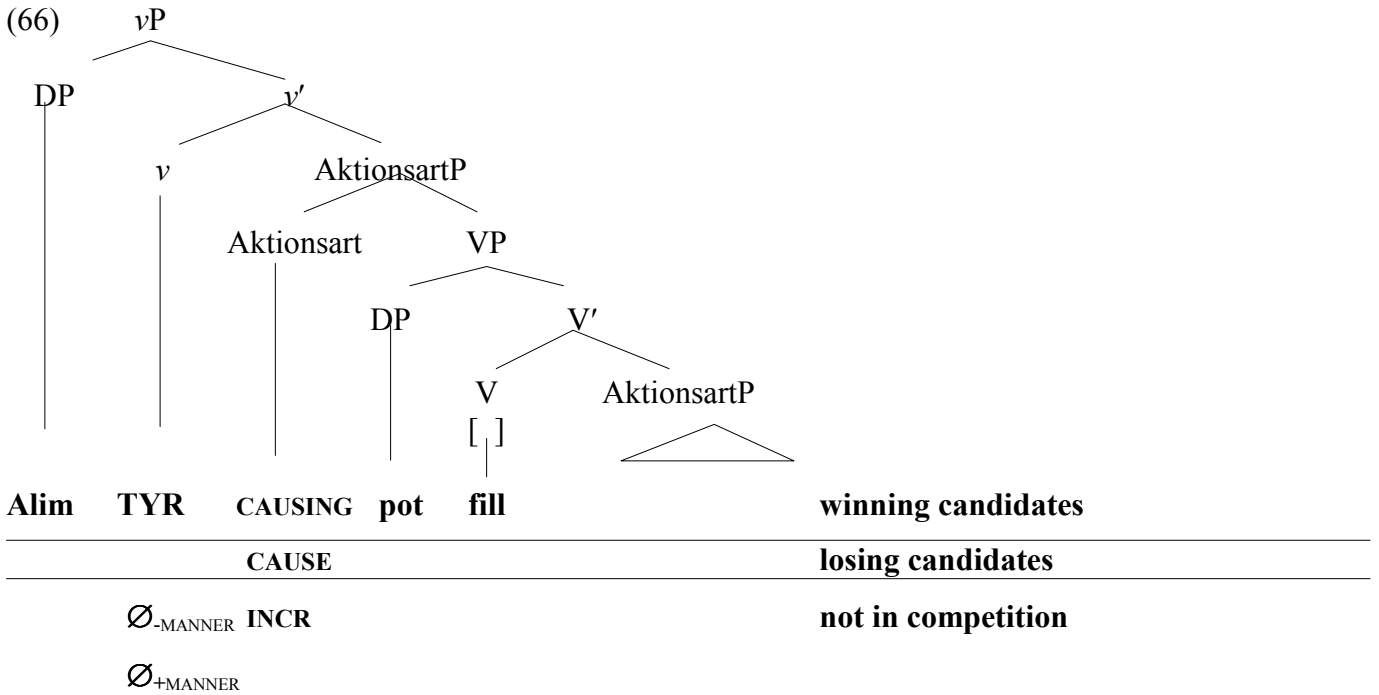
As (64) shows, two of three potential candidates for insertion into the higher Aktionsart and v nodes do not participate in the competition. As we saw in Sections 5.1 and 5.2, INCR, CAUSING, $\emptyset_{\text{MANNER}}$ and \emptyset need the V head in the local configuration, but this condition is not met in (64). Therefore, the elsewhere candidates, CAUSE and TYR, are invoked to realize Aktionsart and v , respectively. What this means, according to (61)-(62) is that, first, in this configuration v must be realized through causativization, and secondly, Aktionsart has to be interpreted through the most general relation of causal dependence. In this way, the analysis captures the crucial difference between causatives of transitives/unergatives consisting of two v P’s and causatives of unaccusatives projecting a single v P: the former involve the relation of (possibly) indirect causation, the latter require direct causation. On our analysis, this follows from two independently motivated considerations: the causative v head not licensed by the $[v]$ feature on V requires “morphological marking” by means of the TYR morpheme; CAUSE, the most general relation of causal dependence, is an elsewhere item.

To complete the exposition, we only have to provide compositional derivations for the two types of causatives we are dealing with throughout the paper and to compare them with their non-derived counterparts.

6.2. Derivations

We start with the derivation of the causative of unaccusative. The relevant example is repeated in (65); its structure is represented in (66).

(65) (=7) alim cojun-nu tol-dur-du.
 Alim pot-ACC fill.intr-CAUS-PST.3SG
 ‘Alim filled the pot.’



Since the compositional derivation of the VP denotation is straightforward, we skip it for the sake of brevity. In (67), VP denotes a property of filling-the-pot processes that bring about a result state of being full. Following Kratzer (2005), we assume that processes and result states are related by CAUSING.

(67) $\| [_{VP} \text{ pot fill}] \| = \lambda e \exists s [\text{fill}_P(e) \wedge \text{Theme}(\text{pot})(e) \wedge \text{full}_S(s) \wedge \text{Holder}(\text{pot})(s) \wedge \text{CAUSING}(s)(e)]$
 where fill_P and full_S are predicates over events of getting filled and states of being full, respectively

Since the V head in (66) does not bear the [v] feature (and, as a consequence, [incr] and [m] features either), the Aktionsart head is realized by the CAUSING item and the v head by TYR. Combining CAUSING, repeated as (68), with the VP denotation in (67) by functional application results in (69).

(68) $\| \text{CAUSING} \| = \lambda P \lambda Q \lambda e \exists e' [P(e') \wedge Q(e) \wedge \text{CAUSING}(e')(e)]$

(69) $\| [_{AktionsartP} \text{ CAUSING} [_{VP} \text{ pot fill}]] \| = \lambda Q \lambda e \exists e' \exists s [Q(e) \wedge \text{CAUSING}(e')(e) \wedge \text{fill}_P(e') \wedge \text{Theme}(\text{pot})(e') \wedge \text{full}_S(s) \wedge \text{Holder}(\text{pot})(s) \wedge \text{CAUSING}(s)(e)]$

The relation in (69) applies to the event predicate denoted by TYR, repeated as (70), yielding a property of events in (71).

(70) $\| [{}_{\nu} \text{TYR}] \| = \lambda e [Q_{\nu}(e) \wedge \text{Process}(e)]$

(71) $\| [{}_{\nu} [\text{TYR} [\text{CAUSING} [\text{fill pot}]]]] \| = \lambda e \exists e' \exists s [Q_{\nu}(e) \wedge \text{Process}(e) \wedge \text{CAUSING}(e')(e) \wedge \text{fill}_p(e') \wedge \text{Theme}(\text{pot})(e') \wedge \text{full}_s(s) \wedge \text{Holder}(\text{pot})(s) \wedge \text{CAUSING}(s)(e)]$

Since Karachay-Balkar is a voice-bundling language, we suggest that ν introduces not only a causing subevent, but also the agent relation ($\lambda x \lambda e. \text{Agent}(x)(e)$) that combines with the event predicate in (71) by Event Identification (Kratzer 1996)¹⁴. Merging the agent DP in Spec, νP creates a property of events in (72), which represents the relevant part of the meaning of (65).

