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Direct and Indirect Causation:
Syntax and Semantics of Monophasal Causatives

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Syntax and Semantics of Monophasal Causatives

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List of Abbreviations

1	First person
2	Second person
3	Third person
ABL	Ablative
ABS	Absolutive
ACC	Accusative
APPL	Applicative
CAUS	Causative
COMP	Complementizer
CONJ	Conjunctive
DAT	Dative
DECL	Declarative
DELLIM	Delimitative
ERG	Ergative
EZ	Ezafe Marker
F	Feminine
FV	Final vowel
HON	Honorific
GEN	Genitive case
IMP	Imperfective
INF	Infinitive
INSTR	Instrumental
INTRANS	Intransitive
LOC	Locative
M	Masculine
N	Neuter
NEG	Negation, negative
NOM	Nominative
NP	Noun Phrase
OBJ	Object
PASS	Passive
PERF	Perfective
PL	Plural
PP	Prepositional phrase
PST	Past
RÂ	*-râ* marker
SC	Small clause
SG	Singular
SUBJ	Subjunctive
TOP	Topic
TP	Tense phrase
VOICEP	Voice phrase
*v*P	Little *v* phrase
VP	Verb phrase

Abstract

Direct and Indirect Causation:

Syntax and Semantics of Monophasal Causatives

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This thesis investigates the semantics and syntax of causation in monophasal predicates and differentiates between the semantic types of causation and syntactic types of causation by criticizing various semantic and syntactic approaches to causation and CAUSE. It will be argued that the semantic approaches to what is loosely referred to as "defeasible causatives" are either very strong, making a distinction between the sentential and contextual meaning impossible, or not comprehensive. It will be argued that the semantic types of causation can be explained by using the notion of the atomicity of subevents. Accordingly, a monophasal predicate can denote four types of causation; "causation with an atomic result" (a type of causation, whose result is entailed or implied to be atomic), "causation with plural sub-results" (a type of causation, which is composed of plural sub-results), "causation with zero-results" (a type of causation whose result only derives from a plurality of causing subevents) and "destined causation" (a type of causation whose result derives from a plurality of an "extended chain of disjoint sub-events").

This thesis also argues that previous approaches to the syntax of causation in monophasal predicates suffer configurational problems, namely an improper place of syntactic heads with respect to each other which results in various syntactic problems. It will be claimed that syntactically, the functional head CAUSE can give rise to "causative fluctuation", which is the syntactic inversion of CAUSE with respect to the root —i.e. CAUSE appears above or below the verbal root, and canonically, all types of causation can show causative fluctuation in a causative predicate.

This thesis argues that the existing characteristics of causative fluctuation can be seen in two major environments. The first environment is the English 'induced action' verbs, and resultatives with unselected objects. It will be argued that only the former but not the latter shows causative fluctuation. The second environment is what I claim to be a type of unmarked anticausative which unlike other unmarked anticausatives constitutes a VOICE (semi-anticausatives). It will be argued that semi-anticausatives only allow CAUSE to appear above the lexical root and this behavior can be extended to all anticausatives and 'non-causative resultatives'.

Keywords: English, Korean, Persian, indirect/direct causation, causatives, resultatives,

anticausatives

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1 Introduction

1.1 Causation in Monophasal Predicates

Recognizing the types of causal relations, properly ordering the sequence of subevents in a causal relation, and exploring the relations between them must be part of any theory of causation. This thesis investigates the syntax and semantics of "monophasal causatives". I use the term 'monophasal' to cover predicates that are constituted with one phase, e.g., one VOICEP (Blanco 2011), as well as predicates that are constituted of one phase but lack VOICEP, i.e., anticausatives (Legate 2003; Alexiadou et al 2006, 2015); and by 'monophasal causative', following Alexiadou et al (2006), I roughly refer to all 'change of state predicates' which denote a causal relation.

Causation[1] most famously is understood by Lewis's (1973) definition. According to him, causation is a relation between a causing event and a caused event in which the causing event must precede the caused event. For instance, in *John broke the stone with a hammer*, he caused the stone to be broken by hitting it with a hammer. Here, hitting the stone with a hammer is the causing event and the stone being broken is the caused event. According to Lewis's definition, causation is 'counterfactual', which means that if it was not for John's hitting the stone with a hammer, it would not be broken. This concept does not concern the objects of this study (see e.g., Kistler (2014) for the problems regarding counterfactuality). The presence of a causal relation in the structure of predicates is indicated by the functional head CAUSE in the literature (Dowty 1979; Jackendoff 1992; Levin & Rappaport Hovav 1995; Pylkkänen 2002, 2008; Alexiadou, Anagnostopoulou & Schäfer 2006; among others). In the narrower sense, causation can mean *cause, allow, enable, prevent*, etc. (Talmy 2000; Wolff & Song 2003; among others). Thus, *allowing someone to leave*, *preventing someone to leave,* or *making someone leave* all denote a sense of causation. In this study, 'CAUSE' will be used as

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[1] For an overview of different approaches to causation, see e.g. Copley & Wolff (2014).

an umbrella term for its various senses (See Wolff's (2014) argument in favor of casual monism).

1.2 Rethinking Causation and CAUSE

It is not the case that all causal relations are perceived as a full change of state:

(1) (a) The gunsmith killed the sheriff.　　　　　　Neeleman & van de Koot (2012:87)

　　(b) Persian

　　　　John　　　bačča-ro　dav-und-Ø.

　　　　John　　　kid-ACC　run-CAUS-3SG

　　　　'John made the child run.'

　　(c) Persian

　　　　John　brây-e　　doxtar-eš　　ketâb　　ferestâd-Ø.

　　　　John　for-EZ　　daughter-his　book　　sent-3SG

　　　　'John sent a book to his daughter.'

　　(d) Korean

　　　　na-nun　　mwun-ul　　han　　sikan　　tongan　yel-ess-ci-man,

　　　　I-TOP　　door-ACC　　one　　hour　　for　　　open-PST-COMP-but

　　　　mwun-i　　cokumto　yel-li-ci　　　　anh-ass-ta.

　　　　door-NOM　a. bit　　open-INC-COMP　NEG-PST-DECL

　　　　Int: 'For an hour, I (tried to) open the door but the door did not open at all.'

While (1a) entails a change of state, the others do not. (1b) is compatible with durative adverbials, while it entails that causation has happened. In (1c), there is an entailed result, which is a sent book. Even though it does not entail a transfer of possession of the theme to the goal, many studies assume that it also denotes a causal relation (Koenig & Davis 2001; Krifka 1999; Rappaport Hovav & Levin 2008; Beavers 2010; Kratzer 2015; Martin & Schäfer 2015; Martin & Schäfer 2017). In (1d), the causative predicate only shows a state of affairs in which no change of state has happened. Thus,

more or less, all the examples in (1) denote a causal relation. However, (1a) denotes a specific result, while (1b, c, d) do not entail a specific result. The question is what should be considered a 'caused event' in terms of Lewis (1973). Should one consider the start of a running or a "loss of possession" a caused event? Or should one consider them as non-caused events, as running has no specific change of location in (1b) and the change of possession in (1c) is not entailed? Notice that (1b) is compatible with durative adverbials, while (1c) is not, as it is punctual.

Furthermore, as it will be argued in chapter 2, no study can successfully capture the differences between the failed attempt (zero-result) readings in (1c) and (1d). The failed attempt reading in (1c) is the failure of a change of possession, not the failure of sending, and this failure does not trigger durative adverbials (*John sent a book to his daughter* (#*for thirty minutes*) *but she has not received it yet*). In contrast, the failed attempt reading in (1d) denotes zero progress, and it may trigger durative adverbials. Thus, the examples in (1) require us to give a more refined definition of causation than Lewis's (1973) in terms of the entailment properties of the caused event.

Another aspect of the problem involves the syntax of causation. All the syntactic approaches which will be discussed in chapter 3 face different "configurational" problems. These are problems in which the hierarchical relation between CAUSE, root, and result has been ignored. For instance, in Pylkkänen (2002, 2008), the 'direct' causation for (2b), where Taroo himself scorches the meat, is syntactically represented as 'CAUSE-root' while the 'indirect' causation for (2a), where Taroo caused the meat to become scorched, is represented as 'CAUSE-v_{become}-V'.

(2) (Pylkkänen 2002:100)

    (a) CAUSE nonlocal to root:

       Taroo-wa   niku-o   kog-e-sase-ta.

       Taroo-TOP   meat-ACC   burn-INTRANS-CAUS-PST

       'Taroo caused the meat to become scorched.'

    (b) CAUSE local to root:

       Taroo-wa   niku-o   kog-asi-ta.

Taroo-TOP   meat-ACC   burn-CAUS-PST

'Taroo scorched the meat.'

In both structures, the logical inference is that the argument of CAUSE is the result (Lewis 1973), and nothing indicates the directness of causation in the 'CAUSE-root' configuration, as CAUSE is syntactically the higher head (CAUSE-caused event) and a spatiotemporal separation of causing event and caused event (result) is possible (also see Neeleman & van de Koot 2012). In addition, it cannot account for causatives which show indirect vs. direct ambiguity (Lyutikova & Tatevosov 2014). The example in (1a) may be ambiguous between a reading in which the gunsmith himself killed the sheriff and a reading in which he blames himself for the sheriff's death. The abovementioned facts, I believe, call for a rethinking of the semantics and syntax of causation and CAUSE.

1.3   Summary of the Dissertation: Causative Fluctuation

This thesis argues that the syntax and semantics of causation can be the source of different types of causation. Chapter 4 shows that semantically, a monophasal predicate can denote four types of causation, namely: "causation with an atomic result" (a type of causation, whose result is entailed or implied to be atomic: e.g., *kill* of (1a)), "causation with plural sub-results" (a type of causation, which is composed of plural homogeneous sub-results: e.g., causative *run* in (1b)), "causation with zero-results" (a type of causation whose result only derives from a plurality of causing subevents: e.g., *open* of (1d)), and "destined causation" (a type of causation whose result derives from the plurality of an "extended chain of disjoint sub-events": e.g., *send* of (1c)).

Chapter 5 argues for a participant-based analysis of causation in which all the predicates in (1), regardless of their different types of causation, can denote a direct and an indirect causation reading. This is syntactically determined by CAUSE appearing above and below the root:

(5) Direct causation

```
                              VP
         ┌────────────────────┴──────────┐
      √root                              vP
      causation with an atomic result,  ┌──┴──┐
      causation with plural sub-results,
      causation with a zero-result,
      destined causation              CAUSE
```

(6) Indirect causation
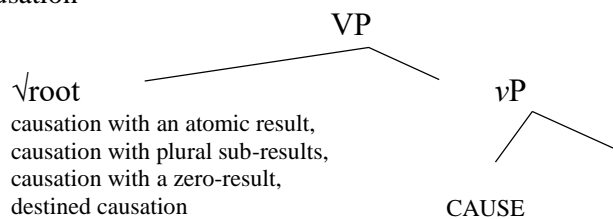
```
              vP
         ┌────┴────┐
       CAUSE      VP
              ┌────┴──────────┐
            √root
            causation with an atomic result,
            causation with plural sub-results,
            causation with a zero-result,
            destined causation
```
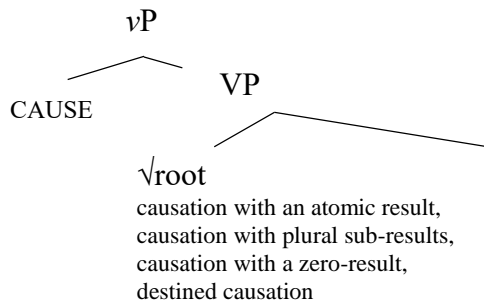
It will be argued that the fluctuating structures properly account for (in)direct causation readings in monophasal predicates (see chapter 5), as well as accounting for predicates, which randomly allow 'agent–oriented' adverbs (e.g. Ernst 2001) in their lower domain, without assuming a syntactic structure with two VOICEs (see chapter 3). Also, our proposal accounts for two intermediate readings of *again* (see section 3.1.2.2 for the description of the problem and 5 for a possible answer). The syntactic fluctuation of CAUSE can be supported by the syntactic and semantic behavior of Levin's (1995) 'induced action' verbs and resultatives with an unselected argument (see chapter 6).

In chapter 7, we discuss another piece of evidence for the syntax of CAUSE, which comes from the behavior of what I refer to as "semi-anticausatives" in Persian. It is argued that the CAUSE in their structure appears above the verbal root. We claim that our analysis can be extended to all anticausatives and 'non-causative' resultatives (Goldberg & Jackendoff 2004). See chapter 8 for a brief summary and concluding remarks.

2 Previous Semantic Accounts of Causation and Defeasible Causatives

This chapter investigates semantic approaches to causation. For a general survey of different approaches to causation, see Copley & Wolff (2014). Causation is a relation between a causing event and a caused event in which the causing event must precede the caused event and where it is counterfactual (Lewis (1973); also see e.g., Kistler (2014) for the problems regarding counterfactuality)[2]. This definition of causation does not pose a problem for predicates that denote an entailed result (change of state) as in *John broke the glass*. However, as has been argued in the literature and which will be discussed below, it is problematic for predicates which show different degrees of causation:

(1) (a) Persian

    John   brây-e   doxtar-eš   ketâb   ferestâd-Ø.

    John   for-EZ   daughter-his   book   sent-3SG

    'John sent a book to his daughter (but the book was lost on the way).'

  (b) Korean

    na-nun   mwun-ul   han sikan   tongan   yel-ess-ta

    I-TOP   door-ACC   one hour   for   open-PST-DECL

    kurena   mwun-i   cokumto   yel-li-ci   anh-ass-ta.

    but door-NOM   a. bit   open-INC-COMP   NEG-PST-DECL

    'I (tried to) open the door for an hour. But it did not open even a bit'.

These predicates imply a change of state (result) but unlike (1b), (1a) also possesses an entailment

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[2] See Thomason (2014) regarding problems of Dowty's (1979) definition of causation.

('loss of possession'; see section 2.2). These are referred to as 'defeasible causatives' in Martin & Schäfer (2012), and Martin (2015). However, in different studies, (1b) is also referred to as a 'non-culminating accomplishment' (Tatevosov & Ivanov 2009; Lee 2015; Beavers & Lee in Press; among others). Here, I use the term "defeasible causative" as an umbrella term to refer to all predicates which may imply a change of state (see Tenny 1994; Smollett 2005; Filip 2008; Beavers 2006, 2011; Rappaport Hovav 2008; Rothstein 2004, 2008, 2012; among others). The attempts to account for these predicates invoke many intriguing approaches which includes what I call "CAUSE-less" approaches and "CAUSE-based" approaches. As will be discussed below, despite many attempts to account for these predicates, there are still problems which can be seen by comparing these approaches to each other. In what follows, 2.1 point outs the shortcomings of the previous CAUSE-less approaches, 2.2. points out the shortcomings of CAUSE-based approaches, and 2.3 offers a summary.

2.1   CAUSE-less Approaches

Different classes of verbs inspired different 'CAUSE-less' approaches to interpret the eventuality of events. The following summaries them.

2.1.1   Possible Worlds Approach

To account for the defeasibility of causation in the progressive tense (e.g., *John is building a house* does not mean that John built the house), which causes problems for Lewis's (1973) definition of causation (see above), the 'possible worlds' theories assume that an event (e) is the result of quantification over a set of possible worlds in which the caused event (e_2) also exist. This approach was taken by Dowty (1979), Landman (1992), Portner (1998), Varasdi (2014), and Martin (2015), among many others, to account for the defeasibility of causation in the progressive tense. According to Martin (2015: 261), unlike languages (e.g., (1b) from Korean) in which defeasibility can happen

in the perfective tense, the defeasibility in English causatives (e.g., *wake up*) only happens in the progressive tense. This means that they are 'non-defeasible' and a shift to possible worlds is triggered only by the progressive operator PROG. As addressing predicates with a progressive tense is out of the scope of the current study, for the rest of this study this short introduction of the 'possible words' approaches will suffice.

2.1.2   Scale Approach

A 'scale approach' is argued with regards to accomplishment and degree achievement predicates (e.g., *widen*, *redden* (Dowty 1979)) in Krifka (1998), Hey et al (1999), and Kennedy & Levin (2008), among others. These predicates can show both telic and atelic readings (e.g., *the river widened in/for day*). The most comprehensive accounts of the scale approach, which can be applied to different classes of verbs, is offered by Rothstein (2008), and Beavers (2011). The difference between the two is that Beavers' account is independent from the lexical aspect of the predicates while Rothstein's account is an attempt to account for telicity.

Rothstein (2004, 2008, 2012) attempts to account for telicity in Vendler's (1967) verb classes by using the notion of atomicity[3] (Krifka 1998, Rothstein 2008, 2012), one of the determining elements of telicity[4]. Rothstein assumes that the basic verbal denotations at the V and VP level must count as one on some scale of measurement in order to be considered atomic:

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[3] Krifka (1998) defines 'atoms' and 'atomicity' as follows:

(i) $\forall X \subseteq U_P \forall x \in U_P [ATOM_P (x, X) \leftrightarrow X(x) \wedge \neg \exists y \in U_P [y <_P x \wedge P(y)]]$

 'An element x is an X-atom iff it has the property X and does not contain any proper part with the property X.'

(ii) $\forall X \subseteq U_P [ATM(X) \leftrightarrow \forall x \in U_P [X(x) \rightarrow \exists y \in U_P [[y \leq_P \wedge P(y)]] x \wedge ATOM_P (y, X)]]]$

 'A property X is atomic iff every element with this property has an X-atom as a part.'

Also see Rothstein (2010) for different kinds of atomicity.

[4] There are factors, which are discussed in the literature, including 'count' vs. 'mess' nouns (e.g. Tenny 1994), 'strict incrementality' and 'quantization' (Krifka 1998).

(2) $\lambda e. P(e) \wedge \text{MEAS}(e) = \langle 1, U \rangle$

According to Rothstein (2008:59~62)[5] 'semelfactives' (e.g. *jump*) are 'naturally atomic', 'since they denote sets of minimal events with a defined beginning and endpoint, and thus the unit measure U is fully determined by the meaning of the verb' as in (3). According to her, achievements (e.g. *arrive*) are also 'naturally atomic' as 'they are non-extended changes' as in (4). As for accomplishments, she assumes that, only where the direct object is atomic, they allow a measure for a single event. Activities are cumulative and therefore not 'naturally atomic' as in (5):

(3) $\lambda e. \text{JUMP}(e) \wedge \text{MEAS}(e) = \langle 1, \lambda e. \text{JUMP}(e) \rangle$.

(4) $\lambda e. \text{ARRIVE}(e) \wedge \text{MEAS}(e) = \langle 1, \lambda e. \text{ARRIVE}(e) \rangle$

(5) $\text{RUN} \rightarrow \lambda e. \text{RUN}(e) \wedge \text{MEAS}(e) = \langle 1, U \rangle$

Rothstein (2008:59~62)

Accordingly, there are natural classes of the atomic predicates (semelfactives and achievements), predicates which are not naturally atomic (activities), and predicates whose atomicity depend on the argument they take (accomplishments). Accomplishment predicates like *read a book*, *knit a sweater* may have an atelic reading which do not introduce a scale, as they show a shift to an activity reading. According to her, this type of accomplishment predicates[6] have a lexically specified activity event or e_1 (e.g. reading, kiting is an activity).

---

[5] Vendler's (1967) classification includes state verbs, activity verbs, achievement verbs, and accomplishment verbs. Thus, semelfactives are not originally in the Vendler's (1967) classification of verbs. This class of verbs was later added by Comrie (1976). Rothstein, of course, is well aware of this fact but she probably uses the term 'Vendler class' as an umbrella term.

[6] Rothstein (2012) categorizes two classes of accomplishments; accomplishments in the first class have a lexically specified activity subevent like *eat*, *read,* etc., while accomplishments in the second class lack a lexically specified activity subevent like *build*, etc.

The main shortcoming of this account is the 'prospective possessor' verbs in which, whether the result is implied or not, the interpretation of the result is not decided by the telicity of the event—i.e. they are not compatible with durative adverbials (Beavers 2006):

(6) He sent a letter to his son #for a day.

The predicate in (6), can imply a change of possession or its failure, but in either case, *for*-adverbials are not triggered. Thus, a reading in which the 'loss of possession' starts and it is continued without a change of possession to another party (the son in (6)) is not compatible with *for a day*.

Another scale approach accounting for different transitive verb classes was offered in Beavers (2011). Based on Hopper & Thompson's (1980) notion of 'affectedness' (a degree to which a patient undergoes a change), Beavers (2011) argues that 'affectedness' should be defined based on the 'type of affectedness' and 'degree of affectedness'. He mentions that this is not reducible to lexical aspects:

(7) (a) Affectedness based on type of affectedness:

   i. *x* changes to an observable property: (clean/paint/delouse/fix/break x)

  ii. *x* transforms to *y*: (turn/carve/change/transform x into y)

 iii. *x* moves to a location: (move/push/angle/roll x into y)

 iv. *x* is physically impinged: (hit/kick/punch/wipe/scrub/sweep x)

  v. *x* goes out of existence: (delete/eat/consume/reduce/devour x)

 vi. *x* comes into existence: (build/design/construct/create x)

(b) Affectedness based on degree of affectedness:

  i. *x* undergoes a quantized change iff $\varphi \rightarrow \exists e \exists s [result' (x, s, g_\varphi, e)]$

     Accomplishments/achievements: *break, shatter, destroy, devour x*)

 ii. *x* undergoes a non-quantized change iff $\varphi \rightarrow \exists e \exists s \exists g [result' (x, s, g, e)]$

     (e.g. degree achievements/*cutting*: *widen, cool, lengthen, cut, slice x*)

 iii. *x* has potential for change iff $\varphi \rightarrow \exists e \exists s \exists \theta [\theta(x, s, e)]$

(e.g. surface contact/impact: *wipe, scrub, rub, punch, hit, kick, slap x*)

iv.   *x* is unspecified for change iff $\varphi \rightarrow \exists e \exists \theta'[\theta'(x, e)]$

(e.g. other activities/states: *see, laugh at, smell, follow, ponder, ogle x*)

According to Beavers, both 'quantized' and 'non-quantized' changes involve a transition of a theme along a scale of the event. However, they differ in that a 'quantized' change contains a specific goal. A 'potential for change' consists of a latent scale and a transition that is not entailed. An event 'unspecified for change' does not involve a scale for change. Notice that the 'type of affectedness' is not directly related to the 'degree of affectedness' in Beavers' study. For example, *delete* and *build* in (7a) appear in different types of affectedness although they both denote a 'quantized affectedness'.

One of the problems with Beavers' approach is that despite the similarities of 'prospective possessor' verbs and 'potential for change' verbs, only the former appears with a modality (cf. Beavers 2006). Notice that both types of verbs may have a sentential entailment, and a contextual implication. For example, in *Mary sent the book* and *John wiped the table*, 'loss of possession' and 'touching and being in contact with the surface of the table' are entailed, and each have an implication regarding a possible change of state. However, the scale is only modalized in prospective possessor verbs, as in (8). His scale analysis of prospective possessor verbs raises a problem:

(8) For $\varphi = \lambda x, y, s, e.[\alpha(x, y, e, s) \wedge \delta_1(x) \wedge \delta_2(y) \wedge \theta_S(e, s) \wedge \theta_T(e, x) \wedge \theta_R(e, y)]$

(α=V, δ_1=theme N, δ_2=recipient N, θ_S=scale role, θ_T=theme role, θ_R=recipient role) prospective possessor ("*y* potentially comes to possess *x* in φ"):

$\lambda y \forall e \forall x \forall s.[\varphi(x, y, e, s) \rightarrow \Diamond[\text{SOURCE}(s, b_{\varphi,C}, x, e) \wedge \text{GOAL}(s, g_{\varphi,C}, x, e) \wedge b_{\varphi,C} : \neg HAVE(y, x,$

$e) \wedge g_{\varphi,C} : HAVE(y, x, e)]]$

The formula above says that 'a prospective possessor *y* is an entity that possibly does not possess the theme *x* at the beginning of the event but at the end of the event possibly does possess *x*' (Beavers 2006: 196). In the formula above, the role of the agent whose participation in the event brings about

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the sentential entailment of the predicate is lost. For instance, in (1a) (here copied again), ¬*SENT* can

also denote a situation in which the prospective possessor does not have (¬*HAVE*) a theme, while

John's participation in the event resulted in the sending of a book (entailment). Put differently, the

sentential meaning which introduces a contrast between ¬*SENT* and *SENT* is being ignored. This can be

seen where the SOURCE and GOAL are the contextual implications between ¬*HAVE* and *HAVE* in (8).

In addition, it is not clear how a scale analysis may be extended to defeasible causatives like (1b):

(1) (a) Persian

John	brây-e	doxtar-eš	ketâb	ferestâd-∅.
John	for-EZ	daughter-his	book	sent-3SG

'John sent a book to his daughter (but the book was lost on the way).'

(b) Korean

na-nun	mwun-ul	han	sikan	tongan	yel-ess-ci-man,
I-TOP	door-ACC	one	hour	for	open-PST- COMP-but

mwun-i	cokumto	yel-li-ci	anh-ass-ta.
door-NOM	a. bit	open-INC-COMP	NEG-PST-DECL

'I (tried to) open the door for an hour. But it did not open even a bit'.

2.1.3   CAUSE-less Modal Based Approach

What I refer to as a 'CAUSE-less modal based approach' to 'defeasible causatives' was taken from

Tatevosov & Ivanov (2009), based on Rothstein's (2004, 2008, 2012) account of accomplishment

predicates. Rothstein (2004, 2008, 2012), following Dowty (1979), assumes that the structure of

accomplishments is bieventive. However, following Levin (2000), she assumes that the relation

between them is incremental, not causal. She further assumes that these predicates introduce an

incremental chain (a set of ordered parts of *e*). An accomplishment event consists of both an activity

event and a BECOME event. The BECOME event itself is the set of 'upper bound events' (the set of

culminations of parts of e_1) and an event is culminated when a final upper bound occurs. Rothstein (2004:158) suggests the following template for an accomplishment event:

(9) $\lambda y\lambda e\exists e_1\exists e_2[e=^S(e_1\cup e_2) \wedge activity(e_1) \wedge agent(e_1)=x \wedge theme(e_1)=y \wedge become(e_2) \wedge$

$arg(e_2)=theme(e_1) \wedge \text{INCR}(e_1, e_2, \text{C}(e_2))]$

The following schema by Rothstein (2012:86) consists of an activity-type event (e_1) and an event of progress (e_2) for accomplishment predicates. e_2 contains 'upper bounds' and moves toward the culmination or the BECOME event:

(10)
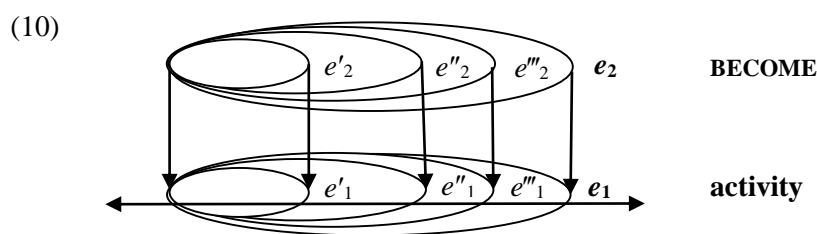
Tatevosov & Ivanov (2009:83~84), following Rothstein, assume an incremental relation between the activity and the BECOME event. They classify two types of 'accomplishment' predicates, which they refer to as 'partial successes', as in (11)~(13), and 'failed attempts', as in (14)~(16). The following examples are taken from Tatevosov & Ivanov (2009:83~84):

(11) **Karachi-Balkar** (Altaic Turkic)

   (a) Alim   eki   saɣat-xa baxca-nɨ   sür-dü.

      Alim   two hour-DAT field-ACC   plow-PST.3sg

    'Alim ploughed a vegetable garden in two hours.'

   (b) Alim   eki   saɣat   baxca-nɨ   ür-dü.

      Alim   two hour   field-ACC   plow-PST.3sg

    (i) 'Alim was involved in ploughing the field for two hours.'

    (ii) *'Alim tried to plough the field for two hours (but hasn't made a single furrow)'

(12) **Mari** (Uralic, Finno-Uralic)

   (a) Jivan tide šereš-em   lu   minut-əšte   voz-en.

Ivan   this letter-ACC   ten minute-INESS wirte-PST

'Ivan wrote this letter in 10 minutes.'

(b) Jivan tide šereš-em   lu   minut   voz-en.

Ivan   this letter-ACC   ten minute   write-PST

(i) 'Ivan was involved in writing this letter for ten minutes.'

(ii)*'Ivan tried to write this letter for ten minutes (but hasn't written a single word).'

(13) **Russian**

(a) Vasja zapolni-l   anket-u   za pjat' minut.

Vasja fill-PERF.PST.M   from-ACC   in   five minute

'Vasja filled in the form in five minutes.'

(b) Vasja   po-zapoln-ja-l   anket-u   pjat' minut.

Vasja   DELIM-fil-IMP-PST-M   from-ACC   five minute

(i) 'Vasja spent five minutes filling in the form.'

(ii)*'Vasja tried to fill in the form for five minutes (but hasn't filled in a single entry).'

(14) **Karachay-Balkar** (altaic, Turkic)

(a) fatima   eki   sekunt-xa   xalɨ-nɨ   zɨrtɨ.

Fatima   two   second-DAT   thread-ACC   tear-PST.3SG

'Fatima tore a thread in two seconds.'

(b) fatima   eki minut xalɨ-nɨ   zɨrtɨ.

Fatima   two minutes thread-ACC   tear-PST.3SG

'Fatima tried to tear a thread for two minutes.'

(15) **Mari** (Uralic, Finno-Ugric)

(a) maša jivan-em   lu minut-əšte kəčkər-ən.

Masha Ivan-ACC   ten minute-INESS wake_up-PST

'Masha woke up Ivan in ten minutes.'

(b) maša jivan-em   lu minut kəčkər-ən.

Masha Ivan-ACC   ten   minute   wake_up- PST

'Masha tried to wake Ivan up for ten minutes.'

(16) **Russian**

(a) vasja   otkry-l   dver'   za   minut-u.

   Vasja   open-PERF.PST.M   door-ACC   in   minute-ACC.SG

  'Vasja opened the door in a minute.'