(72) $\| [{}_{\nu P} \text{Alim} [{}_{\nu} \text{TYR} [\text{AktionsartP} \text{CAUSING} [{}_{\nu P} \text{fill pot}]]]] \| =$
 $\lambda e \exists e' \exists s [\text{Agent}(\text{Alim})(e) \wedge Q_{\nu}(e) \wedge \text{Process}(e) \wedge \text{CAUSING}(e')(e) \wedge \text{fill}_p(e') \wedge$
 $\text{Theme}(\text{pot})(e') \wedge \text{full}_s(s) \wedge \text{Holder}(\text{pot})(s) \wedge \text{CAUSING}(s)(e)]$

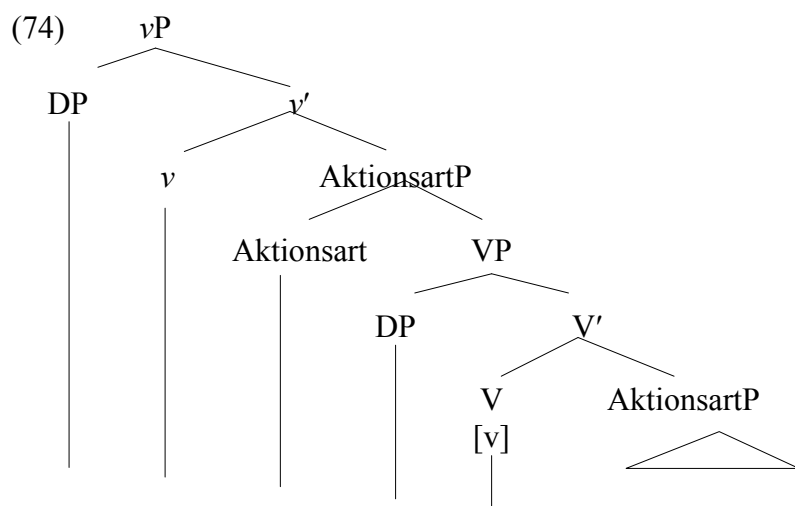
(72) is a property of events, not specified for descriptive properties, in which Alim is the agent. These events immediately cause a process of the pot's getting filled that leads the pot to the result state of being full. (72) accounts for both most significant aspects of the meaning of causatives of unaccusatives. First, the relation between agent's activity and the process of the pot's getting filled is that of immediate causation. Secondly, descriptive properties of the activity are left underspecified, as Q_{ν} , a predicate characterizing activity subevents, comes out as a free variable interpreted relative to the context, world knowledge and whatever other information relevant for assigning values to free variables.

As we saw earlier, causatives of unaccusatives exhibit strict parallelism to non-derived result verbs like *ac* 'open.tr'. This parallelism follows straightforwardly from the analysis we propose. By hypothesis, verbs like *ac* 'open.tr' differ from verbs like *tol* 'fill.intr' in that the former are specified for the $[\nu]$ feature, see Table 5. The consequence of this is that ν cannot be spelled out by TYR and must be realized as \emptyset , as in (73)-(74).

(73) (= (23b)) *alim* *eřik-ni* *ac-ti*.
 Alim door-ACC open-PST.3SG

¹⁴ Following Doron (2005), we understand agency as encompassing two distinct though related notions actor and cause, the latter subsuming inanimate and / or non-volitional event initiators like natural forces, eventualities, etc.

‘Alim opened the door.’



Alim	Ø _{-MANNER}	CAUSING	door	open	winning candidates
TYR		CAUSE			losing candidates
Ø _{+MANNER}		INCR			not in the competition

This minor difference, however, does not affect the interpretation. The Aktionsart head is still interpreted through the CAUSING relation, and the interpretation of v still involves an activity predicate with underspecified descriptive properties (since $\emptyset_{-MANNER}$ and TYR have the same interpretation, cf. (62b-c)). This suggests that the semantic derivation of (73) consists of exactly the same steps as of (65), and what we finally get is an event predicate in (75).

$$(75) \parallel [{}_{vP} \text{ Alim } [{}_{v'} \emptyset [{}_{\text{AktionsartP}} \text{ CAUSING } [{}_{VP} \text{ open door }]]]] \parallel =$$

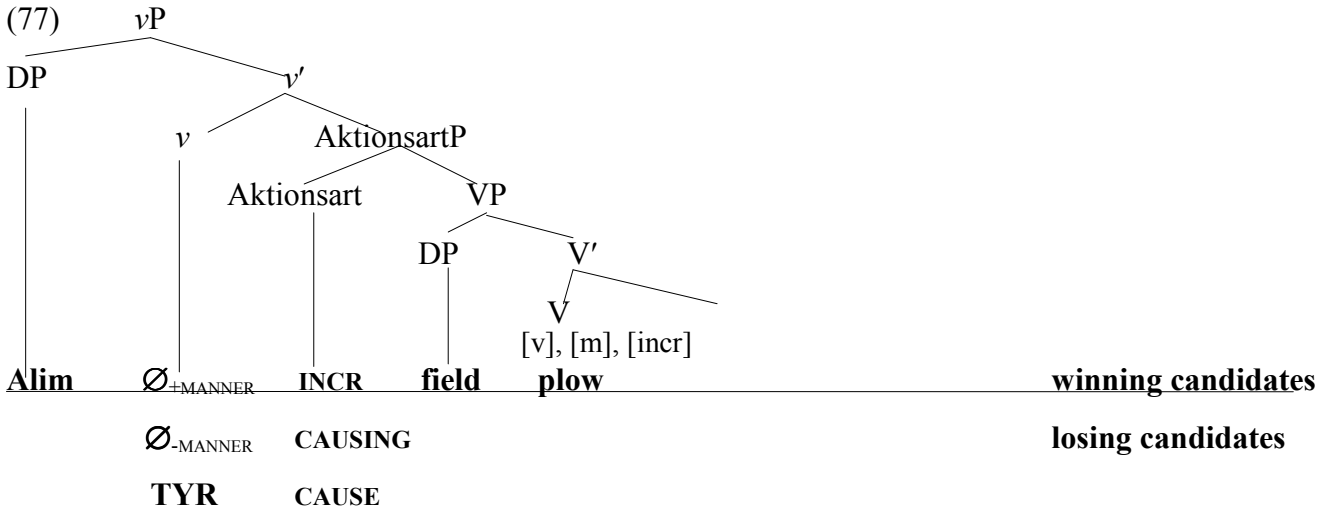
$$\lambda e \exists e' \exists s [\text{Agent}(\text{Alim})(e) \wedge Q_v(e) \wedge \text{Process}(e) \wedge \text{CAUSING}(e')(e) \wedge$$

$$\text{open}_p(e') \wedge \text{theme}(\text{door})(e') \wedge \text{opens}_s(s) \wedge \text{Holder}(\text{door})(s) \wedge \text{CAUSING}(s)(e)]$$

We have established in Section 3.1 that causatives of unaccusatives and non-derived result verbs resemble each other as to the argument structure, derivational potential, and subevental make-up, including semantic characteristics of the causing activity. These similarities are now explained: on our analysis, causatives of unaccusatives and non-derived result verbs are literally identical syntactically and semantically, and the only difference is a spellout of the v head.

Both causatives of unaccusatives and result verbs are based on Vs that lack [m] and [incr] features. This is what makes their interpretation crucially different from other types of non-derived transitive verbs. For the sake of space we only provide a partial derivation of the denotation of vP based on a [m] [incr] [v] verb. Consider *sür* ‘plow’ in (76) and the analysis of a corresponding vP in (77).

(76) alim baxca-si-n sür-dü.
 Alim field-3-ACC plow-PST.3SG
 ‘Alim plowed the field.’



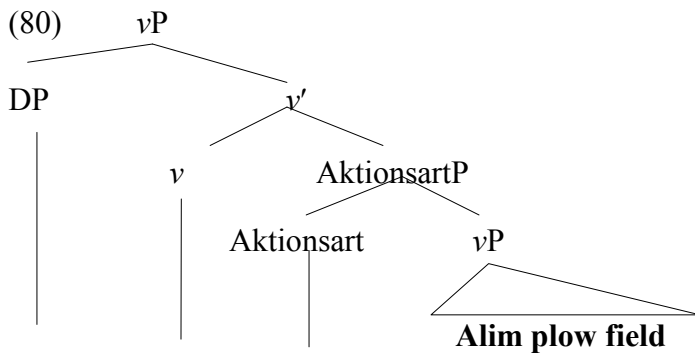
The [m] and [incr] features on V make $\emptyset_{+MANNER}$ and INCR appropriate candidates for insertion into the v and Aktionsart nodes, respectively. As a result, the relation the Aktionsart introduces is INCR, not CAUSING or CAUSE, and the event predicate in the denotation of v possesses a fixed interpretation. Starting with the denotation of VP in (78a) and taking the same steps as before, we end up with an event predicate in (78b).

- (78) a. $\| [_{VP} \text{ plow field}] \| = \lambda e[\text{plow}_P(e) \wedge \text{Theme}(\text{field})(e)]$
 b. $\| [_{vP} \text{ Alim plow field}] \| = \lambda e \exists e'[\text{Agent}(\text{Alim})(e) \wedge \text{plow}_A(e) \wedge \text{Process}(e) \wedge \text{INCR}(e')(e) \wedge \text{plow}_P(e') \wedge \text{Theme}(\text{field})(e')]$

The event predicate in (78b) denotes plowing activities that incrementally cause a process of the field getting plowed, as required.

We turn to answering the main question of this study: how to account for the difference in the type of causal relation between causatives of unaccusatives and causatives of transitives and unergatives. The relevant example is repeated as (79) and its structure is represented in (80).

(79) (=9) ana-si alim-ge baxca-si-n sür-dür-dü.
 mother-3 Alim-DAT field-3-ACC plow-CAUS-PST.3SG
 ‘The mother made Alim plow the field.’



mother	TYR	CAUSE	the only candidates
	\emptyset _{-MANNER}	INCR	non in competition
	\emptyset _{+MANNER}	CAUSING	

The starting point of the relevant part of the derivation is the lower vP denotation in (78b). In (80), the only suitable candidates for insertion into the higher v and Aktionsart nodes are elsewhere vocabulary items, TYR and CAUSE. Therefore, the causing subevent must lack descriptive properties, according to (62c), and the relation between this subevent and a caused subevent from the denotation of the lower vP must be CAUSE, the general relation of causal dependence. Bringing all these components together yields an event predicate in (81) as a denotation of the higher vP .

(81) $\| [_{vP} \text{mother} [\text{TYR} [\text{CAUSE} [\text{Alim plow field}]]]] \| =$

$$\lambda e \exists e' \exists e'' [Q_v(e) \wedge \text{Process}(e) \wedge \text{Agent}(\text{mother})(e) \wedge \text{CAUSE}(e')(e) \wedge \text{Agent}(\text{Alim})(e') \wedge \text{plow}_M(e') \wedge \text{Process}(e') \wedge \text{INCR}(e'')(e') \wedge \text{plow}_P(e'') \wedge \text{Theme}(\text{field})(e'')]$$

(81) denotes descriptively underspecified activities in which the mother is the agent and there is an event of Alim's plowing the field not necessarily immediately caused by those activities.

Comparing semantic representations in (72) and (81), it is not difficult to see that the main puzzle (and the main problem for Pylkkänen's (2002) view of causativization) we began with in Section 2 is now solved. The puzzle was: how does it happen that causatives of transitives and causatives of unaccusatives involve different causal relation but the same causative element, the TYR morpheme? Our explanation (represented as (72) and (81)) is: this happens because the TYR morpheme does not introduce any causal relation at all. It only spells out the v head, which denotes a causing subevent with underspecified descriptive properties, but not its relation to a "subordinate" subevent. For both types of causatives properties of a causing subevent *are* identical, and we correctly predict the identity of their morphological exponence. Relations between subevents are introduced independently by Aktionsart heads, and the reason why the causative of unaccusative in (72) involves CAUSING while the causative of transitive in (81) is based on CAUSE has to do with the structural position of a

corresponding Aktionsart. The relative strength of the causal relation (see the hierarchy in (57)) is partly determined by the structural distance of the Aktionsart head from V: for Aktionsart not occurring in the local configuration with V the default (and semantically most general) CAUSE relation is only available. This accounts as well for why CAUSE is only attested in the causative environment: non-derived, non-causative verbal predicates only project Aktionsart taking VP as its complement.

6.3. A few implications

This concluding section, much inspired by stimulating comments of the anonymous reviewer of this volume, contains a few reflections on possible extensions of the above analysis. Specifically, the reviewer rises the following question. The theory outlined so far, she indicates, “predicts that causatives of unaccusative verbs only allow direct causation. While this may be true of Karachay-Balkar, causatives of unaccusative verbs in other languages can definitely show the behavior of biclausal configurations”. As an example of the latter type of languages, she cites French *faire* plus infinitive causatives, where *faire mourir* ‘make die’ has a distinct interpretation from *tuer* ‘kill’, and *sase* causatives in Japanese, originally discussed by Pylkkänen (2002). Let us look at Japanese first. The reviewer turns our attention to the example in (82):

(82) Taro-wa niku-o kog-e-sase-ta.