(b) vasja   po-otkry-yva-l   dver'   za minut-u.   I   brosi-l

   Vasja   DELIM-open-IMP-PST.M door-ACC   five minute-GEN.PL   and give_up-PST.M

   Context: the lock on the door is broken: "Vasja tried to open the door for five minutes and gave

up."

In this appraoch the defeasibility of the result (or 'nonculmination of the event', in their terms) is due

to modalizing what they vaugely refer to as vP. More specifically, they assume that 'failed attempts'

are accomplishments (thus they are not achievements), in which e_1 and e_2 are related by what they

define as 'Mapping to a Minimal Final Part (MMFP)'. Under this assumption, if the two subevents

are connected via MMFP, then the predicate is culminated (change of state is implied). To derive the

reading in which the event is not culminated, they assume a 'continuation modality operator CM',

which applies to the denotation of vP:

(17) $\lambda e'.\textbf{CM}$ $(\lambda e \exists e_1 \exists e_2$ $[e = {}^S(e_1 \cup e_2) \wedge$ *activity*$(e_1) \wedge$ *agent*(e_1)=Vasja $\wedge$ *theme*(e_1)=door $\wedge$

   Become$_{(open)}(e_2) \wedge$ *arg*(e_2)=*theme*$(e_1) \wedge$ MMFP$(e_2)(e_1)])(e')$

The same assumption regarding the bieventive nature of accomplishments without causation holds

for 'partial success accomplishments' in their study. A culminated event is derived when the two

subevents are combined by an INCR(emental) relation. However, a 'partial success' which is not

culminated is treated with a CM operator:

(18) $\lambda e'.\textbf{CM}(\lambda e \exists e_1 \exists e_2$ $[e = {}^S(e_1 \cup e_2) \wedge$ *activity*$(e_1) \wedge$ *agent*(e_1)=Vasja $\wedge$ *theme*(e_1)=form $\wedge$

15

$Become_{(filled)}(e_2) \wedge arg(e_2)=theme(e_1) \wedge$ INCR $(C(e_2))(e_2)(e_1)])(e')$

This approach also faces certain shortcomings. 'Hybrid' causative verbs e.g., service providing verbs (Babby (1993); also see Ramchand (2014) for the relevant case in Hindi/Urdu) are problematic in Rothstein's account and consequently in Tatevosov & Ivanov (2009) account. In 'hybrid' causative verbs, e_1 may induce someone ('an argument adjunct') to e.g., *build a house*, *sew a dress*, or *paint a house*. In this case e_1 is not necessarily incremental:

(19)
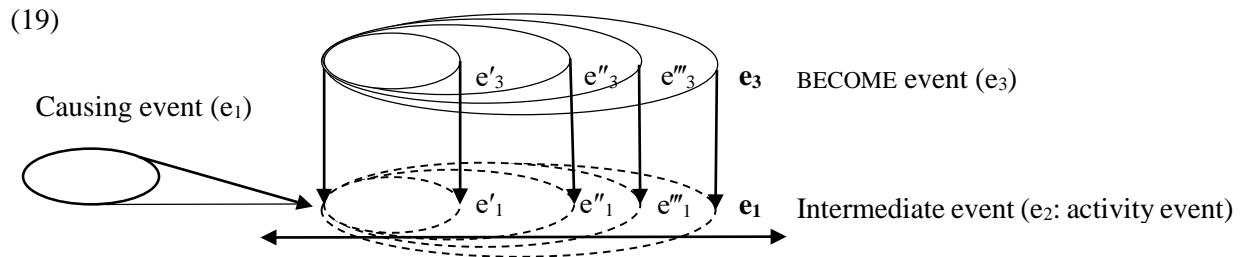
Tatevosov & Ivanov's (2009) account of two types of non-culminating accomplishments naturally faces the same problem. Thus, the structure which they assume for 'partial successes' may not hold. The same is true for 'failed attempts' in which (e_1) does not have to map to the minimal final part when there are intermediate agents. Notice that, as will be discussed in chapter 4, 'failed attempts' can happen indirectly in Korean:

(20)
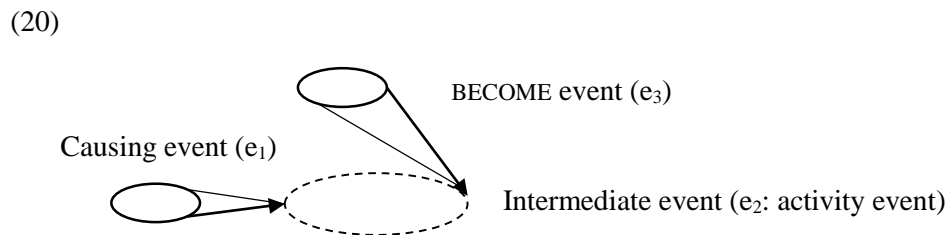
This means that (e_1) and (e_2), at least under an indirect causation reading, are causally related. I will return to this issue in chapter 4 and discuss the fact that, even under a direct causation reading, e_1 and e_2 are causally related.

2.1.4   Low Applicative Approach

Pylkkänen (2002, 2008), argues for the CAUSE–less 'low applicative[7] approach' to benefactive predicates like (21) which do not entail a resultant state. In Pylkkänen's (2008) view, a 'low applicative' predicate like a ditransitive *buy* does not denote a causal relation, as *buying x the y* does not mean that *x has the y*. She asserts that a bieventive analysis containing a causal relation is needed for the ditransitive *give,* which 'entails a resultant state', but it is 'problematic as a general approach to double object constructions since in most cases this type of entailment fails' (Pylkkänen 2002: 15).

(21) (Pylkkänen 2002: 18)

   (a) Mary bought John the book.

   (b) λe. buying(e) & agent (e, Mary) & theme (e, the book) & to the possession (the book, John)

The above formula only suggests that the event of buying a book by Mary is introduced and the book will be in the possession of John.

   Larson (2010) points out the false implications that Pylkkänen's account causes for the semantics of ditransitive predicates, as is made obvious in the two examples below:

(22) Larson (2010:702)

   (a) John wrote that letter and Bill gave Mary that letter.

   (b) John wrote Mary that letter.

In the above examples where the letter refers to the same entity (22a) does not entail (22b). "John's writing a letter, and that letter's coming into Mary's possession, does not entail that John wrote the

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[7] 'Low applicative' predicates allow syntactic promotion of possessors. For instance, *he bought the book for Mary* under the right conditions, can be uttered as *he bought Mary the book*.

letter to Mary" and a "standard neo-Davidsonian analysis blocks this unwanted inference" Larson (2010:702).

2.1.5   Force Dynamics Approach

'Force-dynamic' theories are based on forces which transmit from, e.g., an agent to a patient. The forces do not have to be of a physical type. The cognitive approach to force dynamics starts with Talmy (1985a; 1985b; 1988) and subsequent works. Talmy's ideas were extended by many including Croft (1988, and his subsequent works) among many others. The force-theoretic approach to event structure developed by Copley & Harley (2014, 2015) suggests a force theory at the syntax-semantics interface, and, as they mention, 'there have not been many formal linguists who have explicitly deployed the concept of force in the analysis of natural language phenomena' (Copley & Harley 2015:116). The big difference in their study is that instead of bieventive causal relations there are 'situations' (23a) which are created by force functions (23b) and form a causal chain (24):

(23) (a) (Linguistic) situations: A (linguistic) situation s corresponds to a conceptual situation σ, which is a spatiotemporally bounded "annotated snapshot" of individuals and their property attributions.

(b) (Linguistic) force functions: A (linguistic) force function f is a function from an initial (linguistic) situation s to the (ceteris paribus, linguistic) final situation s', which corresponds to a conceptual net force φ. The conceptual force φ is a (mental representation of) an input of energy that arise from all the individuals and their property attributions in a conceptual situation σ.

(24) Causal chain of situations with net forces:
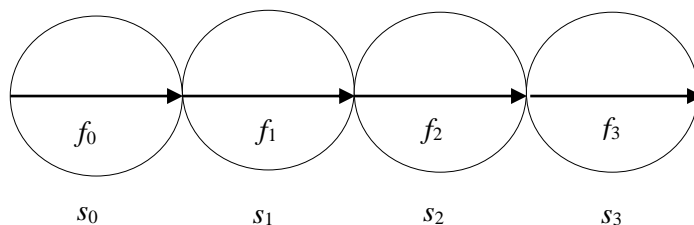
The schema in (24) shows a causal chain of situations with net forces, and if a situation s_0 is efficacious (its *ceteris paribus* successor situation has occurred), then the function takes it to the successor situation (*suc*). If there is an intervening situation, an inverse function brings it back to the initial (*init*) situation or a predecessor situation (*pred*). *init* and *fin* are defined with respect to the inverse function of *net*, while *pred* is the invers function of *suc*.

(25) (a) $init(f) = net^{-1}(f)$

    (b) $fin(f) = f(net^{-1}(f))$

    (c) $suc(s) = fin(net(s))$

    (d) $pred(s) = suc^{-1}(s)$

In the force theoretic approach, the questions regarding the nature of events and their interaction with each other remains unanswered. Here are two examples; first, a VOICE with a causer argument is more inclined to introduce a result rather than a VOICE with an agent argument (Martin 2015). A VOICE with an agent may not always be as efficacious either. In the following example from Japanese, the force which is posed by *Taroo* can have effects on a person (*Jiroo*) but not on an entity (the chair). Examples like this can be found across languages.

(26) Taroo ga Ziroo ni taore-sase-ta.

    'Taroo caused Jiroo to fall down'.

(27) *Taroo ga isu ni taore-sase-ta.

    'Taroo caused the chair to fall down'.

<div align="right">(Shibatani 1973b: 328)</div>

Second, forces may be nonhomogeneous. *Offer* and the different processes that are involved until the change of possession occurs (Kratzer 2015) is a perfect example of this. When *x offers y the z,* this means that there is an offer. Whether this entailment fulfills the implications regarding the existing of an *offer* is the matter of contextual interpretation. In the force theoretic approach, one cannot

distinguish between the entailments and the implications of a predicate. Perhaps a more delicate question is that what types of force change into each other. Thus, the force theoretic approach, as argued in Copley & Harley (2015), vaguely predicts the meaning of predicates without clarifying the difference between sentential entailments and contextual implications. Besides, the force theoretic approach is too strong, as it can predict all types of the contextual implications like *he had three sandwiches* (*and he is hungry*). It is not surprising that they can derive different implications from a stative predicate.

These problems do not give the force theoretic approach a significant privilege over the other approaches. Notice that Copley & Harley's (2015), proposal is at the syntax-semantics interface. Although we did not discuss its syntax, we will see the problems with the current syntactic approaches in chapter 3.

2.2   CAUSE-based with Sublexical Modality Approaches

Here, the approaches that use CAUSE with sublexical modality (the functional head which introduces the causal relation, i.e. CAUSE, or the functional head of the small clause, e.g., HAVE is modalized) will be discussed.

2.2.1   CAUSE-based Approach to 'Prospective Possessor' Verbs

There are few approaches to 'prospective possessor' predicates. The predicates in this class, based on Rappaport Hovav and Levin's (2008), may include[8]:

Give, hand, lend, loan, pass, rent, sell, allocate, allow, bequeath, grant, offer, owe, promise, tell, show, ask, teach, read, write, quote, cite, forward, mail, send, ship, fling, flip, kick, lob, slap, shoot, throw, toss, bring, take, e-mail, fax, radio, wire, telegraph, telephone.

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[8] For a more specific classification of these predicates see Beavers (2006) and Martin & Schäfer (2012, 2017).

Koenig & Davis (2001) assume that some ditransitive predicates appear with a sublexical modality e.g., a deontic modality may appear with predicates like *need*, *promise*, *neglect*, etc., or an energetic modality may appear with predicates like *send, offer*, *try*, *urge*, etc. For them, the selection of the model is contextually determined. Following Koenig & Davis, many, including Krifka (1999), Rappaport Hovav & Levin (2008), Beavers (2010), Kratzer (2015), Martin & Schäfer[9] (2012, 2017), assume a sublexical modality on the causal relation (CAUSE). Kratzer (2015), and Martin & Schäfer[10] (2017) provide the following formulations:

(28) [VP *offrir y* à *z*]

$\lambda y \, \lambda z \, \lambda e$ [*offer*(e)∧ *theme* (e, y) ∧ *recipient* (e, z) ∧ $\Box$ causal_success $\exists e'$ (*cause* (e, e') ∧ *have* (e') ∧ *possessee* (e', y) ∧ *possessor* (e', z))] = def $\lambda y \, \lambda z \, \lambda e$ [*offer* (e, z, y)]

Martin & Schäfer (2017)

(29) Promise Harriet a rose.

λe (*promise*(e) & $\forall w$ ($w \in f(e)$ →$\exists x$(*rose*(x)(w) & $\exists s$ (*cause*(e)(s)(w) & *have*(x) (*Harriet*)(s)(w)))))

Kratzer (2015)

[9] In Martin & Schäfer (2017), causally successful worlds are 'those worlds that have duplicates of the event described by the verb, where the encoded result is obtained, and where the conditions of success that are possibly associated to the event described by the verb are fulfilled'.

[10] Martin & Schäfer (2017: 98) mention that 'we depart from the often adopted implicit premise (cf. e.g. Rappaport Hovav & Levin 2008) that the event with which the root is associated has to be entailed by the verb in the actual world w_0: a verb's root can be associated to a result even if this result is not entailed in w_0'. Notice that, if the result regarding the root element is not entailed in the actual world w_0, it has to happen in some evaluating worlds. Then, we should expect that *John sent Mary a book, but at the last moment he quit sending it,* or *John tried to send the book, but he failed* to be possible, which is not the case. Therefore, I conclude that searching for the entailment in some evaluating worlds is not proper.

If we assume that the casual relation (CAUSE) in these predicates comes with a sublexical modality, which is visible in the semantic formulas that the abovementioned authors provided, then there is nothing to prevent a 'failed attempt' reading or an 'activity' reading on the lexical verb when the implication fails e.g., *John tried to send Mary a letter* (*for thirty minutes*) *but he failed*, or *John sent Mary a book* (*for thirty minutes*) *but no book was sent to Mary*. However, the failure of the implication neither gives a failed attempt reading, nor licenses durative adverbial modification. The culmination of the event occurs regardless of the failure of an implied change of possession. Whether the implication fails or not, the event has culminated. Thus, sublexical modal cannot appear with the functional head which denotes the causal relation (CAUSE) in this class of verbs. Another plausible place for a sublexical modality is the head of the small clause[11]. This seems to be what Beavers (2010: 23) assumes; a possibility modal on the head of the small clause, which is specified below by *receive* and *arrive* for 'caused possession' and 'caused motion' (the *to* variant) respectively:

(30) Caused possession: $\exists e \exists s \in U_{+S}$ [causer (x, e) $\wedge$ $\Diamond$receive' (*y, z, e, s*)]

(31) Caused motion: $\exists e \exists s \in U_{+M}$ [causer (x, e) $\wedge$ $\Diamond$arrive' (*y, z, e, s*)]

The formulas above cannot account for the culmination of the event, which the verbs in this class give sententially. A "loss of possession" in *John sent Mary a letter* is entailed. Although Beavers tries to explain this fact by emphasizing the differences between a 'punctual' and 'telic' event, the

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[11] The HAVE relation has been acknowledged in Harley 2002; Tham 2006; Myler 2016. Tham (2006) classifies four types of HAVE relations and mentions that caused possession can allow the same meaning as the normal HAVE sentences:

(i) (a) John has a daughter. (inalienable possession)

    (b) John has a car. (alienable possession)

    (c) John has the car (for the weekend). (control possession)

    (d) John has the windows (to clean). (focus possession)

(ii) (a) John gave his wife a daughter. (inalienable possession)

    (b) John gave his wife a car. alienable possession)

    (c) John gave his wife the car for the weekend) (control possession)

    (d) John gave his wife the window (to clean). (focus possession)

problem does not come from such differences. First, the possibility modal on the head of the small clause can induce an activity reading on the verb, contrary to the fact. This makes *John sent Mary a letter* and *John is (possibly) sending Mary a letter* equivalent predicates (Beavers 2006). Second, unless the causation and the result are adjacent subevents, time adverbial modification never modifies the occurrence of possession. For instance, in a context in which *Joe sent a book to John on Thursday* and *John* received it on Friday, *Joe sent John a book on Friday* is infelicitous. In addition, *Joe sent a book to John on Thursday but he never received it* is felicitous. This means that the time which "loss of possession" happens and the time which "change of possession" happens are "disjoint events". We return to this issue in chapter 4.

2.2.2 CAUSE-based Approach to Failed Attempt Predicates

The 'failed attempt' predicates which were introduced in 2.1.3, are analyzed by Beavers & Lee (in press)[12] for Korean. They assume that the defeasibility of causation in the 'failed attempt' reading has two main characteristics: it has to be 'intentional' (as was also claimed in Tatevosov & Ivanov (2009)), and it has to happen in 'active voice' not in 'passive voice'. Based on these facts, they suggest two readings. The first reading accounts for a situation in which a change of state must happen. This is the case that, a change may happen or not, but it has to be intentional, as in (33). Under the second reading, a change of state has happened but it can be intentional or unintentional (32).

(32) $[[yel\text{-}\emptyset_{active}]] = \lambda y \lambda v \exists s \exists d \ [cause \ (v, s) \wedge patient \ (y, s) \wedge open \ (s, d)]$

(33) $[[yel\text{-}\emptyset_{active\text{-}modal}]] = \lambda y \lambda x \exists v \ [effector \ (x, v) \wedge \Box_{Ix} \exists s \exists d \ [cause \ (v, s) \wedge patient \ (y, s) \wedge open \ (s, d)]$

I_x in (33) is a set of Intentions and $\Box_{Ix}$ is modality over intention set I_x for intuitive subject referent x. A null active VOICE head with sublexical modality is responsible for the 'zero–result' reading (a state of affairs in which no change of state happens). Accordingly, in the 'zero–result' reading, if the

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[12] For Previous studies on Korean defeasible causatives see Lee (2015, 2016).

sentence-level evaluation world w (e.g., w_0 in the realis mood) is not contained in I_x, then the occurrence of the result is not entailed in w, but intentionality necessarily will be entailed.

Although the 'zero-result' reading is more compatible with intentional adverbs, I do not believe that the modification with the (un)intentional adverb in these contexts can be decisive as it is not limited to this group of verbs and the incompatibility may happen whenever a result does not occur:

(34) (a) I unintentionally wiped the table #but it did not get cleaned.

(b) I unintentionally sent her a package #but she did not receive it.

(c) I unintentionally read the newspaper #but I haven't finished yet.

The only speculation based on the above data is that the unintentional adverbs are licensed when a specific change of state or change of location has happened. When there is no result, speaking of the unintentionality of the outcome of an event which could have happened is redundant, unless it is combined with operators like *luckily*, etc., which is another issue. Accordingly, I assume that accounting for failed attempts, without considering intentionality, as it was proposed by Martin (2015), would be sufficient. The following formula was offered for French *soigner* 'treat' in Martin (2015:261):

(35) [$_{\text{VP}}$ *soigner y*] $\leadsto \lambda e[\text{theme}(e,y) \wedge \square_{\text{causal\_success}} \exists e' \, (\text{cause}(e,e') \wedge \text{get-healthy}(e') \wedge \text{theme}(e',y))]$

The above formula says that there is a caused event which must be causally successful. Notice that as CAUSE is modalized, an activity reading of the causing event can be understood, although Martin (2015) does not mention anything regarding the durativity of the causing event.

In general, abovementioned approaches to 'failed attempts' does not bring incorrect implications like in what I discussed for 'prospective possessor' verbs. I will return to this issue in chapters 4 and 5, and try to give a fine-grained description of the semantics (see chapter 4), and syntax (see chapter 5) of these predicates.

2.3   Summary

As it was argued, the abovementioned approaches either are not comprehensively applicable to different types of predicates (as was discussed for CAUSE-less approaches) or they are too strong to distinguish the sentential entailments and contextual implications of a predicate (Copley & Harley2014, 2015). I return to these issues in chapter 4, and argue that, based on the notion of 'atomicity' (Rothstein 2004, 2008, 2012), we can define types of causation which explain the differences between different types of defeasibility.

3 Previous Syntactic Accounts of Causation

The goal of this chapter is to show the apparent problems regarding the syntax of causation and the way it can account for (in)direct causation. This section focuses on few syntactic approaches to (in)direct causation. First, it points out the problems regarding the original proposal of Pylkkänen (2002, 2008). Second, it addresses the problems with the applicative approach to causatives in Korean, and finally, it points out the problems surrounding Ramchand's (2014) 'event structure decompositional approach'. This section argues that "configurational problems" i.e., ignoring the proper semantic and syntactic place of a functional head with respect to other functional or categorical heads, can commonly be found in the aforementioned syntactic approaches. These problems can give rise to improper logical interpretations of subevents as well as modification problems.

In what follows, section 3.1 addresses the problems with Pylkkänen (2002, 2008), section 3.2 addresses the problems with the applicative approach to causatives, and section 3.3 points out certain problems with Ramchand's (2014) analysis. Section 3.4 offers a summary.

3.1 Polymorphic Approach to CAUSE

In an intriguing study, Pylkkänen (2002, 2008) argues that causatives may show different properties based on the argument, which saturates the functional head CAUSE. The argument of CAUSE can be a verbal root, a verb, and a phase. Put differently, CAUSE can be 'root–selecting' (1a), 'verb–selecting' (1b), or 'phase–selecting' (1c):

(1) (a)

```
        /\
       /  \
   CAUSE   √root
```

   (b)

```
      /\
     /  \
  CAUSE  /\
        /  \
       v    √root
```

(c)

```
        ╱╲
       ╱  ╲
   CAUSE   ╱╲
          ╱  ╲
         θ
```
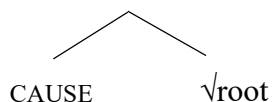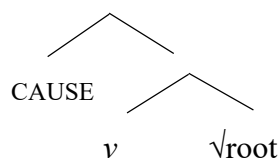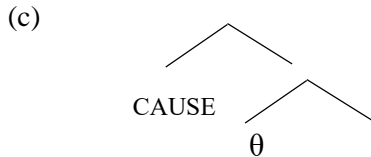
Pylkkänen (2002, 2008) assumes that adverbial modification can show the structural differences in the above structures. She assumes that with respect to adverbial modification, causatives are predicted to fall into one of the three types:

(i) those that exhibit no scope ambiguities for verbal modifiers (root–selecting), (ii) those that exhibit scope ambiguities for non–agent–oriented verbal modifiers (verb–selecting), and (iii) those that have no restrictions on adverbial modification (phase–selecting) (Pylkkänen 2008: 105).

According to Pylkkänen, English exhibits 'root–selecting' properties as it does not allow lower domain modification (e.g., the modification of John's waking up is not allowed in (2)). A 'verb–selecting' language like Finnish (3a, b) does not allow lower domain modification with 'agent–oriented'[13] adverbs (the modification of Matti's manner with the equivalent of *enthusiastically* is impossible in (3b)), while manner adverbs can modify the lower domain, as in (3a) ('the choir's singing' can be modified by the equivalent of *beautifully*). A 'phase–selecting' causative, shows no restrictionon modification with 'agent–oriented' adverbs in the lower domain (the event in which Katonga buys the car can be modified by the equivalent of *enthusiastically*, in (4) from Venda).

(2)   (Pylkkänen 2002: 94)

John awoke him grumpily. (False if John wasn't grumpy)

(3)   Finnish, (Pylkkänen 2002: 106)

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[13] Ernst (2001) assumes two types of 'subject–oriented' adverbs and *enthusiastically* is more like a 'mental attitude' adverb:

(i) Agent–oriented: *rudely, tactfully, wisely, etc.*

(ii) Mental–attitude: *calmly, anxiously, absentmindedly, eagerly, sadly, attentively, willingly, reluctantly, obstinately, and vigilantly, etc.*

(a) Opettaja   laula-tti   kuoro-a   kauniisti

    Teacher   sing-CAUS   choir-PAR   beautifully

    'The teacher made the choir sing beautifully (The teacher's action does not need to be

beautiful.)'

(b) Ulla   rakenn-utti   Mati-lla   uude-n

    Ulla.NOM   build-CAUS   Matti-ADE   new-ACC

    toimistopöydä-n   innokkaasti.

    officetable-ACC   enthusiastically

    (i) 'Ulla, enthusiastically, had Matti build her a new office desk'.

    (ii) *'Ulla had Matti, enthusiastically, build her a new office desk'.

(4) Venda (Pylkkänen 2002: 108)

    Muuhambadzi   o-reng-is-a   Katonga   moḓoro   nga   dzangalelo.

    Salesman   3SG.PST-buy-CAUS-FV   Katonga   car   with enthusiasm

    (i) 'The salesman, eagerly, made Katonga buy the car'.

    (ii) 'The salesman made Katonga buy the car eagerly'.

Based on Japanese data, Pylkkänen also distinguishes (in)direct causation. Japanese shows causativization with two morphemes: -*sase*, which is a productive morpheme and brings about an indirect causation reading in (5a), and –*as*, which is not a productive morpheme and denotes a direct causation reading in (5b):

(5) (Pylkkänen 2002:100)

    (a) CAUSE nonlocal to root:

      Taroo-wa   niku-o   kog-e-sase-ta.

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

      'Taro caused the meat to become scorched.'

    (b) CAUSE local to root:

      Taroo-wa   niku-o   kog-asi-ta.

Taro-TOP   meat-ACC   burn-CAUS-PST

'Taro scorched the meat.'

According to her, the direct reading with the *–as* morpheme (5b) gives the structure of a 'root–selecting' causative as in (1a), while the indirect reading with the *-sase* (5a) gives a 'verb–selecting'causative as in (1b). However, what has not been predicted in Pylkkänen's analysis are the ambiguities that a predicate might have between a direct and an indirect reading, which was also noticed by Lyutikova & Tatevosov (2014).

(6)   Karachay-Balkar (Lyutikova & Tatevosov 2014: 284)

  (a) Alim   direktor-nu   öl-dür-dü.

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

   (i) 'Alim killed the director.'

   (ii)*'{Having paid $10,000 to the killer,} Alim organized the director's assassination.'

  (b) Ustaz   Alim-ni   erišiü-le-de   cap-tïr-dï.

    Teacher   Alim-ACC   competition-PL-LOC   run-CAUS-PST.3SG

   (i) 'The teacher made Alim run at the competition (e.g. by pushing him on the lane).'

   (ii) '{Having convinced the coach that Alim is a good runner,} the teacher organized

     Alim's running at the competition.'

The example in (6a), a causative of an unaccusative, does not allow indirect causation reading, while (6b), a causative of an unergative, allows both direct and indirect readings.

As Lyutikova & Tatevosov (2014) also mention, these ambiguities can be attested crosslinguistically. The following presents more examples, which are ambiguous between a direct and an indirect causation reading:

(7) Neeleman & van de Koot (2012:87)

  The gunsmith killed the sheriff.

(8) Korean (Kim H.-S. 2012: 241)

emma-ka   ai-eykey   os-ul   ip-hi-ess-ta.

mother-NOM   child-DAT   clothes-ACC   wear-CAUS-PST-DECL

(i) 'The mother put the clothes on the child.'

(ii) 'The mother made/had the child wear the clothes.'

(9) Persian

mâdar   lebâs-o   be-bačče puš-und-Ø.

mother   cloth-ACC   DAT-kid wore-CAUS-3SG

(i) 'The mother put the clothes on the child.'

(ii) 'The mother made/had the child wear the clothes.'

(7) can be ambiguous between a reading that the gunsmith himself shot and killed the sheriff (direct causation) and a reading that he is blamed for something that he has done, and resulted in the death of the sheriff (indirect causation). The examples in (8) and (9) are ambiguous between a reading in which the mother makes the child wear clothes by him/herself and a reading that the mother dresses the child herself. To account for the two readings one may assume two structures, based on Pylkannen's diagnostics. However, regardless of the properness of this idea and despite the fact that the structures in (1) or certain derivations of them are widely used in the literature (e.g., Harley 2008, 2012; Lyutikova & Tatevosov 2015; Also see Wood & Marantz (2017) for a unified analysis of VOICE and non–VOICE head in the lower domain), I claim that Pylkkänen's analysis faces fundamental problems from different perspectives. I argue that these problems are related to the configuration of heads (syntactic arrangement of them) and adverbial modification.

In the reminder of section 3.1, I challenge some aspects of Pylkkänen's analysis, which includes various "configurational problems" such as assuming "secondary" *v* or VOICE to account for the availability of lower domain events in monophasal predicates.

3.1.1 Configurational Problems

Here, what I mean by the "configurational" problem is ignoring the proper order of a functional head with respect to other functional or categorical heads in terms of the syntactic/ semantic hierarchy. I claim that there are two main configurational problems, which will be addressed below.

3.1.1.1 Sequence of Subevents

The first configurational problem is concerned with the sequence of subevents. According to Lewis (1973), causation is a relation between a causing event and a caused event in which the causing event must precede the caused event. As (10) shows the causing event (e) and the caused event (e') are 'combined' by a functional head CAUSE (Pylkkänen 2002:75):

(10) CAUSE: $\lambda P. \lambda e.[(\exists e') P(e') \& CAUSE(e,e')]$

Syntactically, this functional head is represented by v (notice that the syntactic role of v is not limited to introducing CAUSE. The flavors of v e.g. v_{DO}, v_{BECOME} may also appear as v (Folli & Harley 2005)). According to the facts stated above, the argument of CAUSE must be a caused event. Thus, a causing event and a caused event come with a syntactic order, which the syntactic place of CAUSE must represent. In (1), a 'root', a 'verb', and a 'phase' are the argument of CAUSE, which, according to (10), all are results. This results in a paradox as activities must be modifiable even in the 'root–selecting causatives' like English (Pylkkänen 2002, 2008). In the following example, *slowly* modifies an activity (the process of breaking the stone by John is slow) not a result (the stone is neither slow nor it broke slowly by itself).

(11) John broke the big stone slowly.

The above mentioned facts indicates that the v–V configuration is not a proper syntactic configuration for a direct causation reading:

(12) (a) Assume that *x* directly participated in the event.

(b) Assume that CAUSE is a function, which takes P as its argument.

(c) From b: P is a result.

(d) In a *v*–V configuration, if *v* is CAUSE then VP is the result.