Taro-TOP meat-ACC burn-INTRANS-CAUSE-PST

1. ‘Taro caused the meat to become scorched.’
2. *‘The meat got scorched to Taro’s detriment.’ (Pylkkänen 2002: 100)

In (82), *sase* shows properties of Pylkkänen’s phase-selecting causatives, which is evidenced by the fact that it does not license the adversity reading in (82.2).

Assuming that the stem *kog* ‘burn’ is unaccusative and *sase* spells out the *v* head, (82) should have a structure identical to Karachay-Balkar examples like (66), where *v* and Aktionsart below *v* are in the local configuration to unaccusative V. If Aktionsart in Japanese is interpreted in the same way as in Karachay-Balkar, that is, according to (61 a-c), we must have direct causation in (82), contrary to the fact.

One option for explaining (82) is to say that languages can vary as to what interpretation they assign to Aktionsart that takes VP as a complement. While languages like Karachay-Balkar introduce CAUSING in this position, which is captured by (61b), languages like Japanese make use of a more general relation CAUSE instead, hence indirect causation surfaces in examples like (82). However, this is unlikely to be a promising way to go.

A crucial thing to note is that the root and the causative morpheme are separated by another piece of morphology, the *-e-* morpheme glossed as INTRANS. If this morpheme is not there, causation is direct, as in (83) (where, not surprisingly, the adversity reading in (83.2) is readily available):

- (83) Taroo-wa niku-o kog-asi-ta.
 Taro-TOP meat-ACC burn-CAUSE-PST
1. ‘Taro scorched the meat.’
 2. ‘The meat got scorched to Taro’s detriment.’ (Pylkkänen 2002: 100)

If the general CAUSE relation had always been an option for interpreting Aktionsart in the [v [Aktionsart [V ...]]] configuration in Japanese, (83) would have allowed for an indirect reading for the same reason as (82). This is not the case. Therefore, something is to be said about the *-e-* morpheme, since it is this morpheme that ultimately determines (in)directness of causation. At this juncture, different possibilities seem to be open. First, one can argue, with Harley 2008, that *-e-* is a realization of an intransitive (unaccusative) ‘flavor’ of v , v_{BECOME} . If this is indeed the case, then (82) and (83) are structurally distinct, as represented in (84)-(85):

(84) Structure for (82):

[v P [v -*sase*] [ArtionsartP CAUSE [v P [v -*e*-BECOME] ... [v P *kog-*] ...]]]

(85) Structure for (83):

[v P [v -*sase*] [ArtionsartP CAUSING [v P *kog-*]]]

In (84), *sase* appears in precisely the right type of configuration for licensing the general CAUSE relation: in this configuration, the relevant Aktionsart occurs in between two v 's, yielding the indirect reading in (82). In contrast, (85) is the same structure as we get for causatives of unaccusatives in Karachay-Balkar (see (66)), hence the direct causation is correctly predicted. Therefore, if (84)-(85) are correct, we do not need any additional assumptions to account for the contrast between (82)-(83).¹⁵ On this view, Karachay-Balkar and Japanese do not differ much as to the structure and interpretation of the causative as such, but rather as to the role of v_{BECOME} in the overall system. In Karachay-Balkar, we only find configurations like (85), where the v — Aktionsart layer of structure is merged on top of VP, but never on top of $v\text{P}_{\text{BECOME}}$. A possible reason for this may be that the structure of non-derived

¹⁵ Note that even if our implementation differs from Pylkkänen’s one, (84)-(85) conform with her conclusion that (82) and (83) are configurationally distinct. See also Miyagawa 2012 who discusses extensively different occurrences of *sase* — in the low position, like in (85), or higher up, as in (84).

unaccusatives like *sin* ‘break’ in Karachay-Balkar lacks v_{BECOME} altogether. A morphological fact that can point towards this conclusion is that in Turkic languages we never find Japanese-type non-productive derivational morphology like *-e-* in (82) that shows up in unaccusative structures and readily submits itself to a v_{BECOME} analysis. If — for whatever reason — non-derived unaccusatives in Karachay-Balkar always lack the $v\text{P}$ layer, we predict, correctly, that they allow to derive exactly one type of causatives — the one in (66), which is similar to (85), but crucially nothing like (84). Japanese, in contrast, maintains two distinct unaccusative configurations — with and without v_{BECOME} in (84)-(85) — as a suitable input to causativization.

What we have just said is clearly connected to generalizations established in Alexiadou and Anagnostopoulou 2004, Alexiadou *et al.* 2006, Alexiadou 2010. They independently make a point that cross-linguistically, unaccusatives (or anticausatives, as they prefer to call them) can come in two varieties that differ as to whether they contain a non-agentive and non-specifier-projecting Voice head:

- (86) a. Anticausative structure I
 [v/CAUS [Root]]
 b. Anticausative structure II
 [Voice (-ext. arg. -AG) [v/CAUSE [Root]]]

The unaccusative structure in (86a) with no Voice is universally available, they argue. Whether Voice (-ext. arg. -AG) appears in the derivations of unaccusatives, as in (86b), is a parameter of cross-linguistic variation. In this kind of framework, we would say that Karachay-Balkar and Japanese show different settings of this parameter. Two unaccusative structures available in Japanese give rise to two causatives in (82) and (83). The fact that Karachay-Balkar only have counterparts of (83) suggests that unaccusatives are of (86a) type. Elaborating on far-reaching consequences of this idea goes far beyond the scope of this paper, however.

If causatives of unaccusatives like (82) in Japanese involve, in fact, two $v\text{Ps}$, the question is whether the same or similar story can be told about Romance *faire* plus infinitive analytic causatives. Studies by Guasti (2005) and Folli and Harley (2007) (see also references therein) provide an unequivocally positive answer. Folli and Harley argue extensively that sentences like (87) are to be analyzed as in (88):

- (87) Gianni ha fatto arrivare il pacchetto.
 G. AUX made arrive.INF DEF package
 ‘Gianni made the package arrive.’

(88) [_{vP} Gianni [_v fare] [[_{vP} [_v ∅_{BECOME}] [_{VP} arrivare il pacchetto]]]]

Like (84) from Japanese, (88) is exactly the type of double vP structure where the indirect causation interpretation is expected to obtain. Its only difference from (84) is that the lower v_{BECOME} has a null spellout, while the higher v is a light verb rather than a bound morpheme. If this analysis is correct, our Aktionsart-based variant of (88) in (89) predicts exactly what we get: the Aktionsart is to be interpreted via CAUSE, yielding the meaning of indirect causation.

(89) [_{vP} Gianni [_v fare] [_{AktionsartP} CAUSE [_{vP} [_v ∅_{BECOME}] [_{VP} arrivare il pacchetto]]]]]

Yet another line of analysis (applicable to *sase* causatives though less obviously to *faire* plus infinitive causatives) seems to be worth considering. We can suggest, in fact, that both Japanese examples in (82)-(83) involve a single vP. They differ as to the spell-out and interpretation of Aktionsart, which is ∅ in (83), but is the *-e-* morpheme in (82):

(90) Structure for (82):

[_{vP} [_{vCAUS} *-sase*] [_{AktionsartP} *-e* CAUSE [_{VP} ... *kog-* ...]]]