(e) Assume β is a pure manner adverb.

(f) From e: β can modify the manner on VP.

(g) From c and f: If VP is the result, it is impossible for β to modify the manner of VP.

(h) β can modify Manner of VP (see (12)).

(i) From (c, d, e, f, g, h): *v*–V is not a proper syntactic configuration for direct causation.

Here, one may think that root may move to *v,* and receive its manner modification. However, as the modification of manner, result and VOICE is possible, in the following, I argue this may not be proper either.

Another problem regarding the *v*-V configuration is that it does not exclude indirect causation as Pylkkänen assumes in the case of Japanese (5). In 'CAUSE-root' configuration, CAUSE is syntactically the higher head (CAUSE-caused event) and a spatiotemporal separation of the causing event and the caused event (result) is possible (Neeleman & van de Koot 2012). However, nothing indicates at directness of causation for the same hierarchical order of heads.

3.1.1.2 'Voice Bundling'

Pylkkänen (2002:90) mentions that 'while CAUSE and VOICE are separate pieces in the universal inventory of functional heads, they can be grouped together into a morpheme in the lexicon of a particular language'. In such a language, 'VOICE and CAUSE form a similar feature bundle' in which 'the causative relation and the external theta-role are 'packaged' into one morpheme, and consequently into one syntactic head':

(13)

VOICEP
λ*e*. Agent (*e*, *Mary*) & (∃*e*') Breaking (*e*') & Theme (*e*', *glass*) & CAUSE (*e*,*e*')

Mary
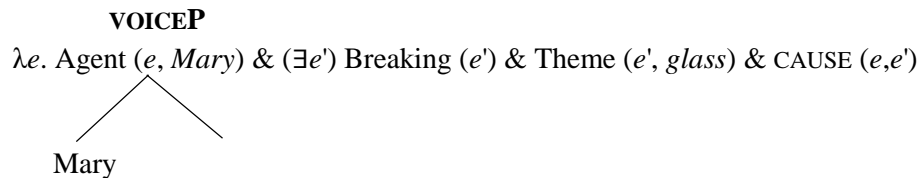
Step 2 (VOICE (CAUSE break glass):
λ*x*.λ*e*. Agent (*e*,*x*) & (∃*e*') Breaking (*e*') & Theme (*glass*)(*e*') & CAUSE(*e.e*')

Step 1 (CAUSE (break glass):
λ*e*.(∃*e*') Breaking(*e*') &Theme (*e*', *glass*) & CAUSE (*e.e*')]

[CAUSE, VOICE]   λ*e*.[Breaking(*e*) & Theme (*e*, *glass*)]

break   *glass*
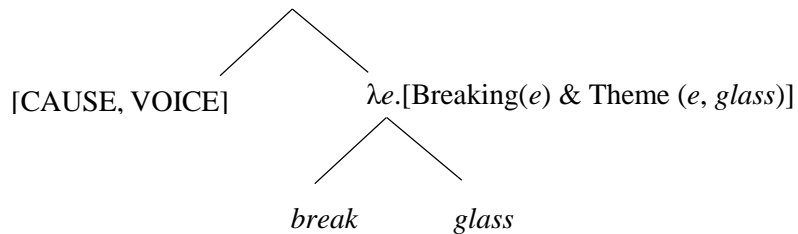
(Pylkkänen 2002:92)

The bundling is indicated by the two steps of computation, which are bolded in the above tree. In the first step, CAUSE is saturated by VP, and in the second step, VOICE takes the product of the first step and gives the approximate computation of *Mary broke the glass*. According to Pylkkänen, 'Voice bundling' accounts for the unavailability of root–causativization of unergatives like *ran the kid* in English; if VOICE bundles, CAUSE would take one argument, but if it does not, it would take two (an NP and a root). In addition, the availability of VOICE bundling in English blocks root–causativization of unergatives, unlike in Japanese, where VOICE bundling is not available and root–causativization of unergatives can happen. As I argue below, VOICE modification is possible and this is regardless of the property of CAUSE. This may not favor Pylkkänen's (2002,2008) 'Voice bundling' hypothesis.

Jackendoff (1972:56-59) assumes two 'orientations' of 'sentence adverbs'. 'Speaker–oriented' adverbs, which denote the attitude of the speaker e.g., *frankly*, *evidently*, *unfortunately*, *truthfully,* etc., and 'subject–orientated' adverbs, which denote information about subjects e.g. *carefully*, *clumsily*, *cleverly*. Ernst (2001) categorizes two types of 'subject-oriented' adverbs:

(14) (a) Agent-oriented: *rudely, tactfully, wisely, etc.*

(b) Mental attitude: *calmly, anxiously, absent-mindedly, eagerly, sadly, attentively, willingly, reluctantly, obstinately, vigilantly, etc.*

Having the label 'subject–oriented' does not mean that it cannot appear on other syntactic heads. For instance, in (15), John could have clumsily/slowly walked to the door to open it, while in (16), John has to be at door and it is the opening of the door, which happened clumsily or slowly. Notice that the result cannot be modified with *clumsily/slowly* (the door cannot be *slow* or *clumsy*).

(15) clumsily/slowly, John opened the door.

(16) John open the door clumsily/slowly.

In addition, modifiers of VOICE exist, which can be seen in Cinque's (1999) hierarchy of adverbs as well:

(17) Cinque's (1999:106):

[*frankly* Mood speech act [*fortunately* Mood evaluative [*allegedly* Mood evidential [*probably* Mod epistemic [*once* T Past [*then* T Future [*perhaps* Mod irrealis [*necessarily* Mod necessity [*possibly* Mod possibility [*usually* Asp habitual [*again* Asp repetitive(I) [*often* Asp frequentative(I) [*intentionally* Mod volitional [*quickly* Asp celerative(I) [*already* T Anterior [*no longer* Asp terminative [*still* Asp continuative [*always* Asp perfect (?) [*just* Asp retrospective [*soon* Asp proximative [*briefly* Asp durative [*characteristically* Asp generic/progressive [*almost* Asp prospective [*completely* Asp SgCompletive (I) [*tutto(Italian)* Asp PlCompletive [***well*** Voice [*fast/early* Asp celerative(II) [*again* Asp repetitive(II) [*often* Asp frequentative(II) [*completely* Asp SgCompletive (II)]

The data above shows that regardless of the property of CAUSE, VOICE modification may happen. This may not favor Pylkkänen's (2002, 2008) 'Voice bundling' hypothesis.

One may ask what evidence we have that 'subject–oriented' adverbs do not modify the VOICE bundle which in (13) appear as single syntactic head. Notice that VOICE is the introducer of the causing event and the causing event is not the CAUSE. If the modification of the causing event and CAUSE

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happen at the same time, the manner modification (the modification of the VP) would be a modification of a result, as stated above. By doing so, the equivalent of *John opened the door slowly* would only mean that the door was slow. This reading is not available. In addition, the modification of VOICE and CAUSE requires that all 'subject–oriented adverbs' modify the bundle. Notice that the interpretation of (15) (in *slowly/clumsily John opened the door*, he could have walked slowly/clumsily to the door to open it) supports this idea that the introducer of the causing event i.e., VOICE in (15) can be modified independently.

As mentioned in the last section, one may think that the root may undergo a head movement to *v*, in which case manner modification may sound possible. Within the bundling hypothesis of VOICE and CAUSE, and by the movement of root to *v* (CAUSE), there would be only one modification site available. This is not proper. Notice that in English the modification of VOICE, manner, and result are available. Compare *slowly, he broke the stone* (VOICE modification), *he broke the stone slowly* (manner modification) and *he broke the stone beautifully* (result modification).

3.1.2   Secondary *v* and VOICE

Focusing on Pylkkänen's 'verb–selecting' and 'phase–selecting' causatives, here, I argue against such selecting properties in monophasal predicates based on Korean and Persian data. Pylkkänen (2002:72) following Chomsky (1999, 2000) assumes that 'a "phases", is a cyclic domain for phonological and semantic interpretation'. She further assumes that VOICEP, CP, and high APPL are phases. The following show the tree structures of 'verb-selecting' and 'phase-selecting' causatives adopted from Pylkkänen (2002, 2008):

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(18) 'Phase-selecting' causatives adopted from Pylkkänen (2002, 2008)

```
        VOICE
        /    \
           v_CAUSE
           /    \
            ┌─────────┐
            │  VOICE  │
            └─────────┘
                /  \
                    v
                    /  \
                       VP
```

(19) 'Verb-selecting' causatives adopted from Pylkkänen (2002,2008)

```
        VOICE
        /    \
            v_CAUSE
            /    \
    ┌──────────────┐
    │  v_BE / v_DO │    √root
    └──────────────┘
```
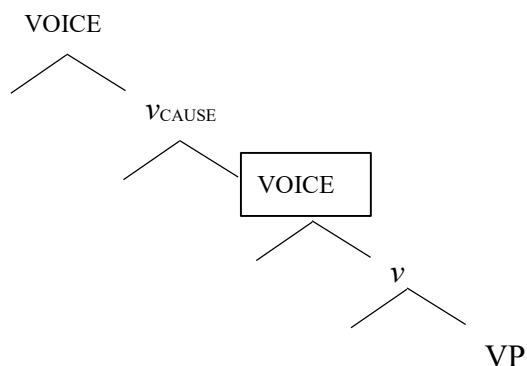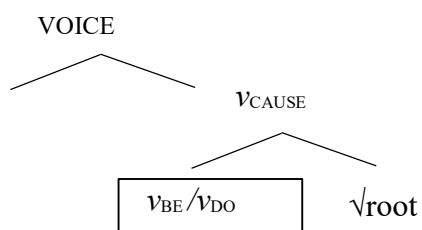
As is apparent in the structures above, a "secondary *v*" in 'verb–selecting' causatives and a "secondary VOICE" in 'phase–selecting' causatives is a necessary condition to account for the differences between the two types of causatives in Pylkkänen's account. In addition, she assumes that a 'phase–selecting' causative allows an applicative morpheme between the root and causative morpheme. Blanco (2011), also assumes that VOICEP is phase and Pylkkänen's diagnostics for 'phase–selecting' causatives meets *make* type causatives in English. According to Blanco, *make* type causatives are biclausal predicates and 'phase–selecting' (Blanco 2011: section 2.3)[14] as they allow, among other things, 'high' and 'low' attachment of adverbials (20) as well as 'agent–oriented' adverbs in the lower domain (21).

(20) I made John cry in his room

   (a) John and I were in his room and I made him cry (high attachment)

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[14] Blanco assumes that Pylkkänen's diagnostics for 'phase–selecting' causatives meets *make* type causatives. Nevertheless, he does not treat *make* as a verb, since in his analysis, it only interprets as a phonological representation of the little *v,* despite the fact that it is a verb (e.g. it allows ellipsis just like any other verbs). Notice that Pylkkänen never deeply discusses the bi–phasal property of her data.

(b) I made John cry and he did it in his room (low attachment)

(Blanco 2011: 122)

(21) I made John cry on purpose

   (a) I, on purpose, made John cry (high attachment)

   (b) I made him [cry on purpose] (low attachment)

(Blanco 2011: 125)

If the *make* type causatives in English are biclausal and 'phase–selecting', then it can be inferred that allowing an applicative morpheme between the verbal root and the CAUSE as Pylkkänen states is not a necessary condition for 'phase–selecting' causatives, as in English, high applicatives are not possible (Pylkkänen 2002, 2008).

In the following, I argue that a "secondary VOICE" and "secondary *v*" in monophasal causatives, as suggested by Pylkkänen, is redundant.

3.1.2.1 Secondary VOICE in Monophasal Causative

Here, contrary to Pylkkänen, I will put forward an argument which shows that assuming a "secondary" VOICE only based on modification with 'agent–oriented' adverbs is not proper for monophasal predicates.

   I follow Blanco in assuming that biclausal causatives are 'phase–selecting'. However, I argue

that Korean[15] and Persian[16] causatives are monophasal predicates, which share certain properties with both 'phase–selecting' and 'verb–selecting' causatives. First, I show that Korean and Persian causatives are monophasal. This may be tested by using two time–adverbials as they appear syntactically higher than the VOICE head (see e.g., Cinque 1999):

(22) (a) * ecey   emma-ka   onul   ai-eykey

      yesterday   mother-NOM   today   child-DAT

      i   os-ul   ip-hi-ess-ta.

      this   clothes-ACC   wear-CAUS-PST-DECL

      INT: 'yesterday, the mother made the child wear these clothes today'.

   (b) *diruz   Ali lebâs-o   emruz   be-bačče puš-und-Ø

      yesterday   Ali cloth-ACC   today   DAT-kid   wore-CAUS-3SG

      INT: 'yesterday, Ali made the child wear the clothes today'.

As the data above shows, modification of the lower and upper domain event, each with a separate time–adverbial, is impossible in Korean and Persian monophasal causatives[17] (22a, b), unlike what can be seen in biclausal predicates (23 a, b):

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[15] For a typology of Korean causatives see Yeon (2011), Kwon (2012), Park (2013). For a study regarding causaives and case marking see Park S-Y (2013). For a semantic distinction of indirect vs. direct cauatives see K. Lee (1975). For an direct/indirect distinction based on Shibatani (1973a), see J.-W Park (2003), H.-S. Kim (2012). See Kim & Um (2015) for how both direct and indirect causation readings are actually causatives. For previous studies comparing syntactic cauatives and lexical causatives, see Shibatani (1973a), Yeo (2005), Park (2012), among others. See Lee (2017) for the difffernces in information strucutre of lexical and syntactic causatives.

[16] For previous studies on the syntax and semantics of lexical and syntactic causatives in Persian, see Dabir-Moghaddam (1982) and Kwak (2014). For a VP shell appraoch to lexical causatives in Persian see Mansouri (2005). See Darzi & Karampour (2012) for a study based on selective properties of CAUSE in lexical causative.

[17] See Park (2012) for the same claim. The fact that lexical causatives cannot be modified by two time adverbials

(23) (a) Korean

　　ecey　　　emma-ka　　ai-eykey

　　yesterday　mother-NOM　child-DAT

　　i　　os-ul　　　onul　　ip-key　　ha-ess-ta.

　　this　shirt-ACC　　today　wear-CAUS　did-PST-DECL

　　'Yesterday, the mother made the kid wear these clothes today.'

　(b) Persian

　　diruz　　　Ali　man-o　vâdâr　kard　　emruz

　　yesterday　Ali　I-ACC　force　did-Ø　　today

　　in　　lebas-o　　　be-puš-am.

　　this　cloth-ACC　　SBJV-wore-1SG

　　'Yesterday, Ali forced me to wear these clothes today.'

Now, by knowing that lexical causatives in Korean and Persian are monophasal predicates, it must be the case that they are not 'phase–selecting' causatives[18]. Furthermore, it can be concluded that either they are 'root–selecting', which cannot be the case, as we know that both languages allow lower domain modification (see examples (24) and (25) for Persian and Korean respectively), or they are 'verb–selecting', in which case, they should not allow 'agent–oriented' adverbs in the lower domain. However, as the following examples show, they allow some 'agent–oriented' adverbs to modify the lower domain:

(24) Persian

　　John　　　bačča-ro　arum/　　　bâ-eštiâq/

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is also mentioned in Kwak (2014).

[18] One might think that Korean causatives are high applicatives are therefore phase selecting. According to Park (2012), Korean causatives are not bi-phasal. See 3.2 for more on this issue.

John   kid-ACC   slowly/   with-enthusiasm/

bâ-asabâniyat   dav-und-Ø.

with-anger   run-CAUS-3SG

(i) 'John ran the kid (into the house, by pulling him/her) slowly/enthusiastically/ angrily.'

(ii) 'John made **the kid run slowly/ enthusiastically/ *angrily**.'

(25) Korean

(a) Mary-nun   John-eykey   cim-ul   chenchenhi/

   Mary-TOP   John-DAT   load-ACC   slowly/

   muleyhakey/ yelsimhi   an-ki-ess-ta.

   rudely/   enthusiastically   embrace-CAUS-PST-DECL

 (i) 'Mary loaded the suitcase on John's arm slowly/ rudely/ enthusiastically.'

(ii) 'Mary made **John carry the suitcase slowly/*rudely/ *enthusiastically**.'

(b) emhakey   nay-ka   hagsayng-eykey   chayk-ul

   sternly   I-NOM   student-DAT   book-ACC

   seymilhi   ilk-hi-ess-ta.

   carefully   read-CAUS-PST-DECL

   'Sternly, I made the student read the book carefully.'   (Lee 1998: 142)

The direct causation reading of examples (24) and (25a), allows manner modification[19] of the VP regardless of the type of the adverbs. In an indirect causation reading, however, the manner of the 'embedded subject/self–initiator' (the terms are used in Harley (2008)) can be modified in (24) and (25a) by the equivalent of the 'aspect–manner' (Ernst 2001) adverb *slowly*. However, manner modification of the lower domain with adverbs other than 'aspect–manner' adverbs are more readily admissible in Persian and only happens with a certain group of 'agent–oriented' adverbs. More

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[19] Darzi & Karampour (2012) also gives examples in which the lower domain of lexical causatives like *davând-an* 'make run'or *xorând-an* 'make eat' are modifiable with manner adverbs like *be tondi* 'fast'.

specifically, *enthusiastically* type adverbs can modify the manner of the 'embedded subject/self–initiator' in (24), but *angrily* type adverbs cannot. The example in (25b) shows one of the rare cases of adverb modification by 'agent–oriented' adverbs in Korean. This description of Persian causatives makes them a candidate for Pylkkänen's 'phase–selecting' causatives, while Korean causatives are more likely to be classified as 'verb–selecting'. As mentioned, allowing 'agent–oriented' adverbs in the lower domain is one of the diagnostics of 'phase–selecting' causatives. Thus, modification of the lower domain with 'agent–oriented' adverbs does not necessarily require a "secodanry" VOICE, as in the lower domain they are modifiers of a VP, not VOICE (see section 4.5).

The second piece of evidence against assuming two VOICE heads in monophasal causatives comes from the fact that they do not trigger two subject agreements (also see a similar case from Hiaki in section 3.2). As a reviewer points out, syntactic agreement may not need a morphological exponent. However, I argue that at least in the case of Persian and Korean monophasal causatives this cannot be true. The examples in (26) illustrate Persian's subject agreement system in which the agreement markers agree with the singular or plural argument(s) in the subject position:

(26) (a)   man šâm   xord-am.

     I   dinner   eat-1SG

   'I ate dinner.'

  (b) To   šâm xord-i.

    You   dinner   eat-2SG

   'You ate dinner.'

  (c) u   šâm   xord-Ø.

    s/he   dinner   eat-3SG

   's/he ate dinner.'

  (d) mâ   šâm   xord-im.

    We   dinner   eat-1PL

'We ate dinner.'

(e) šomâ   šâm   xord-id.

　　You   dinner   eat-2PL

　　'You ate dinner.'

(f) ânhâ   šâm   xord-and.

　　They   dinner   eat-3PL

　　'They ate dinner.'

The example in (27a) shows the fixed morphemic order of the causative morphemes in a causative verb in which the verbal root follows the causative morpheme *-ând* (colloquially *-und*) and the agreement marker. A subject agreement that occurs before the causative morpheme results in an ungrammaticality, as in (27b).

(27) (a) ânhâ qazâ-ro   be-Ali   xor-und-and.

　　　　they   food-ACC   DAT-Ali   ate-CAUS-3PL

　　　　'They made Ali eat the food.'

　　(b) *ânhâ   qazâ-ro   be-Ali   xor-and-und.

　　　　they   food-ACC   DAT-Ali   ate-3PL-CAUS

　　　　'They made Ali eat the food.'

Furthermore, a causative of a transitive (28a, b), a causative of an unergative (28c, d), and causative of an anticausative (28c, d) cannot be causativized with two subject agreement markers, whether its inner argument is a 'self–initiator' or a 'patient'.

(28) (a) to   be-Ali   qazâ   xor-und-i.

　　　　you   DAT-Ali food   eat-CAUS-2SG

　　(b) *to   be-Ali   qazâ   xord-Ø-und-i.

　　　　you   DAT-Ali food   eat-3SG-CAUS-2SG

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Int: 'you make Ali eat the food.'

(c) to   Ali-o   dav-und-i.

    you   Ali-ACC run-CAUS-2SG

(d) *to$_i$ Ali$_j$-o   david-Ø$_j$-und-i$_i$.

    you   Ali-ACC run-3SG-CAUS-2SG

    Int: 'You made Ali run.'

(e) to   goldun-o šekast-i.

    you   vase-ACC broke-2SG

(f) *to   goldun-o   šekast-Ø-und-i.

    you   vase-ACC   broke-3SG-2SG

    Int: 'you broke the vase'.

Contrary to monophasal predicates, biclausal predicates in both languages allow occurring subject agreement twice. As showed above, biclausal predicates constitute two VOICE heads, which explains two occurrences of the agreement markers as in (29a). The example in (29b) shows that the subject of the subordinate clause is the object of the matrix clause. Thus, the matrix and subordinate clauses are not two independent predicates. If the subordinate clause is nominalized, then it participates as an argument of the complex verb (29c). As the second VOICE head is absent, the voice agreement fails, as illustrated in (29d).

(29) (a) to$_i$ man$_j$-o   vâdâr   kard-i$_i$ qazâ   bo-xor-am$_j$.

    You   I-ACC   force   did-2SG   food   SBJV-ate-1SG

    Int: 'You forced me to eat the food (and I did).'

(b) *to   vâdâr   kard-i   man$_i$ qazâ   bo-xor-am$_i$.

    You   force   did-2SG   I   food   SBJV-ate-1SG

(c) to$_i$ man-o   be-xord-an-e   qazâ   vâdâr   kard-i$_i$.

    You   I-ACC   DAT-eat-INF-POSS   food   force   did-2SG

(d) *to   man$_i$-o   be-xord-an-am$_i$ vâdâr   kard-i

43

You I-ACC DAT-eat-INF-1SG force did-2SG

Thus, if there were two VOICE heads in monophasal predicates[20], subject agreement markers should have revealed their existence just as they do for biclausal predicates. The same holds in the case of Korean. Although Korean does not have subject agreement markers, the honorific morpheme *-si-* has to agree with the subject and such agreement never happens with the object in a monophasal predicate as (30) suggests:

(30) emma$_i$-ka   harapeci$_j$-eykey   os-ul

    mother-NOM   grandfather-DAT   shirt-ACC

    ip-hi-**si**$_{i,*j}$-ess-ta.

    wear-CAUS-HON-PST-DECL

    (i) 'The mother dressed up the grandfather.'

    (ii) 'The mother made the grandfather wear the shirt.'

However, in a biclausal predicate, the honorific morpheme, colloquially, can appear twice. In (31), *-si* in the main clause agrees with mother's giving help, while the subordinate clause agrees with grandfather's wearing the shirt:

(31) emma$_i$-ka   harapeci$_j$-kkey   os-ul

---

[20]Many studies following Chomsky (1995) assume that subject agreement happens in T^0. Here, following Legate (2014), I assume that subject agreement takes place in VOICE^0 in Persian. As for Korean subject honorification (Choi (2010); also, see Choi (2010) for a summary of the previous studies), Park (2019) assumes that *-si* appears as an empathy head (EmP) between *v*P and TP since subject honorification in Korean is optional and must obey the 'mirror principle' (Baker 1985). Notice that in Korean, subject honorification shows the same behavior as Persian subject agreement in monophasal and biphasal predicates (see examples (29)~(31)). The fact that subject honorification does not happen on a separate head, but optionally on the same head (VOICE^0, as we assumed here) can be confirmed by the following example, where two NPs appear in the subject position with different values of [HON] (Choi 2010), while *–si* is grammatical:

(ii) sensayng-**nim**-kwa   etten   ai-ka   hamkkey o-**si**-ess-e.

    Teacher-HON-CONJ   some   child-NOM together   come-HON-PAST-DECL

    'The teacher and a child came together.'   (Choi 2010:64)

mother-NOM   grandfather-DAT.HON   shirt-ACC

ipu-**si***i,j-key   towoa-   cu-**si**i,*j-ess-ta.

wear-HON-COMP   help-   give-HON-PST-DECL

'the mother helped the grandfather to suit up.'

Thus, if a language has the morphological tools, a VOICE head can invoke a subject agreement. Furthermore, assuming that VOICEP is a phase (Blanco 2011), it can be concluded that subject agreement markers or honorific morpheme markers happen once in a phase as the data above show.

3.1.2.2 *Again* and "Secondary *v*"

The ambiguity of the event structure due to modifiers like *again* has been addressed in the literature (McCawley 1968; Dowty 1979; von Stechow 1996 among many others). Accordingly, *again* may give rise to 'restitutive' and 'repetitive' readings as in the following example:

(32) Randi   den Bockhirsch   wieder   fing (restitutive/repetitive)

   Randi   Bockhirsch   again   caught

German (von Stechow 1996:94)

Von Stechow assumes that the restitutive reading is a modification of the BECOME event and that the repetitive reading is a modification of the VOICE (von Stechow 1996: 97):

(33)

45
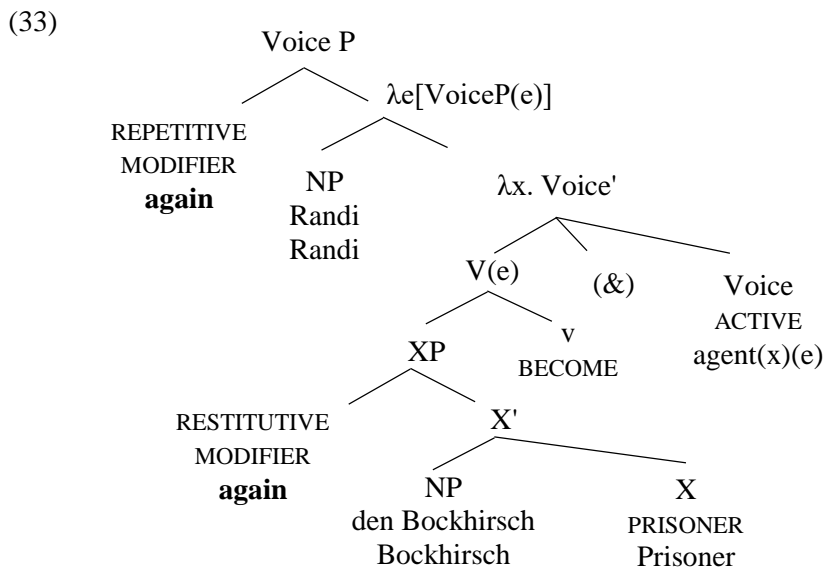
In addition, he assumes an 'intermediate' landing site for *again* based on the following scenario (von Stechow 1996: 99):

(34) Randi caught Bockhirsch. Then he escaped. Tristan caught Bockhirsch again.

Von Stechow (1996: 99) mentions that the scenario is 'the repetition of the action of catching Bockhirsch' and that this action 'had occurred before, though with a different subject'. However, he assumes that the 'semantic motivation for this additional scope possibility is weak' and that 'taking the sentence in its restitutive sense is compatible with the scenario as well'.

His later work, however, also shows some kind of uncertainty regarding the possible landing site for the 'intermediate' reading of *again*. Von Stechow (2003), in his 'revision' of the decompositional approach to German's 'functional modifier' *wieder* 'again', assumes that the 'restitutive' reading appears under CAUSE+ BECOME and that the 'repetitive' reading appears above CAUSE+ BECOME. However, based on the following scenario, regarding the 'intermediate' reading, he mentions that '*again* can take scope below the CAUSE even though a representation with *again* under the BECOME would do as well.' (von Stechow 2003: 420):

(35) The window opened by itself. Mary closed it. John opened the window again.

Bale (2007) assumes that the 'intermediate' reading of *again* scopes between VOICE and VP. Alexiadou et al (2015: 27, fn. 5), assumes that only lexical causatives allow 'intermediate' readings of *again,* and the phenomenon that occurs in transitive verbs like in (35) is what they call an 'alternative agent' (Alexiadou et al 2015: 25), without discussing the issue any further. Alexiadou et al assume that the 'intermediate' reading of *again* targets the lower domain of lexical causatives:

(36) [VOICE [again [CAUSE [door open]]]]

In Alexiadou et al's account, *again* in the above structure is equivalent to *John does something, and as the result, the door opens again*. They suggest the above structure for the lower domain

modification, which otherwise should not be available in English (e.g., Pylkkänen 2002, 2008). However, the structure above may never hold, as according to Pylkkänen, CAUSE and VOICE are in a bundle in English. Besides, as mentioned above, there is another 'intermediate reading' (Bale 2007) that needs to be accounted for. Alexiadou et al (2015: 25) mention that the difference between the two is not structurally represented, although they do not put forward an account. Thus, the question is how the two intermediate readings of *again*, one of which targets the lower domain, is possible, if *open* is not a 'verb–selecting' causative as Pylkkänen (2002, 2008) assumes. Notice that according to Legate (2003), unaccusatives constitute a phase too. Thus, one cannot simply assume that certain causatives are 'verb–selecting' in the sense of Pylkkänen (2002, 2008).

3.1.3   Summary

As mentioned above, Pylkkänen's account faces problems, when subevents are attested by different adverbs and sequences of subevents come into account. The problems are summarized below in the form of questions:

- If a root, is the argument of the CAUSE like a verb, and phase, then how do predicates license manner adverbs?

- If VOICE bundles with CAUSE, how is VOICE modification possible, and why are VOICE, CAUSE, and the result modification possible in e.g., English?

- If those Korean and Persian predicates which allow 'agent–oriented' adverbs are 'phase–selecting' causatives, why is only one subject agreement (Persian) or subject honorification (Korean) allowed in their structures?

- If there are two intermediate readings as the literature suggests, how does a predicate license them?

3.2   Applicative Approaches to Causatives

Applicative approaches to causatives are developed as extensions of Pylkkänen's analysis for Korean causatives (e.g., Kim 2010; Park 2012). Here, it will be discussed why an applicative approach to causatives is improper.

Recall from 3.1.2.1, that I argued that a biphasal predicate may show subject agreement when morphological tools are available, and that from this point of view Korean causatives are not biphasal. According to Blanco (2011), Hiaki (Yaqui; an Uto-Aztecan language) verbs do not exhibit 'subject–verb' agreement. However, certain intransitive verbs enter 'suppletive number agreement' with their subjects:

(37) Hiaki (Blanco 2011:198)

  (a) Uu   uusi   aman   vuite

    DET   child(S)   there   run(S.SUBJ)

    'The child is running'.