(91) Structure for (83):

[_{vP} [_{vCAUS} *-sase*] [_{AktionsartP} ∅ CAUSING [_{VP} ... *kog-* ...]]]

In (90), the *-e-* morpheme is analyzed as an exponent of Aktionsart, not as v_{BECOME}. As such, *-e-* directly establishes the CAUSE relation between the activity and change of state subevents, with ∅_{CAUSING} introducing the direct causation relation, as before. In such a case, no extra vP — Aktionsart layer is projected. If (90)-(91) is a right analysis of (82)-(83), Japanese is language where directness of causation does not reflect the height of Aktionsart, at least in case of causatives of unaccusatives. Rather, direct and indirect causal relations compete to interpret the same Aktionsart head, local enough to V. This is represented in (92a-b), which say that Aktionsart can be realized either by ∅_{CAUSING} in (92a), identical to its Balkar counterpart in (61b), or by the *-e-* morpheme, analyzed as a lexical item in (92b):

(92) a. CAUSING: ∅ ↔ AKTIONSART / [_{AktP} ____ [_{VP} ... V]] Interpretation: CAUSING in (54b)

b. CAUSE: e ↔ AKTIONSART / [_{AktP} ____ [_{VP} ... V]] Interpretation: CAUSE in (54c)

The difference between languages like Japanese and Karachay-Balkar, then, boils down to the difference in the vocabulary of Aktionsart elements.

If this kind of analysis can be pursued for Japanese, remains to be seen. If it can, the landscape of Japanese causativization starts looking similar to that in Hindi, discussed by Ramchand (2008). We are not able to go into much detail here, but at least one instance of parallelism deserves to be mentioned.

Hindi distinguishes between two causative morphemes, *-aa-* and *-vaa-*, the difference being the directness of causation. Notably, both can combine with unaccusatives, as illustrated in (93a-c) from Ramchand 2008:162 where the verb ‘get built’ in (93a) is causativized by *-aa-* in (93b) and by *-vaa-* in (93c):

- (93) a. Makaan ban-aa
house make-PERF.M.SG
‘The house was built.’
- b. Anjum-ne makaan ban-aa-yaa
Anjum-ERG house make-aa-PERF.M.SG
‘Anjum built a house.’
- c. anjum-ne (mazdurō-se) makaan ban-vaa-yaa
anjum-ERG labourers-INSTR house be.made-vaa-PERF.M.SG
‘Anjum had a house built by the labourers.’

(93b) and (93c) is again a pattern where the same unaccusative root, attested in (93a), allows to derive direct and indirect causatives. Ramchand (2008) argues that both are to be represented within the same *vP*, not by means of a double *vP* configuration, and proposes to analyze (93b) and (93c) as (94) and (95), respectively. (We couple her “init — proc — res” notation with the “*v* — V — R” notation used throughout this paper.)

(94) [_{initP/vP} Anjum [_{init/v} -aa-] [_{procP/VP} makaan [_{proc/V} ban] [_{resP/RP} <makaan> [_{res/R} <ban>]]]]

(95) [_{initP/vP} Anjum [_{init/v} -aa-] [_{procP/VP} <Anjum> [_{proc/V} -v-] [_{resP/RP} makaan [_{res/R} ban]]]]

Ramchand suggests that the *-vaa-* morpheme is to be decomposed into *-v-* and *-aa-*. The *-aa-* element consistently spells out the *v* head in (94) and (95). Besides, in both (94) and (95) the R head is realized by the verb root ‘get build’. The difference has to do with the spell-out of the V head. Ramchand argues that if the direct *-aa-* causative is built in (94), V is taken care of by the root. If we are dealing with the indirect causative in (95), V is realized by the *-v-* element of the decomposed *-vaa-*

morpheme. On Ramchand’s view, it is the spell-out of V and R by distinct items that leads to indirectness of causation. “Since *proc* and *res* [in (95)] are always identified by different lexical items”, she concludes, “the complex causative structure will be interpreted as ‘indirect’, or ‘temporally independent’” (Ramchand 2008:182).

We believe that there are reasons to doubt if this account can be fully justified. We leave the detailed argumentation for the next occasion (see also Tatevosov, Lyutikova, to appear), focusing on the problem most significant for our present discussion: the analysis in (94)-(95) introduces a huge asymmetry in how causatives in (93b-c) are construed.

The direct causative in (93b), according to (94), informs us about Anjum’s activity that causes (directly) a process *in the house* such that at the end of this process the house enters a state of being built. In contrast, Anjum’s activity in (93c) represented in (95) induces a process *in which Anjum himself is a participant*, and it is this process that (indirectly) causes the state of the house being built. Unlike (94), (95) does not say anything about the process in which the house comes to existence: what is caused is a state, not a change of state. Therefore, the analysis predicts that *-aa-* and *-vaa-* causatives differ not only as to the directness of causation, but also in terms of the eventuality type of the caused subevent: it must be a state in (95), but a change of state in (94). But nothing seems to support empirically this prediction — neither in the story about *-aa-* and *-vaa-* causatives in Hindi, nor cross-linguistically.

Ramchand (this volume) fixes this problem by suggesting that the initiator of the activity and undergoer of the process are identical in both direct and indirect causative configurations¹⁶, which leaves us with the structures in (96)-(97):

(96) [_{initP/VP} Anjum [_{init/v} *-aa-*] [_{procP/VP} <Anjum> [_{proc/V} *ban*] [_{resP/RP} <makaan> [_{res/R} <*ban*>]]]]]

(97) [_{initP/VP} Anjum [_{init/v} *-vaa-*] [_{procP/VP} <Anjum> [_{proc/V} *-vaa-*] [_{resP/RP} *makaan* [_{res/R} *ban*]]]]]

(96)-(97) do not look like a full solution, however, since it is not completely clear how the DP *Anjum* ends up being an argument of the process in (96). *Proc* in (96) is lexicalized by the root *ban*, but the root, like other unaccusative roots, is supposed to be inserted into the structure where the subject of the process is identified with the holder of the result state. We expect, then, that the DP in [Spec, *procP/VP*] should be ‘the house’, not ‘Anjum’, and the problem with (94)-(95) reappears immediately. An alternative that comes to mind as soon as we assume a system developed above is shown in (98)-(99):

¹⁶ For independent reasons, she also cancels the decomposition of the indirect causative *-vaa-* morpheme into *-v-* and *-aa-*.