  (b) Ume   uusi-m   aman   {tenne/*vuite}

    DET(P)   child-P   there   {run(P.SUBJ)/*run(S.SUBJ)}

    'The children are running'.

In (37) *tenne* 'run' is the suppletive form of *vuite* 'run' and both have to show number agreement with their subject NP. Thus, *vuite* 'run' is ungrammatical with a plural NP subject, in (37b). In the case of causatives, if the causative suffix *-tua* embeds an 'intransitive suppletive stem', agreement always occurs with the causee:

(38) Hiaki (Blanco 2011:199)

  (a) SINGULAR CAUSEE – SINGULAR VERB

    Heidi aman **aa**=vui-**vuiti-tua.**

Heidi   there   3S=RED-run(S.SUBJ)-CAUS

'Heidi makes him run'.

(b) PLURAL CAUSEE – PLURAL VERB

Heidi   aman   **am=tenni-tua.**

Heidi   there   3P=run(P.SUBJ)-CAUS

'Heidi is making them run'

(39) Adopted from Blanco (2011)
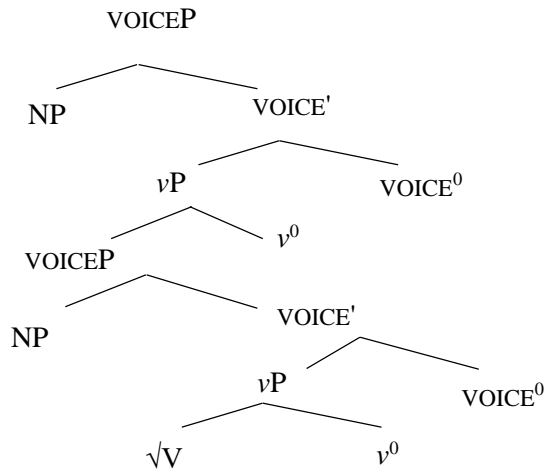
The data from Hiaki, at least when CAUSE embeds an 'intransitive suppletive stem', confirms the conclusion in 3.1.2.1 that when the required morphological tools are present, agreement occurs, and this fact indicates a phase. The syntactic structure adopted from Blanco clearly show this fact in (39). Notice that not all causatives in Hiaki are treated as 'phase–selecting' by Blanco. In the following case, in which CAUSE does not embed an 'intransitive suppletive stem', Blanco assumes a 'root–selecting' causative:

(40) Hiaki (Blanco 2011:187)[21]

(a) Maria   uusi-ta   hi'ibwa-tua.

---

[21] Blanco assumes VOICE^0 and v^0 CAUSE appear in separate projections (non-voice bundling (Pylkkänen 2002, 2008)), and this would allow them to license an independent argument in their specifier positions.

Maria   child-A   eat-CAUS

'Maria is feeding the child'.

(b)

```
                    VOICEP
                   /      \
              Maria        VOICE'
                          /      \
                    vP cause      VOICE⁰
                   /      \
              uusi-ta      v'cause
                          /      \
                    √P             v⁰ cause
                    vP             -tua
                   /  \
              hi'i      √BWA
             'thing'    'eat'
```
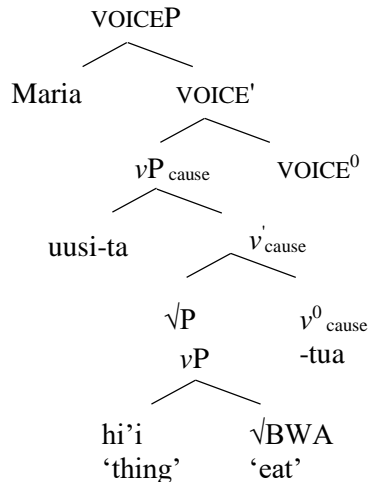
As the data above shows, Hiaki causatives are not built upon an applicative head to bring about the causative reading. However, an interaction of APPL and CAUSE in Hiaki results in a hierarchical syntax, with different semantics (Harley 2013). In (41b), the applicative head may appear higher than CAUSE and give a causativized applicative reading, while (41a) is an applicative of a causative. This phenomenon is not restricted only to Hiaki. Wolof (a Niger-Congo language) also shows such hierarchies (see Buell & Sy 2006). For instance, although a causativized instrumental is possible in (42a), the reversed order is not in (42b). Buell & Sy (2006) explain that in (42a), *Faatu* has to be the user of the stick, and the reverse order, in which *Gàllaay* is the user of the stick, is not available (42b):

(41) Hiaki (Harley 2013: 46)

(a) Nee   Maala-ta uusi-ta   hi'ibwa-tua-ria-k.

I mother-ACC   child-ACC   eat-CAUS-APPL-PRF

'I fed the child for Mother.'

(b) Nee   ili   usi-ta   Mala-ta   aa=tu'ute-ria-tua-k.

I little child-ACC   mother-ACC   it=clean-APPL-CAUS-PRF

'I made the child clean it for Mother.'

(42) Wolof (Buell & Sy 2006: 215)

    (a) Gàllaay   dóór e   loo   na Faatu   xeer   bi (ag) bant.

       Gàllaay   hit INS CAUS   PST 'Faatu   stone   the with stick

       'Gàllaay made Faatu hit the stone with a stick.'

    (b) *dóór   loo   e   na

       hit   CAUS   INS PST

Back to Korean causatives, Kim (2010), assumes that Korean lexical causatives are high applicatives and that the differences in modification, are the result of their sensitivity to different vP types. More specifically, he shows that *ppalli* 'quickly' is the modifier of a 'dynamic vP' in (43a), while in (43b), it is the modifier of a 'static vP':

(43) Korean (Kim K. 2011: 500)

    (a) Swuni-ka   Minswu-eykey   chayk-ul

       Swuni-NOM   Minswu-DAT   book-ACC

       ppalli /* ilpure   ilk-hi-ess-ta.

       quickly/on purpose   read-CAUS-PST-DECL

       'Swuni had$_{caus}$ Minswu read the book quickly/*on purpose.'

    (b) Swuni-ka   Minswu-eykey   pap-ul

       Swuni-NOM   Minswu-DAT   rice-ACC

       *ppalli/   *ilpure/   tasi   mek-i-ess-ta.

       *quickly/ *on pupose/ again   eat-CAUS-PST-DECL

       'Swuni had$_{caus}$ Minswu fed *quickly/*on purpose/again.'

Kim (2010: 500) proposes the following structure for only Korean causatives[22], which is presented with some modifications:

(44)
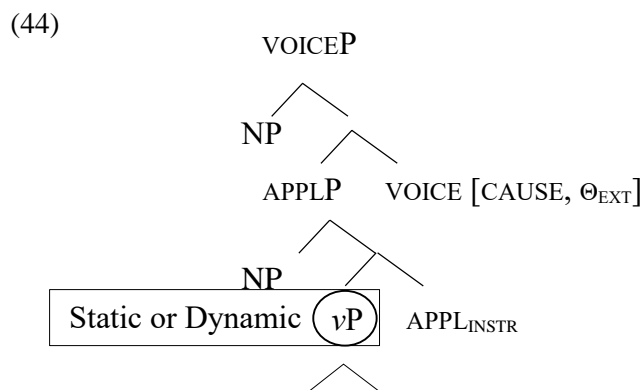
In another study, Park (2012) also assumes that Korean causatives are the result of interactions of CAUSE and an applicative head. Park's motivation to change Kim's structure is to make an account for the differences between lexical causatives and syntactic causatives and the fact that idioms containing transitive verbs can only have their causativized version built on syntactic causatives, not lexical causatives e.g., *mwuruph-ul kkwul-* 'to kneel (knee-ACC bend)' vs. **mwuruph-ul kkwul-li-* 'to make kneel (knee-ACC bend-CAUS)'. Besides, he considers that modification with *ppalli* 'quickly' to have nothing to do with the type of the embedded event since it can modify 'static events' as well:

(45) Korean (Park 2012: 551)

Yenghue-nun   erum-ul   ppalli   el-li-ess-ta

Yenghue-TOP   ice-ACC   quickly   freeze-CAUS-PST-DEC

(i) 'Yenghue caused the ice to quickly freeze.'

(ii) 'Yenghue quickly make the ice freeze.'

---

[22] For an adversity reading of Korean causatives, Kim (2010) assumes an AFFECT head which introduces an affectee instead of CAUSE.

The following is the slightly modified version of the structure proposed by Park (2012: 559). Also notice that Park, unlike Kim, does not assume a VOICE–budling configuration:

(46)

```
                vP
              /    \
           NP        \
                   /    \
               ApplP      v
              /    \
           NP        \
                   /      \
              CAUSEP       Appl
             /     \
          √RP       CAUSE
```
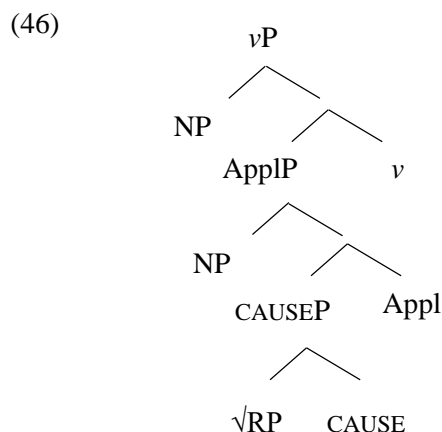
Regardless of the different motivations behind the approaches, the universal syntactic order of CAUSE and the high APPL head, and their combined syntax and semantics, does not give a proper structure for causatives in Korean and Persian in the studies above. If we assume that lexical causatives in these languages are high applicatives, by a simple contrast with the Hiaki and Wolof data, it becomes clear that Park's structure gives the interpretation of an applicative of a causative, while Kim's structure gives a causative of an applicative reading. However, these readings are not the equivalents of Korean lexical causatives. For instance, in Korean causatives, it is not the case that 'x did φ for z', or 'x did φ by means of z', which must be the meaning in a high applicative reading. Put differently, in (43b) for example, the readings 'eating/feeding to the satisfaction of z' or 'eating/feeding by means of z' etc., are ungrammatical. Thus, Korean lexical causatives are not 'high applicatives' in that sense.

Notice that, crosslinguistic data does not favor applicative approaches to lexical causatives either. The example from Hiaki given above shows this fact, but here are more examples which allow two or more causative morphemes. Although double usage of causative morphemes is not common in Japanese, an indirect reading can be built by using a productive causative morpheme *-sase* on top of the lexical causative verb (48a), even though *aruk-ase* 'to make walk (walk-CAUS)' can have the same meaning on its own, as (48b) shows. Notice that an adversity causative reading (thus using applicative

53

in general) with a productive causative morpheme *-sase* is not possible in Japanese. (48c) illustrates

the triple usage of the causative morpheme in Karachay-Balkar.

(48) (a) Japanese (Shibatani 1973b: 344 slightly modified)

Taroo-ga	Ziroo-ni	Itiroo-o	aruk-ase-sase-ta.
Taroo-NOM	Ziroo-DAT	Itiroo-ACC	walk-CAUS-CAUS-PST

(b)
Taroo-ga	Ziroo-ni	Itiroo-o	aruk-ase-ta.
Taroo-NOM	Ziroo-DAT	Itiroo-ACC	walk-CAUS-PST

'Taroo made/had Jiroo make Itiroo walk'.

(c) Karachay-Balkar (Lyutikova & Tatevosov 2014: 283 fn. 1)

Fatima	ana-si-dan	Madina-ʁa	et-ni
Fatima	mother-3-ABL	Madina-DAT	meat-ACC

eri-t-tir-t-ti.

melt-CAUS-CAUS-CAUS-PST.3SG

'Fatima caused her mother to make Madina unfreeze the meat.'

The above data clearly shows that an applicative approach to Korean causatives is improper and not

motivated.

3.3   Event Decompositional Approach

 In this section, I briefly overview Ramchand's (2008, 2014) diagnostics for an indirect causation

reading and address its shortcomings.

    Ramchand (2008, 2014) offers an 'event structure decompositional approach in syntax', as in

Hindi/Urdu, direct and indirect causation readings appear with different suffixes. In (49a) the *-vaa*

suffix indicates an indirect causation reading, while (49) signals a direct causation reading.

(49) Hindi/Urdu (Ramchand 2014: 272–274)

(a) Anjum-ne   (mazdurõ-se)   makaan   ban-vaa-yaa.

Anjum-ERG   laborers-INS   house   be made-VAA-PERF.M.SG

'Anjum had a house built by the laborers.'

(b) Anjum-ne   makaan   ban-aa-yaa.

Anjum-ERG   house   make-AA-PERF.M.SG

'Anjum built a house.'

Ramchand (2014), by summarizing previous literature on Hindi/Urdu causatives mentions that –*aa* and –*vaa* attach to different verb classes:

(50) Base unaccusative   *ban*   *ban-aa*   *ban-vaa*
      'get made'   'make'   'have s.t. made'
      Base unergative   *hãs*   *hãs-aa*   *hãs-vaa*
      'laugh'   'make laugh'   'have (s.o.) laugh'
      Base 'ingestive'[23]   *paṛh*   *paṛh-aa*   *paṛh-vaa*
      'read'   'teach'   'have s.o. study'
      Base transitive   *kaaṭ*   *kaaṭ-aa*   *kaaṭ-vaa*
      'cut s.t.'   'have (s.o.) cut s.t.'   'have (s.o.) cut s.t.'

Building on her (2008:40) work, Ramchand (2014) assumes that *init*P introduces the causation event and licenses the external argument ('subject' of cause = initiator); *proc*P specifies the nature of the change or process and licenses the entity undergoing change or a process ('subject' of process = undergoer); *res*P gives the 'telos' or 'result state' of the event and licenses the entity that comes to hold the result state ('subject' of result = resultee).

The structure below can canonically be assigned to 'initiation-process-result' verbs e.g., causative verbs. Notice that the specifier of each head is where thematic roles are positioned.

---

[23] Following the literature, Ramchand (2014:255) recognizes a small class of transitive verbs, known as 'ingestives', which can be causativized. These verbs can be 'experimental' or 'physical' and include *chakh-naa* 'taste', *dekh-naa* 'see', *khaa-naa* 'eat', *pakaṛ-naa* 'hold', *paṛ-naa* 'read', *pii-naa* 'drink', *samajh-naa* 'understand', *siikh-naa* 'learn' and *sun-aa* 'hear'.

(51)

initiation P
- DP₃
- *init'*
  - *init*
  - process P
    - DP₂
    - *proc'*
      - *proc*
      - result P
        - DP₁
        - *res'*
          - *res*
          - XP
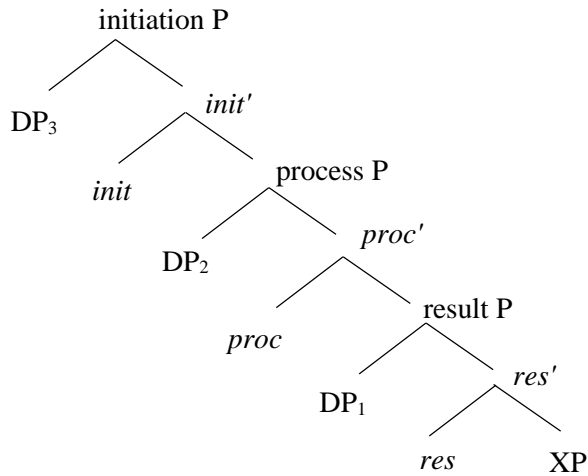
Ramchand argues that the *-vaa* suffix is associated with both *init* and *proc* features and forces under–attachment of the root. As *proc* and *res* are always identified by different lexical items, the complex causative structure will be interpreted as "indirect" causation. This is shown in the structure (52) below:

(52) (Ramchand 2014: 274)

- DP₁
  - *init*
    - **-vaa**
    - <DP₁>
      - *proc*
      - *res*P
        - DP₂
        - *res*
          - √root
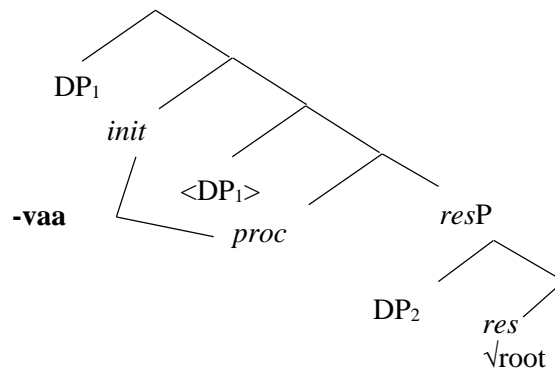
In contrast, the *-aa* suffix bears an *init* feature and, as *proc,* and *res* are identified by the same lexical root, the complex causative structure will be interpreted as "direct" as in (53):

(53) (Ramchand 2014: 274)

```
                    DP₁
                     init
                     -aa
                         <DP₁>
                            proc            resP
                            √root
                                  DP₂
                                         res
                                         <√root>
```
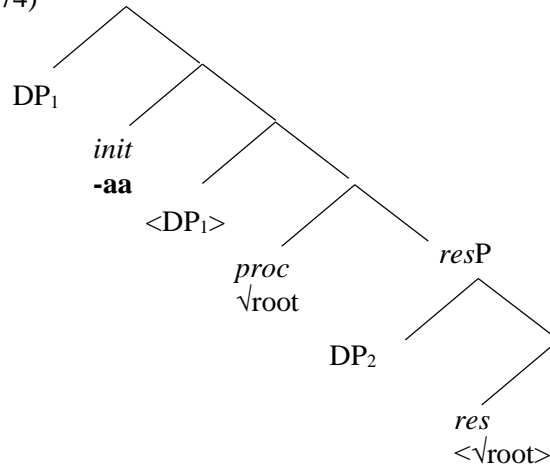
It is very important to notice that the *proc*P in her account is not necessarily the equivalent of CAUSE. In her (2008) work, CAUSE in e.g., the English *break,* is syntactically positioned in *init*. What is known as CAUSE in her system is neither the result of a head movement from *proc*, nor shares any feature with it. This can be confirmed by the syntactic tree she draws for the equivalent of *Katherine broke the stick* in the following structure, which I present here with a small modification (Ramchand 2008: 87):

(54)
```
            initP
  Katherine
            init           procP
            Ø_cause
                    the stick
                            proc            resP
                            break
                                    the stick
                                            res
                                            <√break>
```
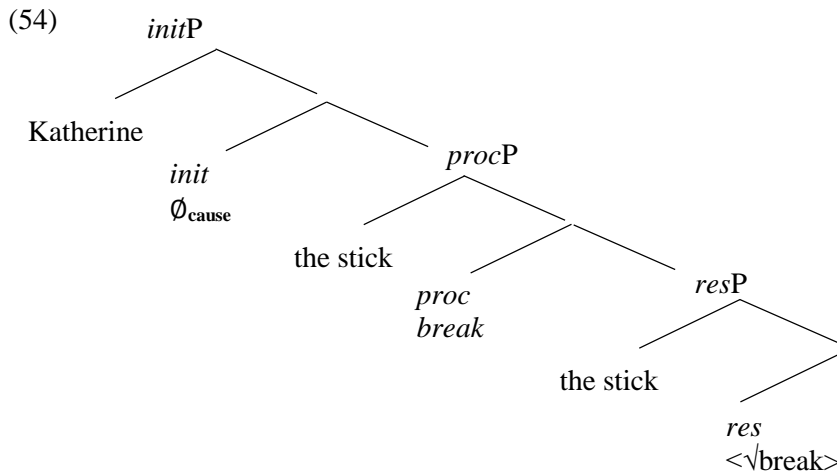
It seems like that at least in the case of the causatives, *proc*P is not the equivalent of little *v*. Then, the question is, what is the nature of *proc*P such that it switches on and off between a functional head and a categorical head in (52) and (53)[24]? Besides, having the suffix *-aa* associating with *init* in direct

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[24]Assuming that *proc* is little *v*, a reviewer comments that little *v* ('*proc*') has a dual status as well as dual tense.

causation makes the rest of the structure a result. This means that *proc,* at least in the structure above, is logically superfluous.

As the instrumental marked NP *mazdurõ* in (49a) is an adjunct[25], Ramchand argues that the Hindi/Urdu equivalent of the indirect causative 'make' is causativized from the equivalent of 'be made'. Thus, she concludes that the predicate is not a causative of a transitive verb. Accordingly, I believe that associating *-vaa* with two heads by movement or other means is not motivated.

Another, problem in Ramchand's data concerns the case of direct causation (*aa*-causatives), which allow *–se* marked adjuncts, when in fact they should not. *aa*-causatives with an unaccusative root are unacceptable when they co-occur with *–se* marked adjuncts, while *aa*-causatives with unergatives, ingestives, and transitives roots allow partial acceptability with *–se* marked adjuncts:

(55) **AA-causative based on an unaccusative root**

Anjum-ne	(*mazdurõ-se)	makaan	ban-aa-yaa.
Anjum-ERG		house	make-AA-PERF.M.SG

'Anjum built a house.'

(56) **AA-causative based on an unergative root**

Anjum-ne	(%masxaraa-se)	Saddaf-ko	hãs-aa-yaa.
Anjum-ERG	(clown-INSTR)	Saddaf-ACC	laugh-AA-PERF.M.SG

'Anjum made Saddaf laugh (%by means of the clown).'

(53) **AA-causative based on a base transitive root**

As I showed, *proc*P is not the equivalent of little *v* in (54).

[25] As a *–se* marked adjunct is independent of passivization, this concludes that *–se* is at least constrained to contexts where the participant in question is not in volitional control of the event but is somehow facilitating it.

(i) Ram-ke	-dwara	Anjum-se	peṛ	kaṭ-vaa-yaa	ga-yaa
Ram-OBL	BY	Anjum-INSTR	tree	cut-VAA-PASS	go-PERF.M.SG

'The tree was caused to be cut by Ram, by Anjum.'

Anjum-ne   (%Saddaf-se)   peṛ kaT-aa-yaa.

Anjum-ERG   (Saddaf-INSTR)   tree cut-AA-PERF.M.SG

'Anjum cut the tree/ %had Saddaf cut the tree.'

(57) **AA-causative based on an ingestive transitive root**

Anjum-ne   (%Saddaf-se)   Ram-ko   khaanaa khilaayaa.

Anjum-ERG   Saddaf-INSTR   Ram-ACC   food   eat-AA-PERF.M.SG

'(%)Anjum had Saddaf feed Ram food.'

Notice that allowing *–se* marked adjuncts is the property of *vaa*-causatives as in (49a), and Ramchand's analysis cannot explain the partial acceptability of *aa*-causatives with *–se* marked adjuncts.

3.4   Other Approaches

Lyutikova & Tatevosov (2014) propose a multi–relational approach to CAUSE in order to account for such ambiguities. In their approach the relations between subevents are introduced independently from subevent descriptions in a syntactically represented event structure. What is problematic however, is the relations they consider. They assume that relations between subevents can be INCR(emental) (where (sub)events are related incrementally, and an agent's activity and the change of state of the theme are temporally co-extensive), a CAUSING (where activity (sub)event is an immediate cause of a process (sub)event and no intermediate causes are available, and where the change of state can occur at the final part of the activity), or a CAUSE (where one (sub)event is casually dependent on another and intermediate causes are available). As it was discussed in chapter 2 and will be discussed further in chapter 4, an indirect causation or, in their terms, a causation with 'intermediate causes' can be an INCR e.g., one can make an overweight boy run by running with him (thus INCR can be CAUSE). Thus, assuming a multi-relational approach to causation as they propose is a tautology to some extent. Besides, direct or indirect causation, as will be addressed in the next

chapter, is related to the syntax of CAUSE. Accordingly, I assume that their approach fails to distinguish the syntax and semantics of causation.

There are also mixed approaches to causatives that assume causatives of inchoatives, causatives of unergatives, and causatives of transitives are each the result of the different selecting properties of CAUSE (see Son (2006) for the case in Korean and Darzi & Karampour (2012) for Persian). The problem regarding direct and indirect causation also applies to them so I do not discuss them here any further.

3.5   Summary

As was discussed in this chapter, different approaches involve different problems, including one common problem, which is the improper configuration of syntactic heads. The 'polymorphic approach to causatives' involved problems deriving direct causation, as well as the syntax and semantics of subevents and modification. The 'applicative approach to causatives' involved the improper assumption of an extra functional head (APPLP). Finally, the 'decompositional approach to causatives' involved assuming a superfluous head (i.e., *proc*).

4   Types of Causation

This chapter aims to offer a possible solution to the semantic problems and shortcomings discussed in chapter 2. Here, I argue for sematic types of causation which can appear based on the type of result which a predicate may denote. Accordingly, I categorized four types of causation: "causation with an atomic result" (a type of causation, whose result is entailed or implied to be atomic); "causation with plural sub-results" (a type of causation, which is composed of plural sub-results); "causation with a zero-result" (a type of causation whose result only derives from a plurality of causing subevents); and "destined causation" (a type of causation whose result derives from the plurality of an "extended chain of disjoint sub-events").

In what follows, section 4.1, argues for the source of different types of causation, section 4.2 explains the relation between results and atomicity, section 4.3 argues for the different types of causation in different classes of the verbs, and section 4.4, offers a summary and discussion.

4.1   The Sources of Different Types of Causation

Implying a causal relation is part of the basic understanding of many predicates. For instance, *send* and *offer* can imply a change of possession in which a theme/possessee is transferred to a goal/possessor. However, as I argue below, a nonspecific result does not mean that there is no causation or no result, and the meaning of many predicates support this fact. The first evidence comes from causatives of unergative verbs, which, although they denote an entailed causation, do not entail any specific change of location. These predicates do not necessarily appear with an endpoint:

(1) Persian

John	bačča-ro	barâye	čand	daqiqe	dav-und-Ø.
John	kid-ACC	for	few	minutes	run-CAUS-3SG

'John made the child run for a few minutes.'

As the example above shows, a perception of causation or any degree of it, is not contradictory with applying durative adverbials. The same can be claimed in the case of the following example from Korean, which lacks a specific result:

(2) ku-nun   halucongil   cheyk-ul   ilk-ess-ciman,

    He-TOP   all.day   book-ACC   read-PST-but

    cheyk-i   ilk-hi-ci   anh-ass-ta.

    book-NOM   read-PASS-COMP   NEG-PST-DECL

    (i) 'he read the book all day but the book was hard to read.'

    (ii) *'he tried to read the book all day but he could not read a word.'

(2) shows an accomplishment predicate. Following Dowty (1979), if we assume that the structure of the accomplishment predicates denotes a causal relation, then the lack of a specific result may denote some degree of causation, as in (2). This may be equivalent to what Tatevosov & Ivanov (2009) refer to as a 'partial success' reading (see 2.1.3). Here, a nonspecific result or partial success reading is also compatible with durative adverbials. One may ask why should durative adverbials denote a nonspecific result. Durative adverbials do not just denote some time intervals with respect to an evaluating time unit. As Moltmann (1991), Krifka (1998), and Larson (1999) show in their slightly different semantic representations of durative adverbials, each time interval contains a certain part of the event:

(3) Moltmann (1991)

    (a) walk for hours

    (b) $\exists t[\text{two-hours}(t) \,\&\, \forall t'[t'Pt \rightarrow \exists e[\text{walk}(e, j) \,\&\, \text{AT}(e,t') \,\&\, \text{PAST}(t)]]]$

    'There is an interval of two hours such that for every part t' of t there is an event of walking at t' in the past.'

(4) Krifka (1998):

    (a) for an hour

(b) $\lambda R \lambda x, e[R(x, e) \wedge H'(e) = 1 \wedge \partial \exists e' \in U_E [e' <_{H'} e \wedge \forall e'' \in U_E [e'' \leq_{H'} e' \rightarrow R(x, e'')]]]$

'*for an hour* contains a presupposition that requires that the event *e* has proper parts, and that all parts of *e''* fall under R'.

(5) Larson (1999)

   (a) Mary walked for two hours.

   (b) P_{hours} [the *e*: walking(*e*) & Agent (Mary, *e*)] = 2

      'Measured in hours, the amount of walking by M is 2.'

Thus, with respect to the fact that the examples in (2) and (3) contain nonspecific results, it can be concluded that durative adverbials contain parts of a nonspecific result. In the case of (1) and (2), this shows that causation may occur regardless of obtaining a specific result.

Second**,** as mentioned by Rothstein (2012: 100), compatibility with durative adverbials is not contradictory with occurring in a possible change of state:

(6) I read an Agatha Christie novel for two hours before I went to bed this evening, and I finished it.

The predicate in (6) can imply a specific result, and can be compatible with a durative adverbial.

Third, a failure to reach a result in the following causative predicate (notice the causative morpheme) does not cancel the existence of a causation or at least its failure:

(7) emma-ka   ai-eykey ku os-ul   ip-**hi**-ess-ci-man

   Mother-NOM   kid-DAT that cloth-ACC   wear-**CAUS**-PST-COMP-but

   os-i   cak-ase   mos-ip-**hi**-ess-ta.

   cloth-NOM   small-since   NEG-wear-**CAUS**-PST-DECL

  Int: 'the mother (tried to) put those clothes on the child but she could not, as the clothes

      were small.'

Fourth, in some of the 'prospective possessor' predicates (Beavers 2006), neither a failure to reach a specific result licenses *for* adverbials as in (8a, b), nor does a change of state licenses *in* adverbials as in (8d). However, these predicates naturally come with a specific result. The "loss of possession" or the fact that "there is a promise" are specific results as (8e, f) show:

(8) (a) she sent me a package #for days but I still have not received it.

(b) she promised me some tea and biscuits #for days but she forgot.

(c) she sent me a package in two days.

(d) she promised me some tea and biscuits #in an hour.

(e) she sent me a package #but no package was ever sent to me.

(f) she promised me some tea and biscuits #but she never promised.

In short, the examples above clearly show that causation does not require a telic event or a specific result and different perceptions about the result should be considered the source for different types of causation. Now, the question is what types of causation can one posit and what should be the standard of doing so in such a classification. In the following, this issue will be argued.

4.2   Atomicity and Result

In section 2.1.2, I introduced the notion of atomicity and Rothstein's (2008) assumption that the basic verbal denotations at the V and VP level must count as one on some scale of measurement in order to be considered atomic:

(9) $\lambda e.\ P(e) \wedge \text{MEAS}(e) = \langle 1, U \rangle$

Here, I follow Rothstein's (2008) assumption of atomicity. However, as I argue informally below, the atomicity of 'the basic verbal denotations at the V and VP level', event-structurally, is the atomicity of a result. Then, I argue for the consequences of this assumption.