(98) [_{initP/vP} Anjum [_{init/v -aa-}] [_{AktionsartP} ∅_{CASUSING} [_{procP/VP} *makaan* [_{proc/V} *ban*]
 [_{resP/RP} <*makaan*> [_{res/R} <*ban*>]]]]]

(99) [_{initP/vP} Anjum [_{init/v -aa-}] [_{AktionsartP} -*v*-_{CAUSE} [_{procP/VP} *makaan* [_{proc/V} *ban*]
 [_{resP/RP} <*makaan*> [_{res/R} <*ban*>]]]]]

In (99), -*v*- is analyzed as an instance of *Aktionsart* introducing the CAUSE relation between the activity and process subevents. The direct causative in (98) representing (93b) involves phonologically null CAUSING relation, exactly as in (66) from Karachay-Balkar and (91) from Japanese. (99) offers an analysis of (93c) identical to the analysis of Japanese examples like (82) represented in (90). One immediate advantage of (98)-(99) is that no eventuality type asymmetry emerges for the causing subevent: what is caused in both cases is a change of state from the denotation of *procP/VP*. The only difference between (98) and (99) has to do with the directness of causation, which seems to conform with intuitive judgments about the meaning of examples like (93b-c).

Another good consequence of (99) is that it provides a reasonable answer to the question that, as Ramchand acknowledges, poses a problem for her account: “Is it possible to make sense of the fact that 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?” (Ramchand 2008: 168). If (99) is on the right track, the required ordering falls out with no effort at all: if *v* is an instance of *Aktionsart*, the position in between the root and the -*aa*- morpheme is just the right place for it to appear.

To summarize: a brief look outside Turkic material suggests that the proposal we have been trying to defend in this paper seems to be at least compatible with reasonable ways of analyzing causativization data from other languages. It allows us to capture systematic similarities between languages like Karachay-Balkar and Japanese, as well as regular patterns of variation, and in many cases sheds a new light on the old cross-linguistic problem of how the direct/indirect distinction is construed in different languages.

7. Summary of results

We offered a way of explaining why one and the same piece of morphology, the TYR morpheme in Karachay-Balkar, occurs in all semantic types of causatives. This happens because the structural position and interpretation of the “causative element” is always the same: its location is *v* and its interpretation is a predicate over activities with underspecified descriptive properties. Therefore, no mismatch between morphosyntax and semantics is introduced into the theory, and there is no need to posit two distinct TYRs. To achieve this result we separated subevental content of the event structure

from the relational content, with subevents and their relations being syntactically represented as distinct heads. Crucially, this suggestion is motivated independently in Section 4.3: we presented an argument from lexical semantics that characteristics of subevents are orthogonal to characteristics of their relations.

Peculiarities of causatives observed in Section 4.3 and summarized in Table 2 is again what one can expect. We saw that causatives, unlike non-derived transitive verbs, cannot be based on the incremental relation between the causing activity and the caused process and are never specified for manner. On our analysis, both characteristics follow from the assumption that “causativization” is essentially a spellout of the $v + \text{Aktionsart}$ complex not occurring in a local configuration with $V[v]$. The incremental relation INCR and the manner-specified activity require the [incr] and [m] features on V, respectively, but these features are only available if V is specified as [v]. This makes causativization, on the one hand, and incrementality and manner specification, on the other, mutually exclusive.

Most significantly, we have an account for why causatives of unaccusatives, on the one hand, and causatives of transitives and unergatives, on the other, involve different causal relations. In our system, this follows from the assumption motivated in Section 3 that these two types of verbs produce structurally distinct causative configurations (a single vP vs. two vPs). Interpretation of the *Aktionsart* head, then, is determined by its location within these configurations: the longer the distance between V and *Aktionsart* is, the more general causal relation it introduces. Therefore we do not need to stipulate two distinct mechanisms of interpretation for causatives of unaccusatives and causatives of transitives and unergatives: as the above derivations clearly show, the same mechanism is at work in both cases. The semantic distinction is, in effect, an artifact of a configurational distinction.

References

- Ackerman, Farrell and Moore, John (1999). Syntagmatic and Paradigmatic Dimensions of Causee Encodings. *Linguistics and Philosophy* 22-1: 1-44
- Aissen, Judith (1974). *The syntax of causative constructions*. Doctoral dissertation, Harvard University.
- Alexiadou, Artemis (2010). On the morpho-syntax of (anti-)causative verbs. In M. Rappaport Hovav, E. Doron & I. Sichel (eds.) *Syntax, Lexical Semantics and Event Structure*. Oxford University Press, 177-203.
- Alexiadou, Artemis and Anagnostopoulou, Elena (2004). Voice morphology in the causative-inchoative Alternation: evidence for a non unified structural analysis of unaccusatives. In A. Alexiadou, E. Anagnostopoulou, and M. Everaert (eds.) *The Unaccusativity puzzle*. Oxford: Oxford University Press, 114-136.
- Alexiadou, Artemis, Anagnostopoulou, Elena, and Schäfer, Florian (2006). The properties of anticausatives crosslinguistically. In M. Frascarelli (ed.) *Phases of Interpretation*. Berlin: Mouton de Gruyter, 187-211.
- Alsina, Alex (1992). On the Argument Structure of Causatives. *Linguistic Inquiry* 23-4: 517-555.
- Baker, Mark (1988). *Incorporation: A Theory of Grammatical Function Changing*. Chicago: University of Chicago Press.
- Bjerre, Tavs (2001). Causation, event structure and process specifying adverbials. *Nordic Journal of Linguistics* 24: 29-46.
- Bowers, John (2002). Transitivity. *Linguistic Inquiry* 33: 183-224.