As was discussed in 2.1.4, the following schema of accomplishment predicates (Rothstein 2012:86) consists of an activity-type event (e_1) and an BECOME event (e_2). e_2 contains 'upper bounds' (the set of culminations of parts of e_1) and moves toward a culmination:

(10)
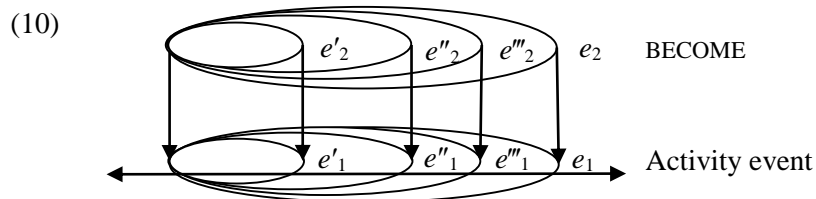
As BECOME (e_1) is the outcome of the activity event (e_1) in (10), it can be concluded that the atomicity of an event is the atomicity of its 'BECOME'. Event-structurally, as BECOME is a result, it can be concluded that a result can be atomic. Thus, the denotation of a result must count as one on some scale of measurement, in order to be considered atomic. For example, in *John ate a cake*, the measurement unit is *a cake*, and a change of state can be understood, when *a cake* disappears. Here, we depart from previous approaches by assuming a secondary measurement unit on the same scale. For example, when the context is e.g., *John ate a cake for x time*, there can be other measurement units U′ e.g., spoon, slice, etc., which may not satisfy *a cake*, as they are smaller units. By this assumption, the beginning and endpoint of an event on a scale does not change, only the measurement unit does. As the atomicity of an event is the atomicity of its result with respect to a measurement unit U, its defensibility can be the number of upper bounds, or as we call them here, "sub-results", which are measurable with respect to some secondary measurement unit U′. However, as no secondary measurement unit U′ is available contextually, what can be understood by U′, is only the plurality of "sub-results", not their exact number. For instance, *John ate a cake for x time,* can refer to a situation in which John ate only fifteen spoons of *a cake*. From this perspective, "sub-results" are measurable with respect to the secondary measurement unit U′ (spoon). However, as U′ (spoon) is contextually unavailable, the number of "sub-results" (and thus, the total progress of John's *eating a cake*) is unspecified. This way of interpreting the result and "sub-results", gives us the merit of categorizing types of causation.

In what follows, I argue that event-structurally, plurality of subevents can be understood on a causing event, a caused event, as well as what I refer to as an "extended chain of disjoint sub-events", and that each are the outcome of a different type of causation.

4.3   Atomicity and Causation Types

4.3.1   Causation with Atomic Result

The previous subsection showed that what Rothstein assumes as an atomic V or VP, is event-structurally the atomicity of a result. Conversely, we also concluded that a result which is not atomic is plural with respect to a secondary measurement unit or its "sub-results". Here, we draw one more logical extension of this assumption. Following Alexiadou et al (2006), we assume that all 'change of state predicates' denote a causal relation. This means that accomplishments also denote a causal relation, as that they are change of state predicates. Accordingly, we assume that accomplishments also denote a causal relation[26]. The causal relation in accomplishment predicates is such that it consists of n causing events (e_1) which result in n 'upper bounds' (e_2) and constitutes one BECOME event (result). This entails n successful causations. Put differently, in order to have a successful BECOME, there must be n successful 'upper bounds' and n successful causations. For instance, to *build a house*, each stage of building a house must occur successfully in order to create a BECOME. Notice that not

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[26] Rothstein (2004:103~105) mentions that accomplishments do not denote a causal relation at all. For instance, she argues that in *On May 5, 1945, the people of Amsterdam danced the Canadians to Dam Square*, Canadians would dance to Dam Square anyway. I return to the resultative predicates in chapter 6, but as long as they are related to accomplishment verbs, following Dowty (1979) and Pustejovsky (1995) among others, I assume that they denote a causal relation, since all 'change of state predicates' denote a causal relation (Alexiadou et al 2006). Moreover, certain accomplishment verbs in Korean (e.g. *sey-wu* 'to build (be build-CAUS)' or Urdu-Hindi (e.g. *ban-aa* 'to build (be build-CAUS)' appear with a causative morpheme. I believe this shows that nothing prevents us from considering that accomplishment predicates sub-lexically denote a causal relation.

all processes of building a house are necessarily building a house e.g., scaffolding is part of creating a successful upper bound(s), but alone is not an upper bound.

As Krifka (1998) also noticed in the case of the following example, atomicity can be entailed or implied. According to Krifka (1998: 205), the example in (11), does not have a quantized object, but it can be understood as atomic[27, 28]:

(11) Mary is an incredibly fast eater. Yesterday she ate peanuts in 0.43 seconds!

This clearly shows the independence of the notion of 'atomicity' from the quantization of objects, which is not only mentioned by Krifka (1998), but also by Rothstein (2004, 2008, 2012). What can be understood from the above mentioned facts is that if there is a result which can be entailed or implied to be 'atomic', there can be a causation, which brings about a result with such a property. Thus, I claim that there is a causal relation whose atomicity of its result can be entailed or implied:

(12) If a result is entailed or implied to be specific, then there is a 'causation with an atomic result'.

As atomicity can be entailed or implied (Krifka 1998; Rothstein 2004, 2008, 2012), I assume that any predicate (e.g. (12)) with an implied specific result can appear with this type of causation.

4.3.2   Causation with Plural Sub-results

In the previous section, I argued for a type of causation, which may entail or imply a specific result. Here, based on the structure of accomplishment predicates, I argue that one cannot assume that a nonspecific result means no causation. 'Measure verbs' ((Smollett 2005), as well as predicates which

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[27] Krifka uses the term 'temporally atomic'. I am not sure whether this terminology can be proper as it cannot mirror the event structure of the predicate. As I discussed, the result has to be understood as atomic, whether it is specified or not. Put differently, (11) could not be true, if the speaker did not have a certain amount of peanuts in mind.

[28] Notice that without a proper context, the example is still atelic.

show a 'shift' to an activity reading (Rothstein 2004, 2008, 2012)) allow durative adverbials even when their direct object is 'quantized'[29]. These predicates, some of which are exemplified in (13), are traditionally taken as counterexamples to the arguments based on the notion of homomorphism[30]:

(13) (a) Sue walked the trail for an hour/ in an hour.

(b) The chemical reddened for half a minute/in half a minute.

(c) Thomas mixed the batter for 5 minutes/ in 5 minutes.

(d) Danny ate his banana immediately, but Carol ripened hers for a day.

(e) The ant ate the apple for a week before it rotted into the ground.

(f) Steven built a Lego tower for three hours.

<div align="right">Smollett (2004, 47-50)</div>

(g) I couldn't sleep last night, so I read a logic textbook for a couple of hours, till I got tired.

(h) I read Pride and Prejudice to my daughter for an hour before she went to sleep. She likes to pick out her favorite bits and have me read them to her.

<div align="right">Rothstein (2012: 100)</div>

In the above examples, although the accomplishment predicates appear with quantized objects, they can denote both a culminated event and an event, which is not so. This means that the BECOME event (e_2) in (10) is unspecified. An unspecified BECOME event (result) can be understood by durative adverbials or by assigning a contextual scale (Rappaport Hovav 2008; Filip 2008). See the following examples, from Rapport Hovav (2008: 27~28):

(14) **Incremental theme verbs with a physical extent scale**

(a) I mowed the lawn, but not all of it.

(b) I read the newspaper, but never finished.

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[29] See Krifka (1998).

[30] For the arguments supporting homomorphism see e.g., Krifka (1998) and Beavers (2012), and for an argument against homomorphism see e.g., Smollett (2005) and Rothstein (2004, 2008, 2012).

(c) I studied the file, but never got to the end.

(d) I perused the list, but stopped before I got to the end.

(15) **"Degree achievement verbs" with a gradable property scale**

(a) If you put the tomatoes out on the porch, the sun will ripen them a bit (at least enough to make them edible).

(b) That acne medication helped clear her face, though she still has some pimples.

(c) This board is too rough to use, but if you sandpaper it, we may be able to smooth it just enough so that we can use it.

(d) The pastor had a jug of blue water and an empty glass. He filled the glass a bit and asked if it was full, the crowd said no. Filled some more... Not full... Filled it overflowing and set it down. Then he used it to illustrate what happens as you go through your day 'ministering' to others.

The unspecified results can also occur in what Tatevosov & Ivanov (2009:85~86) categorize as 'partial success accomplishments':

(16) **Karachi-Balkar** (Altaic Turkic)

(a) alim   eki saʁat-xa baxca-nɨ   sür-dü.

   Alim   two hour-DAT field-ACC   plow-PST.3sg

   'Alim ploughed a vegetable garden in two hours.'

(b) alim   eki saʁat   baxca-nɨ   ür-dü.

   Alim   two hour   field-ACC   plow-PST.3sg

   (i) 'Alim was involved in ploughing the field for two hours.'

   (ii) *'Alim tried to plough the field for two hours (but hasn't made a single furrow)'

(17) **Mari** (Uralic, Finno-Uralic)

(a) Jivan   tide šereš-em   lu minut-əšte   voz-en.

   Ivan   this letter-ACC   ten minute-INESS wirte-PST

'Ivan wrote this letter in 10 minutes.'

(b) Jivan tide šereš-em lu minut voz-en.

Ivan this letter-ACC ten minute write-PST

(i) 'Ivan was involved in writing this letter for ten minutes.'

(ii)*'Ivan tried to write this letter for ten minutes (but hasn't written a single word).'

(18) **Russian**

(a) Vasja zapolni anket-u za pjat' minut.

Vasja fill-PERF.PST.M from-ACC in five minute

'Vasja filled in the form in five minutes.'

(b) Vasja po-zapoln-ja-l anket-u pjat' minut.

Vasja DELIM-fil-IMP-PST-M from-ACC five minute

(i) 'Vasja spent five minutes filling in the form.'

(ii)*'Vasja tried to fill in the form for five minutes (but hasn't filled in a single entry).'

As discussed by Tatevosov & Ivanov (2009), the above examples, denote a 'partial success', which is compatible with durative adverbials. The similarity between predicates with unspecified results and predicates with plural objects, as in (19), is that both license durative adverbials:

(19) Chuck ate apples (for an hour/*in an hour).

<div align="right">Tenny (1994: 24)</div>

If we assume that the unspecified result reading in (14)~(18) is due do the homogenous nature of activity predicates (Rothstein 2008, 2012), then the only possible way to make sense of the similarity between (19) and (14)~(18) is to assume that the predicates in (14)~(18) are perceived as plural (proper parts) with respect to their 'upper bound' events. This is also the assumption that we argued in terms of plurality of sub-results in section 4.2. This is shown by the accomplishment verb schema based on Rothstein (2012), which here is presented with some modifications:

(20) A schematic instance of 'accomplishment predicates':

$$e'_1, e''_1, e'''_1 \qquad e'_2 \qquad e''_2 \qquad e'''_2$$
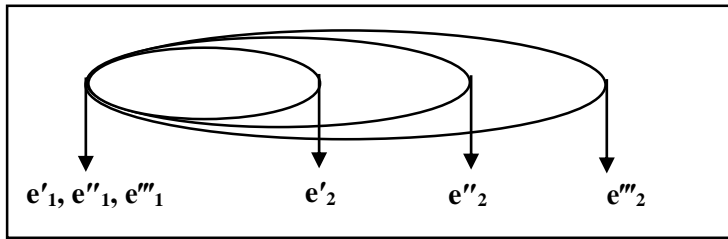
(21) A schematic instance of 'measure verbs':

$$e'_1, e''_1, e'''_1 \qquad e'_2 \qquad e''_2 \qquad e'''_2$$
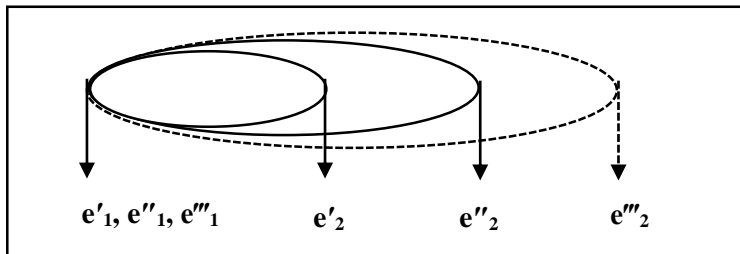
The schema in (20) shows that e_2 is fully achieved, while the schema in (21) shows an instance in which e'''_1 and e'''_2 did not occur, or e'''_1 has not occurred successfully (notice the dotted area). In the case of (20), it can be assumed that it contains n causing events (e_1) and n upper bounds (e_2), which entails n successful causational operations. In the case of (21), however, the first 'upper bound event' is the exhibition of some degree of causation and an unspecific result. Having specified or unspecified results in an 'accomplishment predicate' is the result of plurality or atomicity of 'upper bounds' which I refer to as "sub-results". "Sub-results" can be perceived in accomplishment/activity shift predicates as in (13), in 'partial success' predicates as in (16)~(18), in contextual scale extension as in (14) and (15), etc. This leads us to a type of a causal relation with the following definition:

(22) If a result is entailed or implied to be smaller than φ, then there is a causation whose sub-results are plural.

Thus, I claim that the second type of causation, which here is discussed based on accomplishment predicate, is a type causation which is composed of plural sub-results with respect to some secondary measurement unit, which I refer to as "causation with plural sub-results". 'Degree achievement

predicates' (Kennedy & Levin 2008; Beavers 2012 among others), such as *cool*, *warm*, *wide*, etc., Smollett's (2005) 'measure verbs', such as *eat*, *read*, *build*, etc. (see (13)), and partial success verbs (Tatevosov & Ivanov 2009), as well as causatives of unergatives without specific endpoints as in (1), can denote this type of causation. The similarity between these predicates is that they may denote a situation in which no specific result is entailed or implied.

4.3.3   Causation with Zero-result

In chapter 2, I reviewed Tatevosov & Ivanov (2009), Martin (2015) and Beavers & Lee's (in press) account of defeasible causatives and addressed their shortcomings. Here, I continue the discussion with some important questions, which were left unanswered in the abovementioned studies regarding defeasible causatives. First, if no opening, breaking, etc., has happened, why are these predicates lexically acceptable? Second, what events do the durative adverbial in the following context refer to?

(23) na-nun   mwun-ul   han sikan   tongan   yel-ess-ci-man,

     I-TOP   door-ACC   one hour   for   open-PST-COMP-but

     mwun-i   cokumto yel-li-ci   anh-ass-ta.

     door-NOM   a. bit   open-INC-COMP   NEG-PST-DECL

     Int: 'I (tried to) open the door for an hour but the door did not open at all.'

Let us assume that the extension of an accomplishment predicate like e.g. *opening a door*, includes {*pushing a door, pulling a door or hitting a door, etc.*}. If neither of them results in a change of state, then the door has no change of state and, therefore, there is no result. This action is the causing event, which is not perceived as a successful causation since any degree of causation would have resulted in some degree of change of state. The fact that no result is understood (zero–result) can also be exemplified by the schema below:

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(24) A schematic instance of a 'zero–result' reading:

$$e'_1, e''_1, e'''_1 \qquad e'_2$$

As illustrated by the above schema, no (sub–)result in e_2 has occurred (notice the dotted shape of e_2) while (e_1) shows an activity reading in an accomplishment predicate. This means that no successful causation has happened. Put differently, no opening, breaking, or such has happened. Thus, I claim that this type of causation, which I refer to as "causation with a zero–result" can be characterized as the following[31]:

(25) If the causing subevents are smaller than any sub-results, then the causing subevents are

   plural and there is a "causation with a zero–result".

Thus, "causation with a zero–result" is the plurality of all causing subevents with respect to some

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[31] A "causation with a zero–result" is not limited to causatives. Lee (2016:125~126) argues for a type of Korean activity verbs that are 'accomplishment' based on the following examples:

   (i) [Context: Arthur's legs were stuck in the mud.]

   Arthur-ka   onhimultahayse   ttwi-ess-ciman,

   Arthur-NOM   with.all.the.strength   jump-PST-BUT

   cokumto   ttwi-l   swu eps-ess-ta.

   at.all   jump-REL   way not.exist-PST-DEC

   (lit.) 'Arthur jumped with all his strength, but he could not jump at all.'

   = (roughly) 'Arthur tried to jump with all his strength, but he could not jump at all.'

   (ii) [Context: Arthur's legs were stuck in the mud.]

   Arthur-ka   onhimultahayse   kel-ess-ciman,

   Arthur-NOM   with.all.the.strength   walk-PST-BUT

   cokumto   kel-ul   swu eps-ess-ta.

   at.all   walk-REL way not.exist-PST-DEC

   (lit.) 'Arthur walked with all his strength, but he could not walk at all.'

   = (roughly) 'Arthur tried to walk with all his strength, but he could not walk at all.'

I believe that the examples above also denote a casual relation which, from the time that a state of affairs has started and the time that first (sub–)result happens, can be perceived as an event, whose result is e.g., a *jump* and its defeasibility results in a "causation with a zero–result".

secondary measurement unit with no sub–result.

4.3.4   Destined Causation

In section 1.2.1, it was argued that restriction on modification with time adverbials, in addition to the fact that 'prospective possessor' verbs neither allow a 'failed attempt' reading nor an activity reading, confirms that a failure in a change of possession, is not the result of the co-occurrence of a sublexical modality with the subevents on sentential level. Thus, in 'prospective possessor' verbs, the speculations regarding possession are an "extended chain of disjoint sub–events" e.g., a series of sequential and non-coextensive result sub–events which happen after the culmination of an event and which are not necessarily performed by the external argument. The range of the "extended chain of disjoint sub–events" that a verb in this class can show may differ. Consider the following:

(26) (a) The smell gave him a headache. (# but he refused to take it)

   (b) She sent him a book. (but he did not receive it yet)

   (c) She made him a cake. (but she did not give it to him)

   (d) She promised him some tea (but she forgot that she already drank the pot empty).

As also discussed in the literature (e.g., Pylkkänen, 2002, 2008; Basilico 2008; Kratzer 2015, among others), the predicates in (26) have certain differences in their meaning. The continuation of the sentences in the parentheses shows the first subevent that happens after sentential entailments (the result which is asserted sententially) in the "extended chain of disjoint sub–events" (see 27). The example in (26a) sententially entails that the possessor has a headache, as the external argument is the causer and causers are cross-linguistically more likely to give an entailed result (Martin 2015). Although the predicates in (26b, c, d) share the implication that the possessor may not have the possessee, they are different in that the transition of possession is entailed in (26b), unlike (26c). In (26d), the existence of *some tea* is in question (Kratzer 2015) while an *offer* is entailed contrary to (26c) which entails that a cake exists for *y*. Thus, the complexity of the "extended chain of the disjoint

sub-events" may differ. For instance, the "extended chain of disjoint sub-events" for *promise* can be as in (27):

(27) Creation < Beginning of transition < End of transition < Acceptance of transition
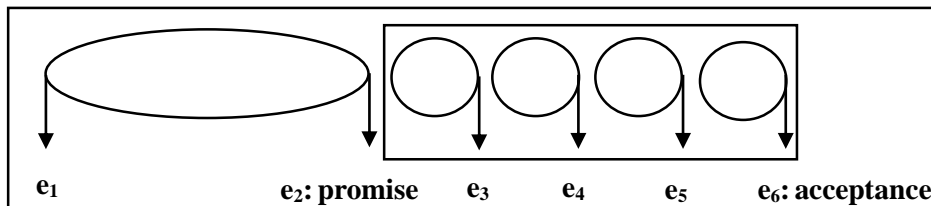
(28) A schematic representation of a defeasibility in a prospective possessor predicate:
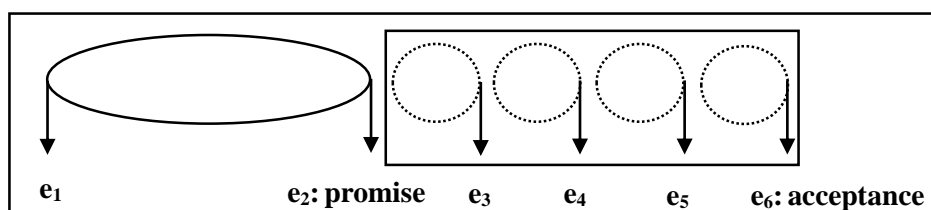
Notice that standing in the hierarchy of an "extended chain of disjoint sub-events" is not a necessity. Here, it is only used to show a certain extended chain of events between a result that has happened sententially and a result, which must happen.

Based on the abovementioned facts, I will refer to the type of causation which brings about the sentential entailments and the failure of its related implication as "destined causation":

(29) Assume that a culminated event e has an "extended chain of disjoint sub-events" with a result φ.

If the "extended chain of the disjoint sub–events" are smaller than φ, then the sub-events are plural, and there is a "destined causation".

As mentioned, "destined causation" indicates that the entailed result and the disjoint sub-events are implications.

4.4 Summary and Discussion

This chapter argued for four types of causation by modifying previous studies. It was argued how different perceptions of subevents may affect the type of causation and result interpretation in a predicate.

For the remainder of this chapter, I would like to discuss whether all result expressions should be judged by the type of causation which is expressed sententially. Here, I specifically address the case in Korean. Shim & den Dikken (2007) assume that Korean adjunct resultatives appear with TP as they can be both subject and object controlled resultatives, unlike English. English is commonly known to have object controlled resultatives (e.g. *John painted the wall red* cannot mean John became red as the result of splashing paint on him).

(30) Susana-ka   Jim-ul   aphu-key   ttayli-ess-ta.

     Susana-NOM   Jim-ACC   in. pain-KEY   hit-PAST-DECL

    (i) 'Susana hit Jim such that she ended up in pain.'

    (ii) 'Susana hit Jim such that he ended up in pain.'

However, as a reviewer points out, the example below may have an atelic reading, while a resultative predicate in English e.g., *he hammered the metal flat* is telic:

(31) ku-nun   koki-lul   (napcak-ha-key)   nwull-ess-ta.

     he-TOP   meat-ACC   flat-do-KEY   press-PAST-DECL

    'He pressed the meat flat.'

A native Korean informant also mentioned that the sentence can have a 'zero–result' reading. Assume the following examples from Persian:

(32) man   âhan-o   ye sâʔat   čakoš   zad-am, …

     I   iron-acc   one hour   hammer   hit-1sg

'I hammered the iron for an hour, …

(a) tâ   sâf   be-še-Ø.

    until   flat SUBJ-became.3SG

(b) tâ   sâf   be-še-Ø   vali na-šod-Ø

    until   flat SUBJ-became.3SG but   NEG-became.3SG

(c) tâ   sâf   šod   #vali   na-šod-Ø

    until   flat became.3SG   but   NEG-became.3SG

In the examples above, the resultative predicate is subordinated by the equivalent of *until* in English. When the subordinate clause is continued by a verb with a subjunctive mood as in (32a, b), it can imply a change of state or not. This is not the case in (32c), where the verb is in its indicative mood. If Shim & den Dikken's (2007) analysis is true in that Korean adjunct resultatives contain TP and are the equivalent of *so that* or *until* (i.e., the result is in a subordinating clause), it may be the case that the type of causation in the main clause does not affect the interpretation of the clause, which is subordinated by *-key* in Korean. This means that *-key* causatives can also have a MOOD above the TP. The other possibility is that *-key* in the above context is the equivalent of *flatter and flatter*, which in English is compatible with *for* adverbials. With these possibilities in mind, I leave further investigations to future studies.

5 Causative Fluctuation: 'Direct' and 'Indirect' Causation

In chapter 3, I pointed out the problems with the previous syntactic approaches to (in)direct causation ambiguities. This chapter takes a deeper look into direct and indirect causation readings in monophasal predicates based on a participant–based analysis of (in)direct causation readings, and attempts to connect the semantics of causation, as discussed in chapter 4, with its syntax, which will be argued to be the difference between the direct and indirect causation readings. More precisely, I argue that a participant–based approach to causatives results in a different syntax for CAUSE, such that it can be interpreted above or below the verbal root. Under this assumption, any type of causation discussed in chapter 4 can canonically occur above or below the root.

In what follows, first, I offer a distinguishing semantic diagnostic for the direct and indirect causation readings in 5.1. Then, I argue that all types of causation can canonically show a direct or indirect causation reading in 5.2. Section 5.3 offers the proposal, which can overcome the problems pointed out in chapter 3, and accounts for the syntactic and semantic properties of (in)direct causation readings. Section 5.4 argues how the proposed syntax might work crosslinguistically, while 5.5 shows how it accounts for modification. Section 5.6, offers a summary of the results.

5.1 A Participant Based Analysis of (In)Direct Causation

To see what direct causation is, perhaps it is better to see what indirect causation is first. In this section, I argue for two types of indirect causation readings. The first type is based on studies by Babby (1993) and Ramchand (2014), and the second type is based on a description of Korean causatives in Lee (1975), Kim K. (2011) and Kim H.-S. (2012).

Babby (1993) argues for 'hybrid' causative verbs that can be ambiguous between a transitive verb reading and a reading in which the external argument is the beneficiary of the event. He shows that

in Russian, these verbs can license 'argument-adjuncts' (Grimshaw 1990), which are marked by 'locative *u*', as in the following example:

(1) Ona sšila   sebe   novoe   piafe   [u [modnoj portnixi]NP-gen]PP.

    she sewed   herself   new   dress   at   stylish   seamstress-GEN

    (i) 'She made herself a new dress at a stylish seamstress.'

    (ii) 'She had a stylish seamstress make her a new dress.'

<div align="right">Babby (1993:345)</div>

Babby mentions that predicates like the one above have a 'limited productivity in Russian' and involve a class of verbs that denote a 'service, which one person normally performs for another'. These predicates are ambiguous between a causative and noncausative reading.

In another study, Ramchand (2014) argues that the 'base transitive' verbs in (2) and (3) show similarities with *aa*-causatives in (4) and (5), as they are incompatible or partially compatible with –*se* marked adjuncts, while *vaa*-causatives in (6)~(9) are fully compatible:

(2) **Base transitive**

    Anjum-ne (*Saddaf-se) peṛ kaaṭ-aa.

    Anjum-ERG   tree cut-PERF.M.SG

    'Anjum cut the tree.'

(3) **Ingestive transitive**

    Rita-ne   (*Saddaf-se) angur   khaa-e.

    Rita-ERG   grape   eat-PERF.M.PL

    'Rita ate some grapes.'

(4) **AA-causative based on an unaccusative root**[32]

    Anjum-ne   (*mazdurõ-se)   makaan ban-aa-yaa.

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[32] See section 3.3, for more details on verbs classes.

Anjum-ERG house make-AA-PERF.M.SG

'Anjum built a house.'

(5) **AA-causative based on an unergative root**

Anjum-ne (%masxaraa-se) Saddaf-ko hãs-aa-yaa.

Anjum-ERG (clown-INSTR) Saddaf-ACC laugh-AA-PERF.M.SG

'Anjum made Saddaf laugh (%by means of the clown).'

(6) **VAA-causative based on an unaccusative root**

Anjum-ne (mazdurõ-se) makaan ban-vaa-yaa.

Anjum-ERG (labourers-INSTR) house make-VAA-PERF.M.SG

'Anjum had a house built (by the labourers).'

(7) **VAA-causative based on an unergative root**

Anjum-ne (masxaraa-se) Saddaf-ko hãs-vaa-yaa.

Anjum-ERG (clown-INSTR) Saddaf-ACC laugh-VAA-PERF.M.SG

'Anjum made Saddaf laugh (by means of the clown).'

(8) **VAA-causative based on a base transitive root**

Anjum-ne (Saddaf-se) peṛ kaṭ-vaa-yaa.

Anjum-ERG (Saddaf-INSTR) tree cut-VAA-PERF.M.SG

'Anjum had the tree cut by Saddaf.'

(9) **VAA-causative based on an ingestive transitive root**

Anjum-ne (Saddaf-se) Ram-ko khaanaa khil-vaa-yaa.

Anjum-ERG (Saddaf-INSTR) Ram-ACC food eat-VAA-PERF.M.SG

'Anjum had Saddaf feed Ram food.'

The data from Russian and Hindi/Urdu both involve licensing adjuncts, which bring about the results. In Hindi/Urdu *vaa*-causatives, adjunct agents are instrumental case marked while the Russian example occurs with locative case in (1). I loosely refer to the implicit agents as "adjunct agents". By comparing Russian data with Hindi/Urdu, one can see that the external argument (causer) is not

directly sewing the dress or building a house as they e.g., hire someone do these jobs for them ("adjunct agents"). As in Hindi/Urdu, the phenomenon is marked by the indirect causative morpheme –*vaa*, and so I infer that the Russian example in (1) also denotes an indirect causation. Following Babby (1993), I assume that this type of the indirect causation primarily happens in 'service providing verbs'. I refer to the indirect causation reading, which can license a patient and 'adjunct agent' as 'patientive causation'.

It should be noticed that it is not the case that all contexts can license 'adjunct-agents'. In Persian, external argument adjuncts in passive predicates can be licensed by *be daste*, *be vasile-ye, tavassot-e* 'by, by means of', which are stylistic variants of each other (Dabir-Moghaddam 1982). However, as the example below shows, they can appear in an active predicate and license an 'adjunct agent':

(10) moallem (be vasile-ye John) dar-o bâz kard-Ø.

    teacher DAT means-EZ John door-ACC open did.3SG

    'The teacher opened the door by means of John.'

In the above sentence, the teacher is the instigator of the action and John is the one, who opens the door. In Persian, there are contexts which may strongly imply the presence of the 'adjunct-agent' as in (11). However, 'adjunct-agents' cannot be licensed:

(11) John (#be daste, be vasile-ye, tavassot-e parastâr) âmpul zad-am.

    John by means of nurse ampoule hit-1SG

    Int: 'John had an injection (#by means of a nurse).'

In the above example, John may inject himself. However, the stronger implication is that he received the service from a nurse in a hospital. Although the implication is that there is an 'adjunct agent', the predicate itself cannot license one. I do not consider the contextual availability of a service provider as an instance of an "adjunct agent". Therefore, (11) is not an instance of a "patientive causation".