- Chierchia, Gennaro (2004). A semantics for unaccusatives and its syntactic consequences. A. Alexiadou, E. Anagnostopoulou, and M. Everaert (eds.). *The Unaccusativity Puzzle*. Oxford: OUP, 22–59.
- Chomsky, Noam (1995). *The Minimalist Program*. Cambridge, MA: The MIT Press.
- Comrie, Bernard and Polinsky, Maria (eds) (1993). *Causatives and Transitivity*. Amsterdam: John Benjamins.
- Comrie, Bernard (1976). The syntax of causative constructions: Cross-linguistic similarities and divergences. In Masayoshi Shibatani (ed.) *Syntax and semantics 6: The grammar of causative constructions*. New York: Academic Press, 261-312.
- Comrie, Bernard (1985). Causative verb formation and other verb-deriving morphology. Shopen, Timothy (ed.), *Language typology and syntactic description*. Vol. III: *Grammatical categories and the lexicon*. Cambridge: Cambridge University Press, 309-348.
- Copley, Bridget and Harley, Heidi. This volume. An ontology for a force-dynamic treatment of events.
- Cruse D. A (1972). A Note on English Causatives. *Linguistic Inquiry* 3-4: 520-528.
- Dixon, R.M.W., and Aikhenwald, Alexandra (eds.) (2000). *Changing Valency: Case Studies in Transitivity*. Cambridge: Cambridge University Press.
- Doron, Edit (2005). The aspect of agency. In Tova Rapoport & Nomi Erteschik-Shir (eds.), *The syntax of aspect. Deriving thematic and aspectual interpretation*. Oxford: Oxford University Press, 154-173.
- Dowty David R. (1991). Thematic Proto-Roles and Argument Selection. *Language* 67: 547- 619.
- Dowty, David R. (1979). *Word meaning and Montague grammar*. Dordrecht: Reidel.
- Dubinsky, Stanley, Lloret, Maria-Rosa, Newman, Paul (1998). Lexical and Syntactic Causatives in Oromo. *Language* 64-3: 485-500.
- Duffield, Nigel. This volume. Inadvertent Causes and the Unergative-Unaccusative Split in Vietnamese and English.
- Ernst, Thomas (2002). *The syntax of adjuncts*. Cambridge: Cambridge University Press.
- Falk, Yehuda (1991). Causativization. *Journal of Linguistics* 27-1: 55-79.
- Fodor, Jerry A. (1970). Three Reasons for Not Deriving "Kill" from "Cause to Die". *Linguistic Inquiry* 1: 429-438.
- Folli, Rafaella, and Harley, Heidi (2005). Flavours of v: Consuming Results in Italian and English. In Paula Kempchinsky and R. Slabakova (eds.) *Aspectual Enquiries*. Dordrecht: Springer, 95-120.
- Folli, Rafaella, and Harley, Heidi (2007). Causation, obligation and argument structure: on the nature of little v. *Linguistic Inquiry*, 38.2: 197-238.
- Fujita, Koji (1993). Object movement and binding at LF. *Linguistic Inquiry* 24: 381-388.
- Fujita, Koji (1996). Double Objects, Causatives, and Derivational Economy. *Linguistic Inquiry* 27-1: 146-173.
- Ginet, Carl (1990). *On action*. Cambridge: CUP.
- Göksel, Aslı (1993). *Levels of representation and argument structure in Turkish*. Doctoral Dissertation, University of London.
- Guasti, Maria Teresa (2005). Analytic Causatives. In Martin Everaert and Henk van Riemsdijk (eds), *The Blackwell Companion to Syntax*. Vol. 1. Malden: Blackwell Publishing, 142-172.
- Hale, Ken, and Keyser, Samuel Jay. (1993). On argument structure and the lexical expression of syntactic relations. In Ken Hale and Samuel J. Keyser (eds) *The View from Building 20*. Cambridge: MIT Press, 53-110,
- Halle, Morris, and Marantz, Alec (1993). Distributed Morphology and the Pieces of Inflection. In Ken Hale and S. Jay Keyser (eds.). *The View from Building 20. Essays in Honor of Sylvain Bromberger*. Cambridge: MIT Press, 111-176.
- Harley, Heidi, and Noyer, Rolf (2000). Formal versus Encyclopedic Properties of Vocabulary: Evidence from Nominalizations. In Bert Peeters (ed.). *The Lexicon-Encyclopedia Interface*. Elsevier Press.
- Harley, Heidi (1995). *Subjects, Events and Licensing*. MIT Thesis.
- Harley, Heidi (2005). How do verbs get their names? Denominal verbs, manner incorporation, and the ontology of verb roots in English. In Tova Rapoport & Nomi Erteschik-Shir (eds.), *The syntax of aspect. Deriving thematic and aspectual interpretation*. Oxford: Oxford University Press, 42–64.
- Harley, Heidi (2008). On the causative construction. In Shigeru Miyagawa and Mamoru Saito (eds.), *Oxford Handbook of Japanese Linguistics*. Oxford University Press, 20-53.
- Harley, Heidi (2009). The morphology of nominalizations and the syntax of vP. In Anastasia Giannakidou & Monika Rathert (eds.), *Quantification, definiteness and nominalization*. Oxford: Oxford University Press, 321–343.
- Haspelmath, Martin (1993). More on the typology of inchoative/causative verb alternations. In Bernard Comrie and Maria Polinsky (eds.) *Causatives and Transitivity*, 87-120). Amsterdam: John Benjamins, 121-139.

- Horvath, Julia, and Siloni, Tal (2010). Lexicon versus Syntax: Evidence from Morphological Causatives. In Malka Rappaport Hovav, Edit Doron, and Ivy Sichel (eds.) *Lexical Semantics, Syntax, and Event Structure*. Oxford: Oxford University Press, 153-176.
- Kistler, Max (this volume). Analysing Causation in Light of Intuitions, Causal Statements, and Science.
- Kratzer, Angelika (1996). Severing the External Argument from its Verb. In J. Rooryck and L. Zaring (eds.). *Phrase Structure and the Lexicon*. Dordrecht: Kluwer, 109-137.
- Kratzer, Angelika (2005). Building resultatives. In C. Maienbaum and A. Wollstein-Leisen (eds.). *Event arguments in Syntax, Semantics, and Discourse*. Tübingen: Niemeyer, 177-212.
- Krifka, Manfred (1989). Nominal reference, temporal constitution and quantification in event semantics. In Renate Bartsch, Johan van Benthem and Peter and Emde Boas (eds.) *Semantics and contextual expression*. Dordrecht: Foris Publications, 75-115.
- Krifka, Manfred (1992). Thematic relations as links between nominal reference and temporal constitution. In Sag, Ivan A. and Anna Szabolsci (eds.) *Lexical matters*. Stanford: CSLI Publications, 29-53.
- Krifka, Manfred (1998). The origins of telicity. In Susan Rothstein (ed.) *Events and Grammar*. Dordrecht: Kluwer Academic Publishers, 197-235.
- Kulikov, Leonid I. (2001). Causatives. In Martin Haspelmath, Ekkehard König, Wulf Oesterreicher and Wolfgang Raible (eds.) *Language Typology and Language Universals: an International Handbook*, vol. 2. Berlin: Walter de Gruyter, 886-98.
- Lakoff, George, and Johnson, Mark (1980). *Metaphors We Live By*. Chicago and London: University of Chicago Press.
- Lakoff, George (1965). *On the Nature of Syntactic Irregularity*. Doctoral Dissertation, Indiana University.
- Lakoff, George (1971). On Generative Semantics. In Danny D. Steinberg and Leon A. Jakobovits (eds.) *Semantics*. London: Cambridge University Press, 232-296.
- Levin, Beth, and Rappaport Hovav, Malka (1995). *Unaccusativity. At the Syntax-Lexical Semantics Interface*. Cambridge/Mass.: MIT Press.
- Levin, Beth (1993). *English Verb Classes and Alternations: A Preliminary Investigation*, Chicago: University of Chicago Press.
- Levin, Beth, and Rappaport Hovav, Malka (2010). Lexicalized Meaning and Manner/Result Complementarity. Ms., Stanford University and The Hebrew University of Jerusalem.
- Lewis, David (1973). Causation. *Journal of Philosophy* 70: 556-567.
- Li, Yaffei (1990). X[?]-Binding and Verb Incorporation. *Linguistic Inquiry* 21: 399-426.
- Lidz, Jeffrey (2004). Causation and Reflexivity in Kannada. In V. Dayal and A. Mahajan (eds.) *Clause Structure in South Asian Languages*. Dordrecht: Kluwer, 93-130.
- Ljutikova, Ekaterina, Tatevosov Sergei, Ivanov, Mikhail, Shluinskij, Andrej, and Pazel'skaja, Anna (2006). *Struktura sobytija i semantika glagola v Karachajevsko-Balkarskom jazyke*. [Event structure and verb meaning in Karachay-Balkar]. Moskva: IMLI RAN.
- Marantz, Alec (1984). *On the Nature of Grammatical Relations*. Cambridge: MIT Press
- 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* 4-2: 201-225.
- Martin, Jack (1991). Lexical and Syntactic Aspects of Creek Causatives. *International Journal of American Linguistics* 57-2: 194-229.
- McCawley, James D. (1971). Pre-lexical Syntax. In Richard J. O'Brien (ed.) *Linguistics: Developments of the Sixties - Viewpoints for the Seventies*. Washington: Georgetown University Press.
- McCawley, James D. (1972). Syntactic and Logical Arguments for Semantic Structures, Indiana University Linguistics Club, Bloomington, Indiana
- Miyagawa, Shigeru (1984). Blocking and Japanese causatives. *Lingua* 64: 177-207.
- Miyagawa, Shigeru (2012). Blocking and causatives: Unexpected competition across derivations. *Case, Argument Structure, and Word Order*, Chapter 8. Routledge, 202-223.
- Nash, Léa (2006). Structuring VP. Paper presented at Ecole d'Automne de Linguistique, Paris.
- Nedjalkov, Vladimir P.; and Sil'nickij, G.G. (1969). Tipologija morfoložičeskogo i leksičeskogo kauzativov. In Aleksandr Xolodovič (ed.). *Tipologija kauzativnyx konstrukcij: Morfoložičeskij kauzativ*. Leningrad: Nauka, 20-50.
- Pylkkänen, Liina (1999). Causation and External Arguments. *Papers from the UPenn/MIT Roundtable on the Lexicon*. (MIT Working Papers in Linguistics 35). Cambridge: Massachusetts Institute of Technology, 161-183.
- Pylkkänen, Liina (2002). *Introducing arguments*. MIT Thesis.

- Ramchand, Gillian (2008). *Verb Meaning and the Lexicon: A First Phase Syntax*. Cambridge: Cambridge University Press.
- Randriamasimanana, Charles (1986). *The Causatives of Malagasy*. (Oceanic Linguistics Special Publications 21). Hawaii: University of Hawai'i Press
- Rappaport Hovav, Malka, and Levin, Beth (1998). Building Verb Meanings. In M. Butt and W. Geuder (eds.). *The Projection of Arguments: Lexical and Compositional Factors*. Stanford: CSLI Publications, 97-134
- Rappaport Hovav, Malka, and Levin, Beth (2010). Reflections on Manner/Result Complementarity. In Malka Rappaport Hovav, Edit Doron, and Ivy Sichel (eds.) *Lexical Semantics, Syntax, and Event Structure*. Oxford: Oxford University Press, 21-38.
- Ritter, Elizabeth, and Rosen, Sara Thomas (1993). Deriving Causation. *Natural Language and Linguistic Theory* 11-3: 519-555.
- Rothstein, Susanne (2004). *Structuring events: a study in the semantics of lexical aspect*. Malden: Blackwell Publishing.
- Saksena, Anuradha. Contact in causation. *Language* 58-4: 820-831.
- Shibatani, Masayoshi (1975). *A Linguistic Study of Causative Constructions*. Bloomington: Indiana University Press.
- Shibatani, Masayoshi (ed.) (1976). *The grammar of causative constructions*. (Syntax and semantics 6). New York: Academic Press.
- Shibatani, Masayoshi (ed.) (2002). *The Grammar of Causation and Interpersonal Manipulation*. Amsterdam: John Benjamins.
- Shibatani, Masayoshi, and Pardeshi, Prashant (2002). The causative continuum. In Masayoshi Shibatani (ed.) *The Grammar of Causation and Interpersonal Manipulation* (Typological Studies in Language 48). Amsterdam: John Benjamins, 85–126.
- Shibatani, Masayoshi (1973). Semantics of Japanese causatives. *Foundations of Language* 9-3: 327-373.
- Shibatani, Masayoshi (2006). On the conceptual framework for voice phenomena. *Linguistics* 44-2:217-69.
- Talmy, Leonard (2000). *Toward Toward A Cognitive Semantics*. Volume I: *Concept Structuring Systems*. Cambridge: MIT Press.
- Tatevosov, Sergei and Lyutikova, Ekaterina (to appear). A finer look at predicate decomposition: evidence from causativization. In Christopher Piñon (ed.) *Empirical Issues in Syntax and Semantics 9*.
- Tatevosov, Sergei and Ivanov, Mikhail (2009). Event Structure of non-culminating accomplishments. In Lotte Hogeweg, Helen de Hoop, and Andrei Malchukov (ed.) *Cross-linguistic semantics of Tense, Aspect, and Modality*. Amsterdam: John Benjamins
- Thomason, Richmond. This volume. Formal Semantics for Causal Constructions.
- Travis, Lisa DeMena (2000). Event structure in syntax. Carol Tenny and James Pustejovsky (eds.). *Events as grammatical objects: The converging perspectives of lexical semantics and syntax*. Stanford: CSLI Publications, 145-185.
- Travis, Lisa DeMena (2005). Articulated VPs and the computation of aktionsart. Paula Kempchinsky and Roumyana Slabakova (eds.). *Syntax, Semantics, and Acquisition of Aspect*. New York: Springer Publishers, 69-94
- Travis, Lisa DeMena (2010). *Inner aspect: The Articulation of VP*. Dordrecht: Springer.
- Tubino Blanco, Mercedes (2011). *Causatives in Minimalism*. [Linguistik Aktuell/Linguistics Today, 179]. Amsterdam: Benjamins.
- von Stechow, Arnim (1996). The different readings of *wieder* 'again': A structural account. *Journal of Semantics* 13: 87-138.
- Wierzbicka, Anna (1988). *The semantics of grammar*. Amsterdam: John Benjamins.
- Wolff, Phillip. This volume. Causal Pluralism and Force Dynamics.
- Wunderlich, Dieter (1997). Cause and the Structure of Verbs. *Linguistic Inquiry* 28-1: 27-68
- Wunderlich, Dieter (2006). Towards a structural typology of verb classes. In: Wunderlich, Dieter (ed.) *Advances in the theory of the lexicon*. Berlin: Mouton de Gruyter, 57-166.
- Yang, In-Seok (1976). Semantics of Korean Causation. *Foundations of Language* 14-1: 55-87.
- Zimmer, Karl (1976). Some constraints on Turkish causativization. In Masayoshi Shibatani (ed.) *Syntax and semantics 6: The grammar of causative constructions*, pp. 399-412. New York: Academic Press.