The second type of indirect causation reading can be seen in the case of e.g., Korean, and in the interpretation that is described in Lee (1975), Kim H.-S. (2012)[33] and Kim K. (2011) among others.

(12) Korean

  emma-ka   ai-eykey   os-ul   ip-hi-ess-ta.

  mother-NOM child-DAT   clothes-ACC   wear-CAUS-PST-DECL

  (i) 'The mother put the clothes on the child.'

  (ii) 'The mother made/had the child wear the clothes.'

Under this reading, no 'adjunct agents' are involved, as the internal argument (*ai* 'child' in (12)) seems to be the initiator of his/her action. I refer to this type of causation in which a causer presumes the innate capabilities and potentials of an entity to bring about the result by itself as a "self–initiative causation". Thus, under "self–initiative causation", a child is capable of wearing a dress, and a tree can break in half by its weight. I assume that canonically, a "self–initiative causation" appears with a causer as an external argument and an internal "self–initiator" argument.

  The common point of patientive and self–initiative causation is that the external argument does not participate in the "root action" (the action, which is specified by the lexical verb i.e., the literal sense of sewing a cloth, building a house, or dressing up a child). Thus, a contrast can be drawn between a direct and indirect causation reading via the notion of participation. If an external argument participates in the root action, then the result would be a direct causation. If an external argument does not participate in the root action then, his/her participation is indirect:

(13) emma-ka   ai-eykey ku   os-ul   ip-**hi**-ess-ta

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[33] Kim H.-S. (2012), differentiates between an 'indirect' and a 'sociative' reading, in a sense that a sociative requires cooperation or partial involvement of the causer. A 'sociative' reading can have direct or indirect causation according to the diagnostics presented below and such interpretation does not have syntactic consequences, as I will be discussed in (fn. 35).

Mother-NOM   kid-DAT that   cloth-ACC   wear-**CAUS**-PST-DECL

(a) X's dressing, results in e.g. a change of location of the shirt to the kid.

(b) Self–initiative: X had the kid wear the shirt.

(c) Patientive: X made the child to be dressed.

Notice, that participation in the root action[34]requires the simultaneous effect of actions and result/sub-results, while not participating in the root action does not necessarily require that. Neeleman and van

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[34] Shibatani & Chung (2002) and Shibatani & Pardeshi (2002) discuss an intermediate category of 'sociative causation' in Hindi. Shibatani & Pardeshi (2002) considered three types of sociative causation: joint action, assistive, and supervision. They assert that while 'both joint action, assistive, and sociative entail physical involvement of the causer in the caused event, supervision sociative, on the other hand, are much more similar to indirect causation in that the causer and the causee may be physically separated. Indeed, supervision can be performed long-distance' (Shibatani & Pardeshi 2002: 101). Accordingly, the sentence in (ia), which contains a 'sociative' causation, is semantically infelicitous when it is continued by the equivalent of *but he did not run with Raam*, while a predicate with indirect causation in (ib) does not show such a constraint.

(i)   Hindi (Shibatani & Pardeshi 2002: 97–98)

(a)   Shaam-ne Raam-laa don kilomiTar paL-aw-l-a.
       Shaam-ERG   Raam-DAT two kilometer ran-CAUS-PERF-N
       #paN   Shaam   Raam-barobar paL-l-aa   naahi
       but   Shaam   Raam-with   run-PERF-M   not
       'Shaam made Raam run two kilometers but he did not run with Raam.'

(b)   Shaam-ne   Raam-lA   don kilomiTar paL-aaylaa   laaw-l-a.
       Shaam-ERG   Raam-DAT   two kilometer ran-PERF   make-PERF-N
       paN   shaam   Raam-barobar paL-l-aa   naahi
       But   shaam   Raam-with   run-PERF-M   not
       'Shaam made Raam run two kilometers but he did not run with Raam.'

(c)   mi   Raam-kaDum kholi   saaph   kar-aw-l-i.
       I   Raam-by   room.F   clean   do-CAUS-PERF-F
       'I had Raam clean the room.'

However, such classification requires a deeper look. Notice that *shaam* is only engaged in his own running event in (ia) and his running stimulates *Raam*'s running. Thus, although it is 'sociative', it is still indirect causation. The fact that *-aw* signals indirect causation is more visible in its combination with transitive verbs as in (ic). This may suggest that such granularity is reducible to an indirect vs. direct causation reading.

de Koot (2012) contra Shibatani & Chung (2002) argue that subevent in indirect causain can happen in the same spatiotemporal profile, if the causing event and caused events are temporally adjacent.

At this point, it is necessary to mention the difference between an instrument in direct causation and an "adjunct-agent" in a patientive causation[35]. If an instrument is used in a direct causation, then an external argument's action starts and ends with it. Thus, *breaking a stone with a hammer* requires an external argument's usage of a hammer for breaking the stone (root action) until the stone is broken (result). In a patientive causation, however, an 'adjunct agent' brings about the result, not an external argument. In (1), for example, one only need to hire (causation) a person ('adjunct agent') and s/he would sew a dress (result).

The following summarizes the abovementioned facts about direct causation and the two types of indirect causation:

Table 1. Semantic Diagnostics of (In)direct Causation

Conditions	Direct	Indirect	
		Self-initiative Causation	Patientive Causation
External ARG's Participation in √action	O	X	X
External ARG's Participation in result	O	X	X
Internal argument is a 'patient'	O	X	O
Internal argument is a 'self-initiator'	X	O	X
An instrument is part of √action	O	X	X
Licenses 'adjunct-agents'	NA	X	O

Notice that Masica (1976:55) also presents a participant-based account[36] of (in)direct causation. According to him, a direct causation is understood when 'the agent does something to the object, which brings about its new condition by direct contact', while an indirect causation is understood when the agent uses 'an intermediary agent and serves only as the "instigator" of the act'. Masica's indirect definition of causation only refers to 'patientive causation'. A participant based definition of

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[35] See Alexiadou et al (2006) for an argument that certain instruments can be agents too.

[36]Masica (1976) uses the terms 'distant' and 'contactive' for indirect causation and direct causation.

(in)direct causation was made by Yeon (2012:98) and Kwan (2012:365) without distinguishing the two types of indirect causation above. In that sense, the argument presented above is more comprehensive.

5.2   Types of Causation and Indirect Causation

By providing relevant examples, this section argues that the four types of causation, discussed in chapter 4, can occur as direct and indirect causation.

5.2.1   (In)Direct Causation Readings in Causation with an Atomic Result

In chapter 4, "causation with an atomic result" was defined as a type causation whose result is entailed or implied to be atomic.

An (in)direct causation reading with this type of causation may occur when causatives have an entailed result (e.g. *gunsmith killed the sheriff*) or an implied result, as in the following example from Korean:

(14) emma-ka   ai-eykey ku   os-ul   ip-hi-ess-ta.

    Mother-NOM   kid-DAT   that cloth-ACC   wear-CAUS-PST-DECL

    (i) Direct: 'the mother (herself) put those clothes on the child.'

    (ii) Indirect: the mother had the child (him/herself) wear the clothes.'

Even though (14) is a causative predicate and gives a direct and indirect causation, its result is an implication, and therefore can be canceled (see section 4.2.3).

5.2.2   (In)direct Causation Readings in Causation with Plural Sub-results

In chapter 4, "causation with plural sub–results" was defined as a type of causation, which is composed of plural sub-results. "Sub–results" can be the denotation of a partial success or an

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unspecific result (see chapter 4). The following Persian example is a causative of an unergative root, which exhibits both direct and indirect causation readings with an unspecific endpoint:

(15) man Ali-o   dav-und-am.

   I   Ali-ACC run-CAUS-1SG

   (i) Direct: I made Ali ran (by pulling his hand).

   (ii) Indirect: I made Ali ran (giving him an order).

In the above example, the amount of progress of the event in (in)direct causation readings is unspecified, even though causation is entailed.

5.2.3   (In)direct Causation Readings in Causation with a Zero-result

In chapter 4, "causation with a zero–result" was defined as a plurality of causing subevents with no sub–result. This section, based on Korean data, argues that this type of causation can show both direct and indirect causations when it appears on causative verbs. Korean causatives can show both direct and indirect causation readings (Lee K. 1975; Kim K. 2011; Kim H.-S. 2012; among others), and the following examples show that "causation with a zero–result" can happen in both cases:

(16) emma-ka   ai-eykey ku   os-ul

   Mother-NOM kid-DAT   that cloth-ACC

   ip-hi-ess-ci-man   os-i   cak-ase

   wear-CAUS-PST-COMP-but   cloth-NOM   small-since

   mos-ip-hi-ess-ta.

   could not-wear- CAUS-PST-DECL

   Int: 'the mother (tried to) put this shirt on the child but she could not, since the shirt was small.'

(17) emma-ka   ai-eykey   os-ul   ip-hi-ess-ci-man,

   Mother-NOM   child-DAT   shirt-ACC   wear-CAUS-PST-COMP-but

   ai-ka   os-ul   ip-ci   anh-ass-ta.

kid-NOM   shirt-ACC   wear-COMP   NEG-PST-DECL

  Int: 'the mother made the made the kid wear the shirt but the kid did not wear it.'

The example in (16) shows a state of affairs in which the mother is unable to put the shirt on the child, as it is too small. This indicates the direct causation reading as it strongly suggests that the mother was directly involved in the dressing the child. In contrast, (17) shows that the child refuses to put on the dress, which may imply the presence of a self-initiator (indirect causation reading), especially given that the causing event and the supposed caused event may happen in different spatiotemporal profiles. Thus, "causation with a zero-result" may also allow both direct and indirect causation readings.

The abovementioned facts are contrary to Beavers & Lee's (in Press) claim. They argue that 'the causing eventuality must represent a fairly direct cause of the result and not just any causal eventuality'. Discussing the case for the equivalent of *fix* in Korean, they mention that starting to study how to fix a computer and yet failing at fixing one does not license a zero–result reading, although it may license a *try to fix*. It is out of the scope of the present study to argue, whether a *try to fix* is a *cause to fix*. However, as far as a *try to fix* involves engaging in an action by means of employing an 'intermediate agent' (e.g., a serviceman in patientive causation) or doing some action, in which something may be fixed by itself (self-initiative causation), it can give the equivalent of an indirect causation, and a failure in any of these actions, must license a 'zero-result' reading. Thus, based on the diagnostics presented in the previous section and the examples in (16) and (17), I claim that (in)direct causation readings can be seen in Korean data as well.

5.2.4   (In)direct Causation Readings in Destined Causation

In chapter 4, "destined causation" was defined as a type of causation whose result derives from an "extended chain of disjoint sub-events". I argued that certain classes of verbs e.g., 'prospective possessor verbs', induce "extended chains of the disjoint sub-events", which may lexically be implied or entailed, and which is instantiated below:

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(18) Creation < Beginning of transition < End of transition < Acceptance of transition

Here, "destined causation" is defined as a plurality of "extended chains of the disjoint sub–events". For instance, if a verb lexically denotes *making x a cake,* then it implies that a transition has not started. Therefore, the failure to reach the expected result is due to the plurality of sub-results (creation>… >acceptance). Now, the question is whether a predicate with this type of causation can show a direct vs. indirect causation contrast. Let us assume the following examples:

(19) (a) John brây-e   doxtar-eš   ketâb   ferestâd-Ø.

      John for-EZ   daughter-his book   sent-3SG

      'John sent a book to his son.'

   (b) John be   mehmun châyi   taʔârof kard-Ø.

      John DAT guest   tea   offer   did-3SG

      'John offered tea to the guest.'

In the examples above, the "destined causation" entails the loss of possession and the existence of an offer. The circumstances, which are involved after the entailed result of a "destined causation", are not necessarily part of the interpretation of the external argument's participation in the event in "destined causation". Under the assumption that the external argument directly sends the theme or makes an offer, a 'direct causation' reading is expected.

The other question is whether "destined causation" gives an indirect causation reading. Assume the following scenario:

(20) Context: [John is about to give his son a huge amount of money. Everybody knows that John has
    an opponent who has absolute control over John's son, and giving money to his son, is equal to
    giving it to his opponent.]

    John   be raqib-eš   pul-e   ziâdi   dâd-Ø.

    John   DAT opponent-his money-EZ   a lot   gave-3SG

'John gave his opponent a huge amount of money. (# But he never had it as John's son did not let John's opponent have any of the money in the end).'

As the above example shows, "destined causation" is not possible, as the extended chain of disjoint events (the continuation of the sentence in (20)) is infelicitous. This is a reading in which an external argument is held accountable for his/her actions. I suggest that this reading is not available in "destined causation". However, indirect causation may appear by using an 'adjunct-agent':

(21) John   (be vasile-ye dust-eš)   barây-e doxtar-eš   ketâb   ferestâd-∅.

     John   by means of friend-his   for-EZ   daughter-his book   sent-3SG

     'John, by means of his friend, sent a book to his son.'

As (21) shows, "destined causation" may have an indirect causation reading as well. Thus, it can be concluded that "destined causation" allows indirect causation readings as well.

5.3   Proposal: Causative Fluctuation

I now turn to answer the main question of this study: how an analysis of causatives can overcome the configurational problems mentioned in chapter 3, and be compatible with the participant based analysis of causatives as discussed in section 4.1 and 4.2.

Following Ramchand (2014: 246), I assume that 'the "direct" vs. "indirect" causational semantics must be logically independent of internal morphemic structure'. Having this in mind, let us assume the following example again:

(22) emma-ka   ai-eykey   ku   os-ul   ip-**hi**-ess-ta.

     Mother-NOM   kid-DAT   that   cloth-ACC   wear-**CAUS**-PST-DEC

  (a) Direct Causation: X's dressing, results in e.g. a change of location of the shirt to the kid. *wear >*

     CAUSE

  (b) Self–initiative Causation: X had the kid wear the shirt. **CAUSE** > *wear*

  (c) Patientive Causation: X made the child to be dressed. **CAUSE** > *wear*

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The engagement of an external argument directly in the action requires that action stands higher than CAUSE, as in (22a). In contrast, an indirect causation reading requires the involvement of an external argument in the causation (22b, c). Therefore, CAUSE must stand higher than action. The result in indirect causation may be interpreted as a self–initiative (22b) or a patientive event (22c), or both. In a predicate, which is ambiguous between indirect vs. direct causation readings, CAUSE can be interpreted below or above the verbal root. I refer to this configurational inversion of a monophasal predicate as "causative fluctuation" (compare (23) and (24) respectively). In (23), CAUSE receives its interpretation below the root. In indirect causation, CAUSE intervenes between VOICE and root, which means that the upper and lower domain events can happen in different spatiotemporal profiles. This is contrary to the direct causation structure in which a result is an immediate consequence of an action. Thus, they cannot occur in different spatiotemporal profiles. As I showed in chapter 3, appearing with two-time adverbials requires a bi-phasal predicate.

(23) Direct causation

```
        VP
       /  \
   √root   vP
          /  \
      CAUSE
```

(24) Indirect causation

```
       vP
      /  \
  CAUSE   VP
         /  \
     √root
```
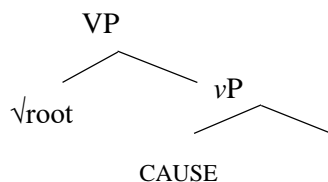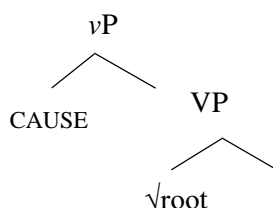
As discussed in 4.2, canonically, any type of causation can show a "causative fluctuation" in a causative predicate. We also assume that assigning the type of causation is a property of a root:

(25) (a) Direct causation

VP
├─ √root
│   causation with an atomic result,
│   causation with plural sub–results,
│   causation with a zero–result,
│   destined causation
└─ vP
   └─ CAUSE

(b) Indirect causation
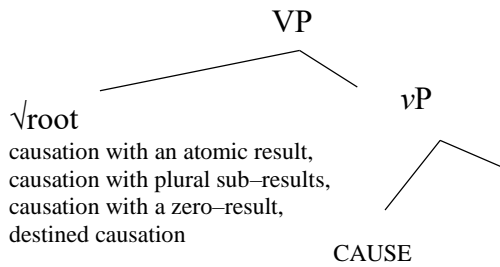
vP
├─ CAUSE
└─ VP
   └─ root
      causation with an atomic result,
      causation with plural sub–results,
      causation with a zero–result,
      destined causation
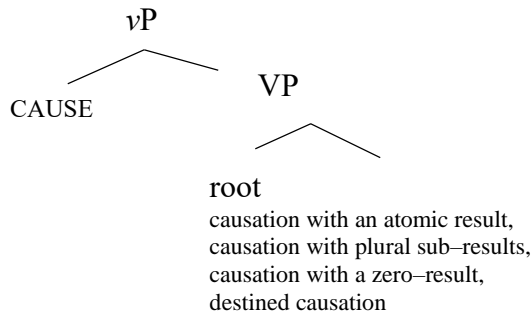
"Causative fluctuation" shows the behavior of CAUSE in a predicate with the same valency, and it should not be confused with 'causative alternation', in which the valency of intransitive/transitive pairs change (see Levin 1993; Alexiadou et al 2006). Investigating such alternations is out of the scope of the current study.

To compute (in)direct causation, I assume a CAUSE (Pylkkänen 2002, 2008), in addition to an event argument e' (Kratzer 1996, among others). The event argument is especially important in our analysis, as uncategorized roots cannot take an argument but an event argument gives them an interpretation of an action, which is suitable for taking arguments[37]. Following Harley (2002), I also assume that there is a small clause with an NP subject in the structure of ditransitive predicates with a syntactic value of P_{loc} or P_{have}. However, as P_{loc} can also denote a HAVE reading as well[38], I refer to them as e_{loc}

---

[37]This does not mean that all actions that appear with an event argument can take an argument. Argument taking has a close relation with the notion of 'affectedness' (see Beavers 2006, 2012).

[38] This can be seen in *Jessie gave her car to Melany*, in which the small clause appears with a *to* variant, but

and an e_s respectively. The following shows the direct (26b) and indirect (26c) causation readings of (26a):

(26) (a) Ali   lebâs-o   be-bačče   puš-und-Ø.

        Ali   cloth-ACC   DAT-kid   wore-CAUS-3SG

   (b) **Direct causation of *puš-and-an* 'wear-CAUS-INF (to make-wear)':**

       λ abstraction of e_{loc}:

       $\lambda z\, \lambda y\, [e_{loc}\,(y, z)]$

       Lexical entry of direct and indirect object:

       $\lambda z\, \lambda y\, [e_{loc}\,(y, z)]$ (lebâs), (bačče)

       By two Functional Applications (henceforth FA):

       $\lambda y\, [e_{loc}\,(y, \text{bačče})]$ (lebâs)

       $[e_{loc}\,(\text{lebâs, bačče})]$

       By Existential Closure (henceforth EC):

       $\exists e\, [e_{loc}\,(\text{lebâs, bačče})]$

       λ abstraction of the CAUSE:

       $\lambda p\, \lambda e'\, [\text{CAUSE}\,(p)\,(e')]$

       Entry of p:

       $\lambda p\, \lambda e'\, [\text{CAUSE}\,(p)\,(e')]\, (\exists e\, [e_{loc}\,(\text{lebâs, bačče})])$

       By FA:

       $\lambda e'\, [\text{CAUSE}\,(\exists e\, [e_{loc}\,(\text{lebâs, bačče})])\,(e')]$

       λ abstraction of the action:

       $\lambda p\, \lambda e'\, [\sqrt{\text{puš}}\,(p)\,(e')]$

       Entry of p:

       $\lambda p\, \lambda e'\, [\sqrt{\text{puš}}\,(p)\,(e')]\, (\lambda e'\, [\text{CAUSE}\,(\exists e\, [e_{loc}\,(\text{lebâs, bačče})])\,(e')])$

---

can imply a HAVE relation (Melany HAVE Jessie's car).

By FA:

λe′ [√puš (λe′ [CAUSE (∃e [e_loc (lebâs, bačče)]) (e′)]) (e′)]

λe′ [√puš ([CAUSE (∃e′ [e_loc (lebâs, bačče)]) (e′)])]

(c) **Indirect causation of *puš-and-an* 'wear-CAUS-INF (to make-wear)':**

λ abstraction of the lower subevent:

λ abstraction of *e_loc*:

λz λy [e_loc (y, z)]

Lexical entry of direct and indirect object:

λz λy [e_loc (y, z)] (lebâs), (bačče)

By two FAs:

λy [e_loc (y, bačče)] (lebâs)

[e_loc (lebâs, bačče)]

by EC:

∃e [e_loc (lebâs, bačče)]

λ abstraction of the action:

λp λe′ [√puš (p) (e′)]

Entry of p:

λp λe′ [√puš (p) (e′)] (∃e [e_loc (lebâs, bačče)])

By FA:

λe′ [√puš (∃e [e_loc (lebâs, bačče)]) (e′)]

λ abstraction of CAUSE:

λp λe′ [CAUSE (p) (e′)]

Entry of p and FA:

λp λe′ [CAUSE (p) (e′)] (λe′ [√puš (∃e [e_loc (lebâs, bačče)]) (e′)])

By FA:

λe′ [CAUSE (λe′ [√puš (∃e [e_loc (lebâs, bačče)]) (e′)]) (e′)]

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$$\lambda e' \,[\text{CAUSE}\,([\sqrt{\text{puš}}\,(\exists e\,[e_{loc}\,(leb\hat{a}s,\,ba\check{c}\check{c}e)])\,(e')])]$$

The syntactic tree for direct and indirect causation readings is as follows:

(27) Direct causation:

VP
$\lambda e' \,[\sqrt{\text{puš}}\,(\lambda e'\,[\text{CAUSE}\,(\exists e\,[e_{loc}\,(leb\hat{a}s,\,ba\check{c}\check{c}e)])\,(e')])\,(e')] =$
$\lambda e' \,[\sqrt{\text{puš}}\,([\text{CAUSE}\,(\exists e'\,[e_{loc}\,(leb\hat{a}s,\,ba\check{c}\check{c}e)])\,(e')])]$

V
$\lambda p\,\lambda e'\,[\sqrt{\text{puš}}\,(p)\,(e')]$

vP
$\lambda e'\,[\text{CAUSE}\,(\exists e\,[e_{loc}\,(leb\hat{a}s,\,ba\check{c}\check{c}e)])\,(e')]$

v
$\lambda p\,\lambda e'\,[\text{CAUSE}\,(p)\,(e')]$

v_{have}P
$[e_{loc}\,(leb\hat{a}s,\,ba\check{c}\check{c}e)] =$
$\exists e\,[e_{loc}\,(leb\hat{a}s,\,ba\check{c}\check{c}e)]$

NP
leb\hat{a}s

v'_{have}
$\lambda y\,[e_{loc}\,(y,\,ba\check{c}\check{c}e)]\,(leb\hat{a}s)$

v_{have}
$\lambda z\,\lambda y\,[e_{loc}\,(y,\,z)]$

NP
ba\check{c}\check{c}e

(28) Indirect causation

vP
$\lambda e'\,[\text{CAUSE}\,([\sqrt{\text{puš}}\,(\exists e\,[e_{loc}\,(leb\hat{a}s,\,ba\check{c}\check{c}e)])\,(e')])\,(e')] =$
$\lambda e'\,[\text{CAUSE}\,([\,\sqrt{\text{puš}}\,(\exists e\,[e_{loc}\,(leb\hat{a}s,\,ba\check{c}\check{c}e)])\,(e')])]$

v
$\lambda p\,\lambda e'\,[\text{CAUSE}\,(p)\,(e')]$

VP
$\lambda e'\,[\sqrt{\text{puš}}\,(\exists e\,[e_{loc}\,(leb\hat{a}s,\,ba\check{c}\check{c}e)])\,(e')]$

V
$\lambda p\,\lambda e'\,[\sqrt{\text{puš}}\,(p)\,(e')]$

v'_{have}P
$[e_{loc}\,(leb\hat{a}s,\,ba\check{c}\check{c}e)] =$
$\exists e\,[e_{loc}\,(leb\hat{a}s,\,ba\check{c}\check{c}e)]$

NP
leb\hat{a}s

v'_{have}
$\lambda y\,[e_{loc}\,(y,\,ba\check{c}\check{c}e)]\,(leb\hat{a}s)$

v_{have}
$\lambda z\,\lambda y\,[e_{loc}\,(y,\,z)]\,(leb\hat{a}s),\,(ba\check{c}\check{c}e)$

NP
ba\check{c}\check{c}e

To compute the direct causation of the predicate in (29a), I assume e_s to be a subevent containing the result, which is a pro-verb as in (29b) and (29c). It might seem like a drawback to assume a result subevent, but I believe that it is necessary to compute the event structure of the direct causation

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reading, as this subevent can license result modifiers like *again* and *almost*. Also, see von Stechow (1996) for a relevant argument. Notice that I do not assume e_s for an indirect causation reading, since the lower event alone can saturate the CAUSE as in (29d) and (29e).

(29) (a) Ali   goldun-o   šek-und-Ø.

        Ali   vase-ACC   broke-CAUS-3SG

   (b) Direct causation of *šek-and-an* 'break-CAUS-INF (to make-break)':

      λ abstraction of e_s:

      λy [e_s (y)]

      Lexical entry of the object:

      λy [e_s (y)] (goldun)

      By FA:

      [e_s (goldun)]

      By EC:

      ∃e [e_s (goldun)]

      λ abstraction of CAUSE:

      λp λe′ [CAUSE (p) (e′)]

      Entry of p:

      λp λe′ [CAUSE (p) (e′)] (∃e [e_s (goldun)])

      By FA:

      λe′ [CAUSE (∃e [e_s (goldun)] (e′)]

      λ abstraction of the action:

      λp λe′ [√šek (p) (e′)]

      Entry of p:

      λp λe′ [√šek (p) (e′)] (λe′ [CAUSE (∃e [e_s (goldun)] (e′)])

      By FA:

      λe′ [√šek (λe′ [CAUSE (∃e [e_s (goldun)] (e′)]) (e′)]

λe′ [√šek [CAUSE (∃e [e_s (goldun)] (e′)])

(c) Direct Causation

VP
λe′ [√šek (λe′ [CAUSE (∃e [e_s (goldun)] (e′)]) (e′)] =
λe′ [√šek [CAUSE (∃e [e_s (goldun)] (e′)])

                                           vP
                             λe′ [CAUSE (∃e [e_s (goldun)] (e′)]

                 V
            λp λe′ [√šek (p) (e′)]
                                         vP
                                       [e_s (goldun)] =
                                         ∃e [e_s (goldun)]

                      v
              λp λe′ [CAUSE (p) (e′)]
                                           NP
                                           goldun
                               v
                         λy [e_s (y)]

(d) Indirect causation of *šek-and-an* 'break-CAUS-INF (to make-break)':

λ abstraction of the action:

λy λe′ [√šek (y) (e′)]

Lexical entry of the object:

λy λe′ [√šek (y) (e′)] (goldun)

By FA:

λe′ [√šek (goldun) (e′)]

λ abstraction of CAUSE:

λp λe′ [CAUSE (p) (e′)]

Entry of p:

λp λe′ [CAUSE (p) (e′)] (λe′ [√šek (goldun) (e′)])

By FA:

λe′ [CAUSE (λe′ [√šek (goldun) (e′)]) (e′)]

λe′ [CAUSE ([√šek (goldun) (e′)])]

(e) Indirect Causation

vP
λe′ [CAUSE (λe′ [√šek (goldun) (e′)]) (e′)] =
λe′ [CAUSE ([√šek (goldun) (e′)])]

                                     VP
                             λe′ [√šek (goldun) (e′)]

v
λp λe′ [CAUSE (p) (e′)]

                                   NP
                                   goldun

                   V
          λy λe′ [√šek (y) (e′)]
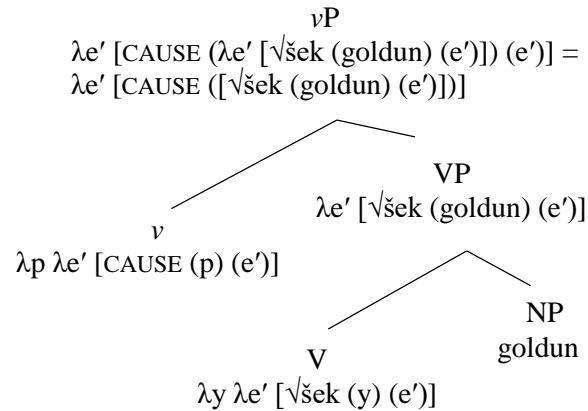
Notice that a syntactic configuration with CAUSE above the √root can denote both self–initiative and patientive causation, and there is no extra subevent involved in their structures. In the next section, it will be argued that these varieties of indirect causation are the result of feature dependencies.

5.4   Semantic Conditions on "Causative Fluctuation"

In the previous sections, I argued for a participant-based analysis of causatives in which direct and indirect causation each were assigned a unique syntactic structure. In this section, based on Korean and Persian data, I show that "causative fluctuation" is not conditioned by the morphemic structure of a verb or its verbal complex, and we will see, it is the features [±agentive] and [±self–init(iative)] that are crucial for deriving the fluctuation patterns illustrated by data from several languages including Korean, Japanese and Persian.

The following examples from Persian (30) and Korean (31) show that, regardless of the morphemic structure or verbal complex of a causative predicate, direct and indirect causation readings are available:

(30) (a) Ali   bačče-hâ-ro   moštâqâne   dav-und-Ø.

       Ali   child-PL-ACC enthusiastically   run-CAUS-3SG

      (i) 'Ali enthusiastically made the children run.'

      (ii) 'Ali made **the children run enthusiastically**.'

(b) Ali   bačče-hâ-ro   moštâqâne   be-xune   ferestâd-Ø.

   Ali   child-PL-ACC enthusiastically   DAT-home   sent-3SG

(i) 'Ali enthusiastically sent the children to home.'

(ii) 'Ali made **the children home go home enthusiastically**.'

(c) Ali   bačče-hâ-ro   bâ-tarâvat   bidâr   kard-Ø.

   Ali   child-PL-ACC with-delight   wake   did-3SG

(i) 'Ali delightfully awakened the children.'

(ii) 'Ali made **the children wake up delightfully**.'

In the above Persian examples, (30a) is causativized with the causative morpheme *-und*, (30b) does not appear with a causative morpheme, and (30c) appears with the light verb *kard-an* 'to do'. However, the lower domain of each example can be modified. The same phenomenon happens in the Korean examples in (31). In (31a), the verb is causativized with the suffix *–wu*,[39] in (31b), causativization happens with light verb *sikhi* 'order', and in (31c), the predicate does not appear with causative morpheme. However, none of the Korean examples block the lower domain modification:

(31) (a) emma-ka   ai-lul   chenchenhi   kkay-wu-ess-ta.

        mother-NOM   child-ACC   slowly   wake-CAUS-PST-DECL

    (b) emma-ka   ai-lul   chenchenhi   kisang   sikhi-ess-ta.

        mother-NOM   child-ACC   slowly   rouse   make-PST-DECL

    (i) 'the mother awoke the child slowly.'

    (ii) 'the mother made **the child wake up slowly**.'

(c) ai-ka   ywuri-lul   soli-epsi   kkay-ess-ta.

    kid-NOM   glass-ACC   silently   break-PST-DECL

    (i) the kid silently broke the glass.

---

[39] Korean causatives can be made by suffixes such as *i, hi, li, ki* etc., which are not productive.

(ii) the kid made the glass break without any noise.

In both languages, the upper domain modification does not disambiguate the predicates in the (i) translations as it is the modification of the causing event in direct or indirect causation. However, it strongly implies a direct causation reading. In contrast, the lower domain modification only indicates indirect causation in the (ii) translations. The availability of the lower domain modification in the above predicates means that causative fluctuation is not restricted by the morphemic structure or verbal complex of a causative predicate. Therefore, I assume that canonically "causative fluctuation" may appear in all forms of causatives.

However, this is not the case in e.g., Japanese and Karachay–Balkar. The example (32a) shows that Japanese only allows indirect causation for a causative of an unaccusative with the causative morpheme -*sase*. In contrast, (32b) only allows the direct causation reading for a causative of an unaccusative in Karachay–Balkar:

(32) (a) Japanese (Pylkkänen 2002:100)

      Taroo-wa niku-o   kog-e-sase-ta.

      Taroo-TOP meat-ACC   burn-INTRANS-CAUS-PST

      'Taroo caused the meat to become scorched.'

 (b) Karachay–Balkar (Lyutikova & Tatevosov, 2014: 284)

      Alim direktor-nu   öl-dür-dü.

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

      (i) 'Alim killed the director.'

      (ii)*'{Having paid $10,000 to the killer,} Alim organized the director's assassination.'

In (32a), the meat becomes scorched by Taroo's negligence (indirect causation), while in (32b), Alim cannot be the organizer of the director's killing (indirect causation is impossible). Here, we aim to claim that this difference is the result of certain feature dependencies. However, the example (32a) may be problematic as *kog-e* is treated as an intransitive (unaccusative) verb by Pylkkänen (2002,

2008). This means that CAUSE must be a 'verb–selecting' causative (Pylkkänen 2002, 2008). Notice that, however, according to Legate (2003), unaccusatives constitute a phase, and (32a), can also be treated as a 'phase–selecting' causative. However, I claim that neither case can be proper because – *sase* can attach to nouns and give a causative construction (e.g., *benkyou-sase* 'to make study (study-CAUS)', *renshuu-sase* 'to make practice (practice-CAUS)', *sanpo-sase* 'to make walk (walk-CAUS)', etc.). *Koge* 'burn, scorch, burnt rice' is also a noun and can be found in compounds such as *koge-kusai* 'smelling burnt, tasting burnt, having a burnt smell', *koge-cha* 'dark brown, olive brown', *koge-me* 'burnt mark, grilled surface', *koge-ato* 'burn mark, singe', etc. This means that *koge* in *koge-sase* is not an intransitive verb. Therefore, *koge-sase* is neither a 'verb–selecting' nor 'phase–selecting' causative in (32a). Thus, the fact that *koge-sase* only imposes an indirect reading can be considered to be the result of feature dependencies[40]. This means that the lower domain in the Japanese example imposes the following feature, while the Karachay–Balkar example does not:

(33) Caused event: [+self-init]

However, the feature [±self-init] cannot explain the difference between direct and indirect causation readings alone as [–*self-init*] can be the caused event in direct causation as well as the caused event in a patientive causation.

Let us assume that indirect causation requires a causer and direct causation requires an agent. Then we have the following licensing conditions:

(34) (a) Agentive causing event: agent

   (b) Non–agentive causing event: causer

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[40] Notice that we are not claiming that all cases of intransitive verbs with -*sase* have a NP+(-*sase*) formation. There are cases where -*sase* brings phonological changes to the root e.g. *kuru* 'come' vs. *kosaseru* 'make come'(causative).

I assume that a causer external argument can bring about a patientive or self–initiative lower domain event as was discussed in 4.1, while an agent cannot. Therefore, an agentive causing event (the introducer of an agent), and a self–initiative/patientive caused event are canonically two opposing occurrences. This means that a root can be assumed to induce the following feature dependencies, where e_1 is the causing event and e_2 is the caused event:

(35) root: $\begin{bmatrix} e_1 & \pm\text{agentive} \\ e_2 & \pm\text{self}-\text{init} \end{bmatrix}$

Accordingly, [+*agentive*] licenses an agent, [–*agentive*] licenses a causer[41], [+self-init] licenses a self–initiator, and [–*self-init*] licenses a patient argument. The following summarizes the abovementioned facts, based on causing event (e_1), caused event (e_2) and the type of causation which each combination may give:

Table 2. Feature Dependencies in "Causative Fluctuation"

Causing Event (e_1)	Caused Event (e_2)	Causation Type
−agentive	+self-init	Self-initiative Causation
−agentive	−self-init	Patientive Causation
+agentive	−self-init	Direct Causation
+agentive	+self-init	Induced Causation (see chapter 5)

Here is how it may work. In Persian, the equivalent of *sell* in (36a) does not license a self-initiative causation, while the example from Venda (42b) does:

(36) (a) John   mâšin-o   (be.vasile.ye   bongâh   be-Mary)   foruxt-Ø.

   John   car-ACC   by.means.of   agency   DAT-Mary   sold-3SG

---

[41] A reviewer points out that in the literature 'causers' are traditionally assumed to not have intentions, and in that sense are different form 'agents'. Even though in Dowty (1991:572), 'causers' are subsumed under proto–agents, here we are differentiating between them based on their participation in the event as discussed in (5.1). This is not contrary to the literature as it can be seen in Levin & Rappaport Hovav (1988, *inter alia*), and Beavers (2006), among others. Also, Beavers (2011) uses the label 'causer' for the argument in the subject position of prospective possessor verbs. However, we differentiate between causers in active and non-active predicates in chapter 7, where we discuss the case of unintentional causers (Schäfer 2008) and "agentive causers".

'John sold the car (to Mary by means of an agency).'

(b) Venda (Pylkkänen 2002: 108)

Muuhambadzi	o-reng-is-a	Katonga	moḓoro	nga dzangalelo
Salesman	3SG.PST-buy-CAUS-FV	Katonga	car	with enthusiasm

'The salesman made Katonga buy the car eagerly'.

In both examples, the root bears [–*agentive*] causing events. However, the root in Venda bears a [+*self-init*] caused event, unlike Persian. This means that (36a), a transitive predicate, may show a patientive causation ambiguity (also see 5.1) as it can license an "adjunct agent", and an adjunct goal. Therefore, I conclude that non-canonical cases of causatives must be the result of the abovementioned feature dependencies in the event structure.

5.5   Modification Domain

In 5.3, I proposed two structures for causatives. In this section, I try to determine whether or not modification can show the properties of these structures. Here are the proposed structures (omitting unnecessary details):

(37) (a) direct causation: [VOICE [√root [CAUSE ($\exists$e [e$_s$ (NP)])]]]

　　(b) Indirect causation: [VOICE [CAUSE ([√root (NP)])]]

The fluctuating structures each offer different landing sites for adverbial modification. In 3.1.2.2, it was mentioned that, according to the literature, *again* may denote a 'repetitive', a 'restitutive', and an 'intermediate' reading. It was shown that, while according to von Stechow (1999, 2003) the 'intermediate' reading is a type of 'restitutive' reading, Alexiadou et al (2015) and Bale (2007) assume that the 'intermediate' reading is not a restitutive reading, although the two do not agree on what should be the proper syntactic place for an 'intermediate' reading of *again*. The number of possible readings is different according to authors and approaches. For instance, Beavers & Koontz-Garboden

(2020) assumes that a sentence like *John opened the door* has at least three meanings, while Pullinger (2012) suggests four readings including two 'intermediate' readings. In Pullinger's account one of the 'intermediate' readings scopes over the opening event and one over the causing event.

I suggest that there are five readings. The repetition of the event stays as one count of the modification site in direct and indirect causation. However, a direct causation reading hypothetically may have a 'direct intermediate' reading (this is an 'alternative agent' reading in Alexiadou et al's account, while in Bale's account it is an 'intermediate' reading) as well as a 'direct restitutive' reading. In the same way, we can assume an 'indirect intermediate' and an 'indirect restitutive' (which I believe was falsely assumed to be an 'intermediate reading' reading by Alexiadou et al (2015). Notice, that the indirect 'restitutive' reading of *again* is the lower domain modification):

(38) (a) Direct restitutive: The door was open. It closed. The teacher opened the door again.

(b) Indirect restitutive: The door was open. It closed. The teacher did something that the door opened. He opened the door once again.

(c) Direct intermediate: John opened the door. Mary closed the door. The teacher opened the door again

(d) Indirect intermediate: John opened the door by singing a magical song. Mary closed it. The teacher opened the door again by singing the same magical song.

I suggest that all the readings are available for the English *John opened the door* (this also shows that causative fluctuation happens in English) and its equivalents in Korean (see Ryu (2018) for a short summary of the literature on Korean *tasi*) and Persian:

(39) (a) Korean

sensayngnim-i   mwun-ul   tasi   yel-ess-ta.

teacher-NOM   door-ACC   again   open-PST-DECL

(b) Persian

moallem	dar-o	dobâre	bâz	kard-Ø.
Teacher	door-ACC	again	open	did-3SG

'The teacher opened the door again.'

Thus, in the case of *again*, the subevents are fully detected and decomposed subevents are fully accessible.

(40) (a) direct causation: *again* [VOICE *again* [√root [CAUSE *again* ($\exists$e [e$_s$ (NP)])]]]

(b) indirect causation: *again* [VOICE *again* [CAUSE *again* ([√root (NP)])]]

However, there is one important question left and that is the extra landing site that is available between the root and CAUSE. This landing site, although it is available for *again,* does not result in a separate interpretation because its appearance on the root action or CAUSE identifies as the causing event. However, this is not the case when an adverb indicates the cancellation of causation i.e., the 'counterfactual' reading[42] of *almost* (McCawley 1979). I believe that the 'counterfactual' reading happens on CAUSE. Based on this assumption, suppose that in *John almost opened the door*, he pushes the door but as someone was holding the door from the other side, he thinks that the door is locked and leaves. Based on this scenario, *John almost opened the door* is true under the direct causation reading ([√root *almost* [CAUSE ($\exists$e [e$_s$ (NP)])]]) [43].

For the remainder of this section, two issues will be shortly discussed. The first issue is that in Korean a particular adverb may not always show direct vs. indirect contrast. Kim (2010), summarizes a list of verbs that may or may not induce ambiguous reading with the adverb *ppalli* 'quickly' in the lower domain. According to Kim, the verbs that show ambiguity with *ppalli* are *takk-i* 'to make wipe

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[42] McCawley (1979) assumes three readings for *almost:* a 'counterfactual' reading, a 'scalar' reading', and a 'resultative' reading.

[43] Rapp & von Stechow (1999) show that in German the 'counterfactual' reading is triggered by the subjunctive mood. Thus, simply scoping between root and CAUSE does not trigger this reading.

(wipe-CAUS)', *ssu-i* 'to make write (write-CAUS)', *ssel-li* 'to make cut (cut-CAUS)', *al-li* 'to make

know (know-CAUS)', etc., while the verbs that do not show ambiguity are *an-ki* 'to make embrace

(embrace- CAUS)', *nwu-i* 'to make pee (pee-CAUS)', *ep-hi* 'to make carry (carry-CAUS)', etc. However,

in my data, *chenchenhi* 'slowly' can modify the lower domain almost without exception. In addition,

the frequency adverbs like *hanpan* 'once', *twupan* 'twice', *hangsang* 'always' and *kakkum*

'sometimes, occasionally' successfully trigger the lower domain reading as in (41):

(41) (a) emma-ka   appa-uy   ppalkan os-ul   hanpan/

      mother-NOM   father-POSS   red   shirt-ACC   once/

      chenchenhi   pes-ki-ess-ta.

      slowly/   undress-CAUS-PST-DECL

      Indirect reading: 'the mother made the father take off his red shirt once/ slowly.'

   (b) emma-ka   ai-lul   *hanpan* / chenchenhi   kkay-wu-ess-ta.

     Mother-NOM   kid-ACC once/ slowly   wake- CAUS-PST-DECL

     Indirect reading: 'the mother made the kid wake up once/slowly.'

  (c) Mary-nun John-eykey   cim-ul   *hanpan* /

     Mary-TOP John-DAT   load-ACC   once/

     chenchenhi /   an-ki-ess-ta.

     slowly/   embrace-CAUS-PST-DECL

     Indirect reading: 'Mary made **John carry the suitcase once/slowly**.

  (d) Indirect causation: [VOICE [CAUSE (once/slowly [√root (NP)])]]

In (41) the indirect causation reading each example is emphasized by the presence of the equivalents

of the frequency adverb *once* and the aspect–manner adverb *slowly*. (41d) shows a possible landing

site for them. Here, I assume that under a strict reading[44] in which a frequency adverb appears on VP, the indirect causation reading is available in the above examples.

The second issue is the 'agent–oriented' adverbs which behave differently in English, Korean and Persian (See below). As discussed in section 3.1.2, there is no secondary VOICE in Persian or Korean causatives. Thus, 'agent–oriented' adverbs in the lower domain are not modifiers of a secondary VOICE, they are modifiers of a result (VP), which is possible for certain adverbs in Persian and Korean but 'impossible' in English (e.g., Pylkkänen 2002, 2008).

(42) Persian

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[44]A frequency adverb may give a non-strict reading and refer to different counts of direct or indirect causation e.g., *ten-times* can modify an event which happened five-times in a direct causation fashion and five-times in an indirect causation fashion. I believe that this is due to cumulative nature of frequency adverbs and these readings are only available contextually not structurally. This is because there is not a syntactic head that can license both direct and indirect causation simultaneously. Notice that according to Rapp & von Stechow (1999), adverbs must appear on a visible head.

I believe that there are licensing patterns which are not the result of sentential syntax (no syntactic head licenses them), and this can be observed crosslinguistically. The case of frequency adverbs as stated above is one example. Another case is what Ryu (2018) refers to as a 'sequential' reading of *tasi* 'again' in which 'the complement of the eventuality described by the predicate is presupposed' as in the following example in which the Korean counterpart of *again* does not modify a certain subevent:

(i) kul-ul   ssu-ko   na-myen ku   kul-ul   tasi   ilk-a-   po-key
     text-ACC   write-CONJ   finish-if that text-ACC again   read-CONJ see-COMP
     toy-n-ta.
     become-COMP-DECL
     Int: 'If one wrote a text, s/he may read it as well'.

However, the phenomenon is not limited to adverb modification and can be seen in contextual licensing of arguments which no sentential subevent licenses. The example in (11), which was discussed in 4.1, does not license an 'adjunct agent' sententially. Another example is contextual licensing of agents in English anticausatives, as in *the door opened; two men walked in* (Rappaport Hovav 2014) or *the vase broke; John broke it*. Notice that English anticausatives do not have a VOICE (Chomsky 2001; Pylkkänen 2002, 2008; Alexiadou & Schäfer 2006; Schäfer 2008; Alexiadou, Anagnostopoulou & Schäfer 2015 among other), and contextual agents (*two men* or *John*) are not licensed by a VOICE. The cases exemplified above are licensed in the context not by the underlying event structure of a predicate and I will address them in future studies.

John	bačča-ro	bâ-eštiâq/	bâ-asabâniyat	dav-und-Ø.
John	kid-ACC	with-enthusiasm/	with-anger	run-CAUS-3SG

'John made **the kid run enthusiastically/ *angrily**.'

(43) Korean

emhakey	nay-ka	hagsayng-eykey	chayk-ul	seymilhi/ yelsimhi
sternly	I-NOM	student-DAT	book-ACC	carefully/ enthusiastically

ilk-hi-ess-ta.

read-CAUS-PST-DECL

'Sternly, I made **the student read the book carefully/* enthusiastically**.'

(44) (Pylkkänen 2002: 94)

John awoke him grumpily. (False if John wasn't grumpy)

In the above Persian example only the equivalent of *enthusiastically* is acceptable, while in Korean this is so only in the case of the equivalent of *carefully*. English, however, does not allow any result modification with this type of adverb. Here, the Japanese case may help clarify this issue as the 'subject–oriented', and 'manner–oriented' adverbs are not ambiguous in Japanese. Matsui (2011), shows that the equivalent of *stupidly* in Japanese can take different forms when they appear on VP (45a) or VOICE(45b):

(45) (a) orokani   John-wa   odotta.

   Stupidly   John TOP   danced

   'John danced stupidly.'

  (b) orokani-mo   John-wa   odotta.

   Stupidly   John-TOP   danced

   'Stupidly, John danced.'

Matsui (2011) assumes that the manner adverb *orokani* 'stupidly' appears on VP, while the 'subject–oriented' *orokami-mo* modifies the VOICE. Thus, it can be assumed that certain 'subject–oriented'

adverbs in Korean and Persian have a dual function and may appear on VP as well (which is the result in the lower domain of an indirect causation).

At the end of this section, following Rapp & von Stechow (1999), I emphasize that modification is subject to a 'visibility parameter' (adverbs must attach to a visible functional head), which itself 'cannot be an absolute notion' and has to be 'relativized to particular adverbs, to dialects, and to speakers' (Rapp &von Stechow 1999:200). 'Subject–oriented' adverbs and *ppalli* modification in the lower domain as well as 'non-strict' reading of frequency adverbs (see fn. 44) might be supporting examples for their claim.

5.6   Summary of the Results

Accounting for a contrast between a direct and an indirect causation reading was the heart of the arguments in this chapter. Following Pylkkänen (2002, 2008) and Ramchand (2014) among others, it was argued that the direct vs. indirect contrast is a syntactic property, although the previous syntactic accounts have problems that cannot capture this contrast properly. These problems were accounted for by recognizing direct and indirect causation as two distinct syntactic structures. This approach can be confirmed by Ramchand's (2014: 246) general view in which she emphasizes that 'the "direct" vs. "indirect" causational semantics must be logically independent of internal morphemic structure'. Thus, I argued for a configurational inversion in which CAUSE can appear above or below the root and referred to it as "causative fluctuation". As a result, the order of subevents follows a logical order, and VOICE, VP, and result modifiers can find their respective landing sites.

This study shows that the CAUSE head is not a categorizer (also see Ramchand 2014) and its syntax has a direct effect on the interpretation of causatives. Here we solely use *v*P as a functional head denoting CAUSE and as the head of the SCs. As discussed in chapter 3, VOICE does not bundle with CAUSE because it is modifiable by VOICE modifiers. Here I remain agnostic to the studies that assume VOICE bundling for certain argument taking properties.

A question that remains to be answered is regarding the adversity reading of Korean causatives. Kim's (2010) treatment for adversity causative readings of Korean causatives contains a 'patientive VOICE', which introduces the affectee subject of the predicate. I assume that under the present account the adversity reading would be derived by a 'patientive VOICE' and an indirect causation syntax but I leave further arguments for future studies.

6   Causative Fluctuation with English 'Induced Action' Verbs

Throughout the literature, either the directness of causation in resultatives was taken for granted (Dowty 1979; Levin & Rappaport Hovav 1995; Kratzer 2005; among others) or indirectness of causation was ignored and considered to be a matter of pragmatics (e.g., Rothstein 2008).

In the previous chapter, I argued for structural differences which are the consequences of direct and indirect causation readings. I showed that the "indirect restitutive" reading of *again* in English causatives shows the structural visibility of indirect causation (see section 4.5). Thus, I concluded that the configurational inversion between the root and CAUSE i.e., "Causative Fluctuation", occurs in English. Here, I aim to investigate this phenomenon among English 'induced action' verbs, which includes certain members of 'run verbs' such as *canter, drive, fly, gallop, jump, leap, march, race, run, swim, trot, walk* (Levin 1993: 31). This is because they are both causatives and resultatives (see Levin 1993; McIntyre 2004; Larsen 2014; among others), and CAUSE in this class verbs shows a syntactic behavior which is unique to this class and can provide more supporting evidence for "causative fluctuation". More specifically, I argue for the availability of direct and indirect causation in this class of verbs, and show that the feature dependencies, which were discussed in the previous chapter, have a decisive role in explaining the structural differences between 'induced action' verbs and resultatives e.g., with unselected objects.

Accordingly, in section 6.1, first, I offer a short review of the relevant literature on CAUSE and causation in resultatives. In section 6.2, I argue for "causative fluctuation" in 'induced action' verbs, which are a type of 'resultative secondary predicate' (e.g. McIntyre 2004; Larsen 2014; among others). In section 6.3, I discuss why not all English resultatives behave like 'induced action' verbs. Section 6.4 offers a summary of the results.

6.1   Causation in Resultatives

This section investigates the (in)directness of causation in the literature of 'resultative secondary predicates'. Although, the literature offers many studies regarding 'resultative secondary predicates' (e.g., Carrier & Randall 1992; Napoli 1992; Levin & Rappaport Hovav 1995; Kaufmann & Wunderlich 1998; Washio 1998; Wechsler 2001; McIntyre 2004; Mateu 2012; Levin 2018; among many others), the syntax of CAUSE has been almost ignored, as either causation was considered to be direct (Kratzer 2005) or to be a matter of pragmatics (e.g. Rothstein 2008). Here, I provide a summary of the relevant studies, which reflect some aspects of causation in resultatives.

Levin & Rappaport Hovav's (1995)[45] treatment of resultative predicates only addresses direct causation in resultatives. As can be seen in (1), the participation of *x* in CAUSE and lexical verbs may refer to a direct causation reading. Their account revolves around the notion of 'lexical subordination', which is the extended meaning of a verb:

(1) (a) Pam pounded the metal flat: [x CAUSE [y BECOME z] by [x POUND y]]

  (b) Dora shouted herself hoarse: [x CAUSE [x BECOME y] by [x SHOUT]]

  (c) The joggers ran the pavement thin: [x CAUSE [y BECOME z] by [x RUN]]

<div align="right">Levin & Rappaport Hovav (1995: 74)</div>

Levin (2018) Also emphasizes the role of direct causation in resultatives.

McIntyre (2004), in an L-syntactic approach, assumes a semantic representation with two types of subevent conjunction. He uses $\&_{cause}$ (for causal relationships) and $\&_{contemp}$ (for two events perceived as a single event) to account for the semantic representation of resultatives:

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[45] As Levin & Rappaport Hovav (1995: 75) admit, the conceptualization above does not distinguish the selected argument (1a) and unselected arguments (1b, c).

(2) (a) Ethel danced into the studio: DO (Ethel, DANCE) &$_{contemp}$ GO (Ethel, TO IN STUDIO)

(b) Dave scratched a sticker off: DO (Dave, SCRATCH) &$_{cause}$ GO (Sticker, TO (NOT (ON ([$_{Thing}$ Ø])))

For the syntactic representation, he assumes a subevent *init* (initiation), which can be of type CAUSE, DO, or STATE, while the body of the event is labeled by CHANGE. He also argues for a conflating V^{go} and V^{become} and shows that in English both are available:

(3)
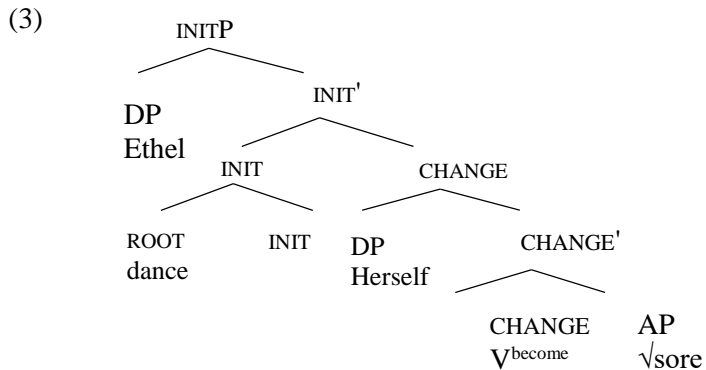
(McIntyre 2004: 550)

Although, he assumes a causal relation based on the property of subevents, (in)directness of causation is not part of his analysis. However, he assumes that the example in (4) is ambiguous between a reading in which Ann walks and pushes Jo to walk, and a reading in which Ann makes Jo walk without walking. The structures which he suggests show some resemblance with what is claimed in this study. However, what he assumes as 'ambiguity' revolves around Ann's walking, which is completely different from "causative fluctuation", especially in that, in terms of the syntax of CAUSE, they are not ambiguous as they both denote a direct causation reading (see next section).

(4) Ann walked Jo up.

(a) (Ann walks, pushing Jo in a pram): [Ann [[walk+ INIT] [Jo v^{go} up]]]

(b) (Ann, stationary, makes Jo, a puppet, walk): [Ann [INIT [Jo [walk+ v^{go}] up]

Kratzer (2005), motivated by Pylkkänen's (2002) bi-eventive analysis of causation, uses the functional head CAUSE to compute AP resultatives. She mentions that the result expression is the

direct consequence of an activity. For the derivation, first, *die Teekanne* 'the teapot' merges with *leer* 'empty', and then the product of this computation moves to CAUSE by head movement triggered by affixal need. And finally, *trinken* 'drink' merges with its sister node.

(5) (a) die   Teekanne   leer   trinken.

     the   teapot   empty   drink

     'to drink the teapot empty.'

(b)

Trinken
$\lambda e \exists s$ [empty (*the teapot*)(s) & drink(e) & CAUSE(s)(e)]

[CAUSE]
$\lambda e \exists s$ [empty (*the teapot*)(s) & CAUSE(s)(e)]

Leer
$\lambda e \exists s$ [empty (*the teapot*)(s) & CAUSE(s)(e)]

die Teekanne
λs empty (*the teapot*) (s)
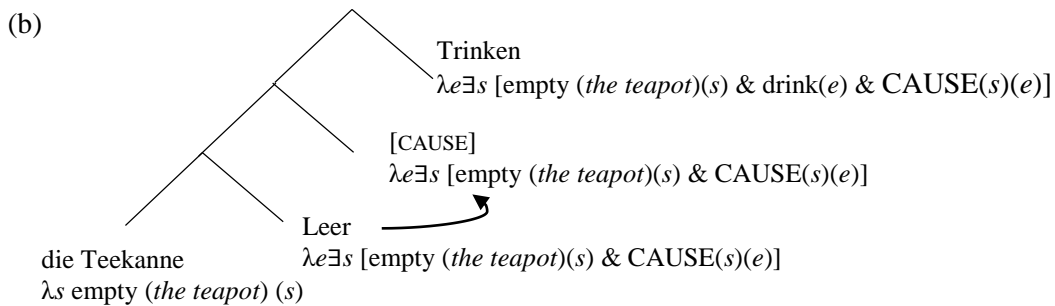
Kratzer (2005) only considers AP resultatives. In the next section, I argue that 'induced action' verbs do not necessarily appear with this structure as they may show fluctuation.

In another study, Rothstein (2008) denies any causal relation in accomplishment type predicates:

(6) (a) On May 5, 1945, the people of Amsterdam danced the Canadians to Dam Square.

     (b) Mary drank John under the table/sick/dizzy.

     (c) $\lambda y \lambda e. \exists e_1, e_2$ [$e =^s (e_1 \sqcup e_2) \wedge$ ACTIVITY$_{<x>}(e_1) \wedge$ Ag(e_1)=$x \wedge$ Th(e_1)=$y \wedge$ BECOME$_{<y>}$

         (e_2) $\wedge$ Arg(e_2)=Th(e_1) $\wedge$ INCR ($e_1, e_2, $C($e_2$))]

Rothstein argues against the presence of CAUSE in these structures and considers that the perception of CAUSE is a pragmatic matter. She proposes an accomplishment template, which associates with an independent BECOME event followed by an INCR(incremental) relation with a culmination point C as in (6c). In the case of (6a), she particularly mentions that 'Canadians are not required to dance' and the Dutch did not make the Canadians go to Dam Square (Rothstein 2008:122). Notice that the INCR

relation can be taken as a type of causal relation (see e.g., Lyutikova & Tatevosov (2014) and chapter 4).

Thus, as the short review above shows, an (in)direct distinction was not considered to be a important part of resultatives. In the following sections, I put forward an argument which shows the syntactic consequences of an (in)direct distinction in resultaives.

6.2   (In)direct Causation in 'Induced Action' Verbs

In chapter 5, it was argued that direct vs. direct causation readings are the result of the two distinct syntactic positions of CAUSE (causative fluctuation). It was argued that direct and indirect causation may appear with the following semantic diagnostics:

Table 1. Semantic Diagnostics of (In)direct Causation

Conditions	Direct	Indirect	
		Self-initiative Causation	Patientive Causation
External ARG's Participation in √action	O	X	X
External ARG's Participation in result	O	X	X
Internal argument is a 'patient'	O	X	O
Internal argument is a 'self-initiator'	X	O	X
An instrument is part of √action	O	X	X
Licenses 'adjunct-agents'	NA	X	O

This section focuses on answering, how CAUSE can possibly be interpreted in English 'induced action' verbs. Consider the following examples:

 (7) (a) The general marched the soldiers to the tents.   Levin (1995:188)

    (b) The scientist ran the mouse through the maze.   (ibid)

 Levin & Rappaport Hovav (1995:188) mentions that 'these verbs are unaccusative in their directed motion sense' and 'their single argument is a direct internal argument' and 'an external cause is available only in the context of a directed motion interpretation'.

I believe the term 'unaccusative' only means that the direct object is not the external argument, which is not contradictory to what we claimed in this study, as we do not consider monophasal predicates as biphasal (see chapter 3). Levin & Rappaport Hovav also assume that 'induced action' verbs are 'externally caused' events. However, this does not say anything about the directness or indirectness of causation as I discuss below.

An external argument's participation in (7a, b) is not in its root action. Thus, it is most likely the case that the general, and the scientists did not push the 'internal arguments' to make them *march* or *run*. The general gives an order, and the scientist releases the mouse; then the soldiers march, and the mouse runs. I will assume that an indirect causation reading (7) would be as (8), where CAUSE appears above the root action. Following Ko (2015), I assume that the result in 'induced action' verbs appears with a complement SC with an overt SC-subject for independent reasons (see, next section). This is because without the SC, the predicate is not grammatical (*The scientist ran *(the mouse through the maze)*), and the result itself is also necessary when the predicate is passivized (see next section):

(8)

$$\lambda e'[\text{CAUSE}\ ([\sqrt{\text{run}}\ (\exists e\ [e_s\ (\text{the mouse, through the maze})])\ (e')])\ (e')] =$$
$$\lambda e'[\text{CAUSE}\ ([\sqrt{\text{run}}\ (\exists e\ [e_s\ (\text{the mouse, through the maze})])\ (e')])]$$

v

$$\lambda p\ \lambda e'\ [\ \text{CAUSE}\ (p)\ (e')]$$

VP

$$\lambda e'\ [\sqrt{\text{run}}\ (\exists e\ [e_{loc}\ (\text{the mouse, through the maze})])\ (e')]$$

V

$$\lambda p\ \lambda e'\ [\sqrt{\text{run}}\ (p)\ (e')]$$

*v*P

$$[e_s\ (\text{the mouse, through the maze})] =$$
$$\exists e\ [e_s\ (\text{the mouse, through the maze})]$$
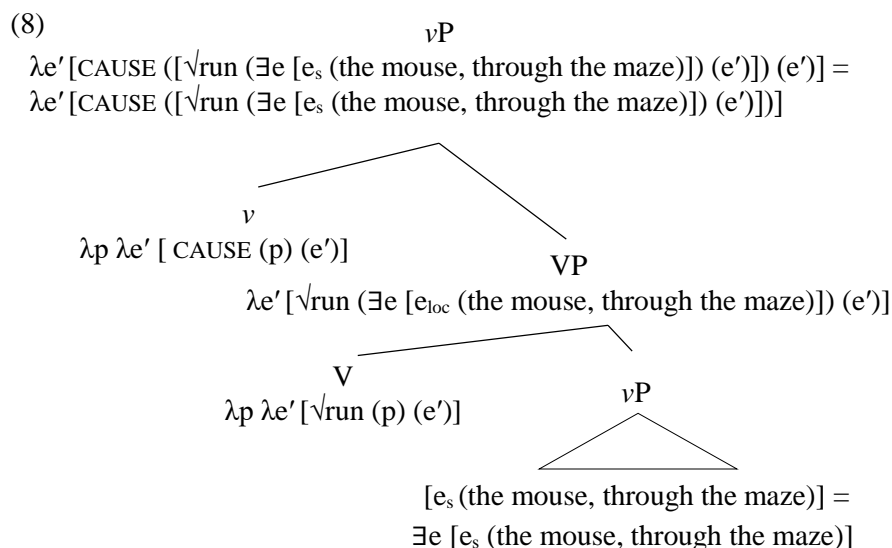
Thus, an indirect causation reading can fairly be understood in the 'induced action' verbs.

Now, based on McIntyre's (2004) interpretation of the following example, I examine whether a direct causation reading is available in these predicates:

(9) Ann walked Jo up.

(a) (Ann walks, pushing Jo in a pram)

(b) (Ann, stationary, makes Jo, a puppet, walk)   McIntyre (2004: 554)

In (9), McIntyre distinguishes between a situation in which Ann walks and pushes Jo to walk, and a situation in which Ann is not moving and makes Jo, a puppet, walk. According to Table 1, Ann, in both cases, participates in the root action, which means that Jo is not a self–initiator and a direct causation reading can be understood. Following what was mentioned in chapter 4, a direct causation reading for (9) would be as (10), in which CAUSE appears below the √action:

(10)

$$
\begin{array}{c}
\text{VP} \\
\lambda e'\,[\sqrt{\text{walk}}\,([\text{CAUSE}\,(\exists e\,[e_{loc}\,(\text{Jo, UP})])\,(e')])\,(e')] = \\
\lambda e'\,[\sqrt{\text{walk}}\,([\text{CAUSE}\,(\exists e\,[e_{loc}\,(\text{Jo, UP})])\,(e')])]
\end{array}
$$

V
$\lambda p\,\lambda e'\,[\,\sqrt{\text{walk}}\,(p)\,(e')]$

vP
$\lambda e'\,[\text{CAUSE}\,(\exists e\,[e_{loc}\,(\text{Jo, UP})])\,(e')]$

v
$\lambda p\,\lambda e'\,[\text{CAUSE}\,(p)\,(e')]$

vP

$[e_{loc}\,(\text{Jo, UP})] =$
$\exists e\,[e_{loc}\,(\text{Jo, Up})]$

Notice that for all the predicates above, direct and indirect causation can be assumed. For instance, *run* can denote a direct participation, if it includes e.g. pushing. *Walk* can denote an indirect causation, just as *walking the dog up*. Marching can also be associated with a direct causation, which is more visible in the following context[46]:

(11) Scott and his troops forced the Cherokee into stockades at bayonet point while whites looted their homes and belongings. Then, they **marched the Indians** more than 1,200 miles to Indian Territory.

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[46] Retrieved from: https://www.history.com/topics/native-american-history/trail-of-tears

In the above context, it is more likely that a physical force (not just an order) makes the Indians move. Accordingly, I conclude that (in)direct causation readings are available in English 'induced action' verbs.

6.3   Induced Causation in Resultatives

In section 5.4, I argued for causation types which are the result of the syntax of CAUSE. However, one case remains unexplained. Here, I argue for this type based on two groups of English resultatives. Talmy's (2000, 2016) 'induced to GO predicates'[47] (where one individual successfully induces another to execute a self–initiative motion), show a unique behavior in which they denote both direct participation of an external argument in the action asserted by the verb, and a self–initiative action in the lower domain. Assume the following examples from Talmy (2016):

(12) (a) I lured him out of his hiding place.

(b) I talked her down off the ledge.

(c) I smoked the bear out of its den.   (Talmy 2016: 4)

To clarify the problem, participating in luring, talking and smoking results in a 'self–initiative' action of the internal argument. Put differently, it is not the case that someone makes the other party *talk, lure* or *smoke* in addition to making them move to another location. It is making someone do something by means of luring and talking. In contrast, in (7a), it might be the case that the general ordered the soldiers to march, but what is lexicalized is not ordering.

I claim that, unlike 'induced action' verbs, Talmy's 'induced to GO' predicates in (12) denote a situation, where a causing event in indirect causation is lexicalized by the root action (*tell, lure, smoke*), and this forces CAUSE to appear below the root action syntactically, while maintaining a self–

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[47]Talmy (2016: 4) defines this type of predicate as a 'combination of deep and mid-level verbs representing one individual successfully inducing another to execute self-agentive motion'.

Table 3. The Difference between 'Induced Action' Verbs and 'Induced to GO Predicates'

Predicate Type	Causation Types	Subevent Sequence Differences		
'Induced Action' Verbs	Direct Causation	$\sqrt{}$action-CAUSE-result ([−self-init])		
	Indirect	CAUSE		$\sqrt{}$action $_{\substack{\text{result} \\ \text{self−initiative}}}$
Talmy's 'induced to GO'	Induced Causation	$\sqrt{}$action	CAUSE	Res ([+self-init])

Even though the configuration of Talmy's 'induced to GO predicates' syntactically, gives a direct causation reading (see chapter 5), it is not the canonical direct causation reading, which a causative predicate denotes. I refer to this type of causation, in which the root bears an [+agentive, +self-init] feature, as "induced" causation. This can be extended to transitive resultatives with unselected[48] objects (see below):

(13) (a) John drank the teapot *(empty).

    (b) Mary ran the soles *(off her shoes).   (Wechsler 2005)[49]

    (c) The boy cried himself *(sick).   (Napoli 1992:60)[50]

    (d) The boy drank himself *(sick).   (ibid)

    (e) The boy cried himself *(into a stupor).   (ibid)

    (f) The boy drank himself *(out of his mind).   (ibid)

In (13a), John's action is drinking something and emptying the bottle in its literal sense is not available.

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[48] An 'unselected' or 'unsubcategorized' object is an object in which a verb does not normally take an argument. For instance, in *drinking tea*, *tea* (the containee) is the selected object for *drink* but *teapot* (the container) is not. Fake reflexives are also considered to be 'unselected' objects (Levin & Rappaport Hovav 1995).

[49] This example was introduced here with some modification.

[50] These examples were introduced here with some modification.

The same happens in the case of (13b~f). Mary's running and the boy's crying and drinking are what the external argument is participating in, and the fact that the soles of the shoe are affected by running or the boy is affected by crying and drinking is a side effect, i.e., they are self–initiative happenings which are not the literal sense of root action. Notice that the syntactic appearance of the result (AP or PP in (13)) does not affect the result interpretation. Accordingly, the same result that was drawn for Talmy's 'induced to GO' predicates in (12), can be assumed for the resultatives with unselected objects in (13). Put differently, the root in the examples in (13), bears an [+agentive, +self-init] feature too and may have the same subevent sequence as Talmy's 'induced to GO' predicates in (12):

Table 4. The Difference between 'Induced Action' Verbs and 'Resultatives with Unselected Objs'

Predicate Type	Causation Types	Subevent Sequence Differences		
'Induced Action' Verbs	Direct Causation	√action-CAUSE-result ([−self-init])		
	Indirect	CAUSE		$\sqrt{action}\ ^{result}_{self-initiative}$
Resultatives with Unselected Objs	Induced Causation	√action	CAUSE	Res ([+self-init])

An important fact about resultatives with unselected objects is that they are grammatical without the SC. Thus, a transitive resultative like *he drank the bottle empty* can be expressed without the SC (*he drank*). A question that here one may ask is whether the subjected SC is a complement or adjunct. Ko (2015)[51] argues for four types of SCs in Korean resultatives in which a subjected SC (a SC in which a subject NP and result are combined by a relator (head)) can be an adjunct or complement. Adjunct SCs do not obey 'direct object restriction' (Simpson 1983, Levin & Rappaport Hovav 1995). In addition, the adjunct results can be iterative and the object NPs can be nominatively or accusatively case marked). The example below shows that a subjected SC is nominatively case marked and does

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[51] KO (2015) categorizes four type of SC's based on the syntactic behavior of two result–indicating morphemes:

	-key adjunct	*-key* complement	*-lo* adjunct	*-lo* complement
Fronting	O	X	X	O
Right-dislocation	O	X	?	X
Omission	O	X	O	X

not obey a 'direct object restriction' (Thus, it refferes to both the subject and object, unlike English resultatives in which the result only refers to objects[52]):

(14) Susana-ka   Jim-ul   [son-i   aphu-key]   ttayliessta.

     Susana-NOM   Jim-ACC   hand-NOM   in.pain-RES   hit

     'Susana$_i$ hit Jim$_j$ so that her$_i$ /his$_j$ hand was in pain.'   (Ko 2015:367)

Obviously, the resultatives discussed above obey the direct object rule (Levin & Rappaport Hovav 1995). Even though English does not overtly case mark NPs, it can be seen that 'induced action' and 'induced to GO predicates' can appear with *him* and *her*, which means that they are not nominatively case marked. Besides, except for when the unselected object is e.g. a reflexive (Levin & Rappaport Hovav 1995), they can be passivized:

(15) (a) The pavement in Central Park has been run thin by all the jogging enthusiasts.

                                         (Levin & Rappaport Hovav 1995:44)

   (b) The teapot was drunk dry by the thirsty workers.   (ibid)

   (c) He and the engineer were walked up a hill[53]

   (d) Who paid for the last bottle of alcohol that was drank empty.[54]

   (e) The teenager was lured out of his (…) home around 4 a.m.[55]

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[52] See Larsen (2014) for an argument in which the results in examples like *he kicked **free***, (which do not obey a direct object restriction), are classified as particles and not adjectives.

[53] Retrieved from: https://www.nbcnews.com/news/world/kidnapped-captain-how-i-survived-den-crack-smoking-pirates-n71851

[54] Retrieved from: https://www.nbcnews.com/news/world/kidnapped-captain-how-i-survived-den-crack-smoking-pirates-n71851

[55] Retrieved from: https://www.waff.com/2020/08/02/man-accused-killing-year-old-after-using-snapchat-lure-him-conn-home/

Thus a syntactic structure of a predicate with an unselected object contains the same SC that an induced action verb does. For the reasons explained above, a direct causation structure (as in (10)) is applicable to 'induced action' and 'induced to GO predicates'.

6.4   Summary and Conclusion

In this chapter, I provided additional evidence for "causative fluctuation" in English based on 'induced action' verbs. I argued that "induced actions" provide examples in which CAUSE fluctuates above or below the root. It was argued that it is not the case that all resultatives show fluctuation (see section 5.3). Here, one may ask why does an 'induced action' verb show "causative fluctuation". This has direct connection with the fact that they are causatives and their internal arguments are indeed selected.

The feature dependencies which were argued for in 5.4 and here can potentially account for the typology of resultatives crosslinguistically, I leave further investigations for future studies.

7 CAUSE in Anticausatives

This chapter concerns the syntax of CAUSE in anticausatives and 'noncausative resultatives'. Based on Persian data, it will be argued that CAUSE always appears above the root in these predicates.

In what follows, section 7.1, discusses the interaction of CAUSE and VOICE in anticausatives. Section 7.2 illustrates the properties of "semi-anticausatives" in Persian and the fact that they constitute a VOICE even though they are unmarked. It will be argued that this is because they allow –râ marking and license unintentional adverbs, and therefore agentive causers, whose participation in the event is indirect (indirect causation). In section 7.3, I offer an analysis regarding "semi-anticausatives" in Persian. Sections 7.4 and 7.5 provide an extension of this analysis of indirect causation to all anticausatives and 'noncausative resultatives'. Finally, Section 7.6 offers a summary of the results.
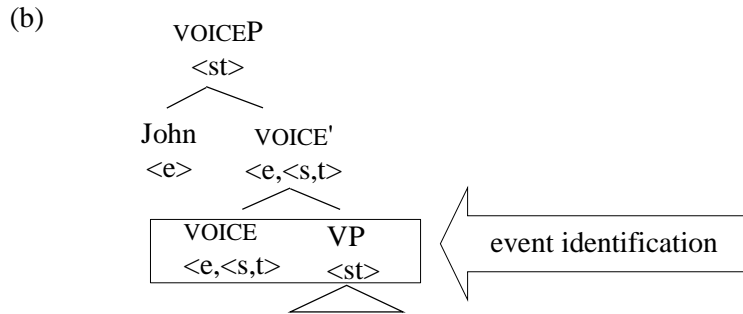
7.1 VOICE in Anticausatives

7.1.1 VOICE and VOICE Typology

Many theories of argument structure do not assume the external argument as an argument of a verb (see Grimshaw 1990; Marantz 1984; Kratzer 1996). In these approaches, a verb like *feed* licenses one internal argument. Subjects, however, are considered to be external arguments, which are not introduced by the verb. In this view, external arguments only assign a thematic role to the VP. Kratzer (1996), based on a neo-Davidsonian approach, assumes a new functional head (VOICE[56]), whose unique task is introducing an external argument to the VP:
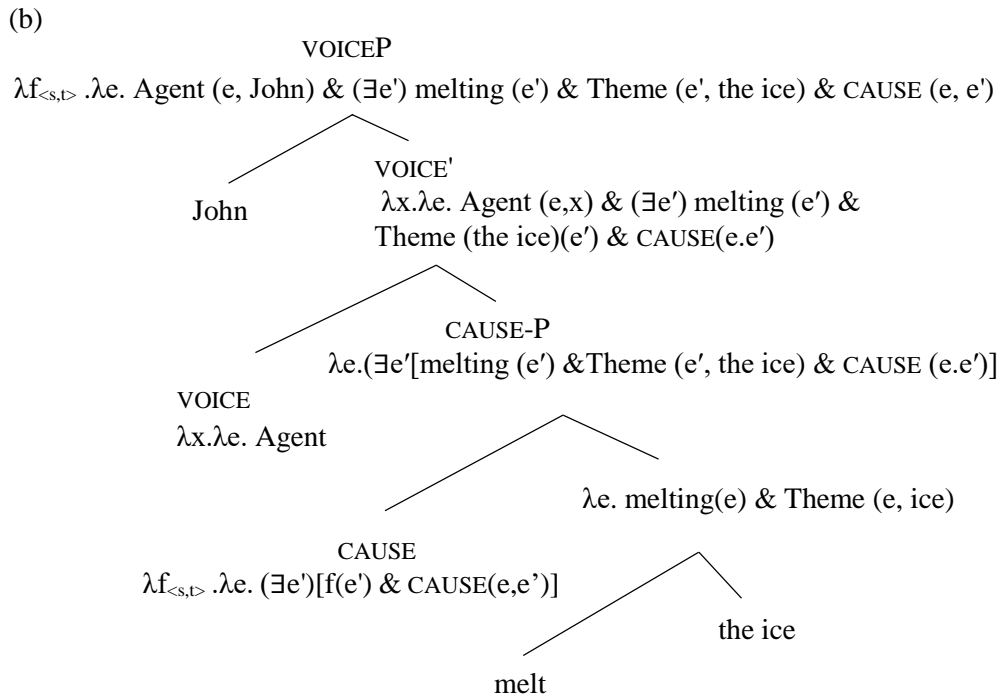
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[56] Here, I differentiate between the functional head VOICE (which is an introducer of an external argument) and voice (diathesis), which gives the implications regarding participants of an event.

(1) (a) ⟦VOICE⟧ = λxλe.Agent(x)(e)

(b)

```
                    VOICEP
                     <st>
                    /    \
              John      VOICE'
              <e>      <e,<s,t>
                       /    \
                 VOICE      VP          ⟸ event identification
                <e,<s,t>    <st>
```

The structure in (1) shows a syntactic/semantic derivation, in which a VP combines with VOICE via 'event identification', and the result can take a subject NP and approximately give the equivalent of a grammatical sentence. On the one hand, the VOICE head introduces agents, causers, or holders to the events (Kratzer 1996; Pylkkänen 2002, 2008), and on the other hand, VOICE introduces a subevent, which denotes a causing event ((*e* in the formulation below from Pylkkänen, (2008: 88)) in bieventive predicates e.g., causatives and passives (Pylkkänen 2002, 2008):

(2) (a) CAUSE: λP. λe.[(∃e′) P(e′) & CAUSE(e,e′)]

(b)

```
                                VOICEP
        λf<s,t> .λe. Agent (e, John) & (∃e') melting (e') & Theme (e', the ice) & CAUSE (e, e')
                              /        \
                                    VOICE'
                          John      λx.λe. Agent (e,x) & (∃e′) melting (e′) &
                                    Theme (the ice)(e′) & CAUSE(e.e′)
                                   /       \
                                        CAUSE-P
                                λe.(∃e′[melting (e′) &Theme (e′, the ice) & CAUSE (e.e′)]
                              /          \
                        VOICE
                        λx.λe. Agent            λe. melting(e) & Theme (e, ice)
                                             /          \
                      CAUSE
              λf<s,t> .λe. (∃e′)[f(e′) & CAUSE(e,e')]
                                                       the ice

                              melt
```

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'Agent–oriented' modifiers and 'manner' adverbs can show the existence of this subevent:

(3) (a) John opened the door slowly.

   (b) Slowly, John opened the door.

In (3a), opening the door happens slowly, while in (3b), John could have slowly walked to the door to open it. The latter case can be taken as a modification of VOICE. The same can happen for a passive predicate. As Alexiadou et al (2006, 2015) discuss, passives are compatible with 'agentive' adverbs. For examples, *deliberately* can appear in a passive sentence and modify an implicit agent (i.e., the individuals who caused the sinking of the boat (4)):

(4) The boat was sunk deliberately.

<div align="right">Alexiadou et al (2015:20)</div>

Notice that the 'passive sensitivity' of 'agentive adverbs' with respect to an 'implicit agent' has been noticed since Thomason & Stalnaker (1973), long before Kratzer's VOICE proposal.

The notion of 'causative alternation' (Levin 1993) was applied to Kratzer's (1996) proposal of external argument introducing a functional head in minimalist syntax. Accordingly, an unaccusative (the nonactive version of *break* in e.g. *John broke the glass* vs. *the glass broke*) does not constitute a VOICE. The grammatical subject in an unaccusative is the internal argument that moves to SPEC TP[57, 58] for case reasons:

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[57] Chomsky (2001) assumes that passives do not constitute a phase, because they lack what he refers to as 'strong *v*' (or VOICE in Kratzer's term). However, Legate (2003) argues that they do constitute a phase. Blanco (2011) assumes that at least passives have a VOICE head.

[58] I follow Alexiadou et al's (2006) assumption that the two are not derived form of each other. This claim is motivated by two facts. First, cross-linguistically, there are certain morphological properties, which makes it unclear whether the intransitive version is derived from the transitive version or vice versa (see Haspelmath 1993). Another reason is the restriction on the selectional properties of a verb. For instance, the intransitive *break* can take *a glass* as an argument but it is ungrammatical with *a promise* and *a contract*.

(5)
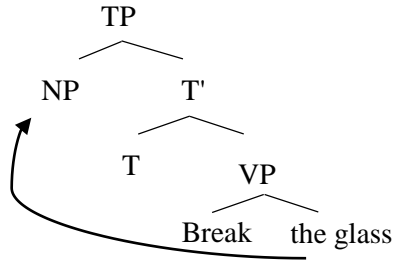
Here, we should notice that, even though in a 'causative alternation' the active and nonactive predicates may canonically denote 'the same situation' (e.g. Haspelmath 1993), it is not the case that they have the same event structure or participants. This is true both semantically (Dowty 1979; Jackendoff 1993; Levin & Rappaport Hovav 1993) and syntactically (Chomsky 2001). We should also notice that the syntactic structure of an anticausative, as shown in (5), is fundamentally different from a passive predicate, which contains a non-active VOICE head (see Pylkkänen 2002, 2008; Schäfer 2008; Alexiadou et al 2006, 2015; among others):

(6)
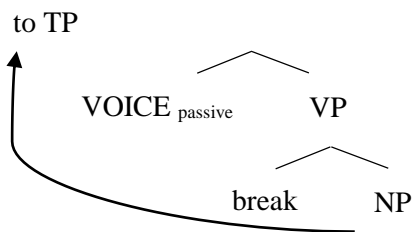
The structural differences between anticausatives and passives can be seen by variety of syntactic diagnostics (Alexiadou et al 2015: 19~22):

(7) Licensing of *by*-phrases:

    (a) The ship was sunk by Bill/by the hurricane.

    (b) *The ship sank by Bill/by the hurricane.

(8) The ability to control:

    (a) The boat was sunk [PRO to collect the insurance].

    (b) *The boat sank [PRO to collect the insurance].

(9) Compatibility with agentive adverbs:

(a) The boat was sunk deliberately.

(b) #The boat sank deliberately.

(10) Licensing of instrumental PPs:

(a) The window was broken by John with a hammer.

(b) *The window broke with a hammer.

(11) Licensing of by itself:

(a) *The door was broken by itself.

(b) The door broke by itself.

(c) John broke the door by himself.

Thus, anticausatives are different from passives in that they do not license implicit agents (7), or PP instrumentals (10). In addition, they cannot control a syntactic PRO (8) or allow agentive adverbs (9). However, unlike passives, they license *by itself* (11). There are, however, differences between anticausatives with respect to their morphological exponents. Some anticausatives are 'marked' and appear with certain morphological exponents like reflexives in German and Romance languages, and some are 'unmarked' as in English. Schäfer (2008) and Alexiadou et al (2015) assume that the source of different behavior among anticausatives is VOICE and the features which it assigns. For instance, a VOICE, which is morphologically marked by the reflexive pronoun *sich* in German, has a [D] feature with no particular thematic role (expletive VOICE). According to Alexiadou et al, this makes marked anticausatives show *have*-selection just as a transitive predicate, while unmarked anticausatives select *be* as their perfect auxiliary in German:

(12) Die Tür   hat/ *ist sich   geöffnet.

the door   has is   REFL   opened

'The door has opened.'

Alexiadou et al (2015: 104)

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Thus, morphologically marked anticautives are different from unmarked anticausaitves, whose event structures lack a VOICE, e.g. *sink* or *break* in (7)~(11). The following table shows the typology of VOICE heads from Schäfer (2008: 188).

Interpretation	Syntax	Spell-Out
Active	[Agent [Voice$_{\{D,\ agent\}}$ [v [Root]]]]	(active)
Passive	[Voice$_{\{agent\}}$ [v [Root]]]	(non-active)
Anticausative I	[Expl. [Voice$_{\{D,\ \emptyset\}}$ [v [Root]]]]	(*sich*)
Anticausative II	[Voice$_{\{\emptyset\}}$ [v [Root]]]	(non-active, clitic-*si*)
Anticausative III	[v [Root]]	(unmarked)

7.1.2 Problems with the Current Account of Anticausatives in Persian

The reader may refer to Rezai (2010) for a summary of previous studies on Passives and anticausatives in Persian. The difference between passives and anticausatives by means of agentivity test (examples in (7) ~ (11), from Alexiadou (2006, 2015)) in Persian was argued for in Rasekh Mahand (2007). According to the agentivity test, Rasekh Mahand differentiates between two types of nonactive voices; passives, which show compatibility with the agentivity tests, and 'inchoatives'[59], which do not. The following shows the same tests, which I have applied to a light verb[60] as well as a heavy verb anticausative:

(13) Licensing of by-phrases:

    (a) *? šiše   tavasote kârgar-hâ   tarak   xord-Ø.

---

[59] Haspelmath (1993:90~92) uses the term 'inchoative' as an umbrella term in the form of 'inchoative/causative' alternation to distinguish three types of alternations. A 'causative alternation' e.g., Georgian *duɣ-s* 'cook (intr.)' vs. *a-duɣ-ebs* 'cook (tr.)', an 'anticausative alternation' e.g., Russian *katat'-sja* 'roll (intr.)' vs. *katat'* 'roll (tr.)', and a 'non-directed alternation' e.g., Japanese *atum-aru* 'gather (intr.)' vs. *atum-eru* 'gather (tr.)'. Rasekh Mahand simply follows Haspelmath's umbrella term in that regard.

[60] Light verb constructions are made of a preverbal element and verb, whose original meaning is bleached (see e.g., Family 2006, 2014; among many others).

       glass   by   worker-PL   crack   ate.3SG

       'the glass was cracked by workers.'

  (b)*? šiše   tavasote   kârgar-hâ   šekast-Ø.

       glass   by   worker-PL   broke.3SG

       'the glass was broken by workers.'

(14) The ability to control:

  (a) *šiše   tarak   xord-Ø   tâ   hama-ro   be-tarsun-and.

      glass crack   ate. 3SG so that   all-ACC   SBJV-terrifiy-3PL

      Int: 'the glass was cracked to terrify everybody.'

  (b) *šise   šekast-Ø   tâ   dozd-hâ-ro   vârd   bo-kon-and.

      Glass broke.3SG   so that   thieve-PL-ACC   enter   SBJV-do-3PL

      Int: 'the glass was broken to let the thieves in.'

(15) Licensing of instrumental PPs:

  (a) *šiše bâ   čakoš   tarak   xord-Ø.

      glass with   hammer crack   ate.3SG

      'The glass was cracked with hammer.'

  (b) *?šiše   bâ   čakoš   šekast-Ø.

      glass   with   hammer broke.3SG

      'The glass was broken with a hammer.'

(16) Compatibility with VOICE modifiers:

  (a) šiše   *amdan   tarak   xord-Ø.

    glass intentionally crack   ate.3SG

    '(un)intentionally, the glass was broken.'

  (b) šiše   *amdan   šekast-Ø.

    glass intentionally broke.3SG

    '(un)intentionally, the glass was broken.'

(17) (a) šiše   xod be xod   tarak   xord-Ø.

    glass   by itself   crack   ate.3SG

    'the glass cracked by itself.'

  (b) šiše   xod be xod   šekast-Ø.

    glass   by itself   broke.3SG

    'the glass broke by itself.'

As the examples in (13)~(17) show, Persian anti-causatives (light verb and heavy verb) behave like normal unmark anticausatives. However, the topic marker –râ can appear in their structures (18a), while canonically, topicalization with –râ is a property of an active predicate. In addition, while they show ungrammaticality with respect to intentional adverb *amdan* (16), they show compatibility with respect to unintentional adverb e.g., *sahvan* (18b) (Shojaei & Karimi Doostan (2015) also treat *sahvan* as a manner adverb):

(18) (a) šiše-ro   tarak   xord-Ø-eš.

    glass   crack   ate.3SG

    '(un)intentionally, the glass was broken.'

  (b) šiše   sahvan   tarak   xord-Ø.

    glass   unintentionally   crack   ate.3SG

    '(un)intentionally, the glass was broken.'

One should notice that, first, licensing VOICE modifiers is the property of active and passive predicates, which, in current syntactic and semantic approaches, are known to contain the functional head VOICE (compare the syntactic trees in (5) and (6)):

(19) (a) man   sahvan/amdan   be-un   divâr   rang   zad-am.

    I   (un)intentionally   DAT-that wall   paint   hit-1SG

    Int: 'I painted that wall (un)intentionally.'

(b) un   divâr   sahvan/amdan   rang   zad-e   šod-Ø. (syntactic passive)

   that   wall   (un)intentionally   paint   hit-PP   became.3SG

   '(un)intentionally, that wall was painted.'

(c) un   divâr   sahvan/amdan   rang   šod-Ø. (passivized with a LV)

   that   wall   (un)intentionally   paint   became.3SG

   '(un)intentionally, that wall was painted.'

Second, according to Schäfer (2008) and Alexiadou et al (2006, 2015), an unmarked anticausative does not appear with a syntactic VOICE head, which is contrary to what our data shows. Third, a category of passives, which Dabir-Moghaddam (1982) distinguishes as being 'ambiguous' between a 'passive' and an 'inchoative' reading, as in (20), does not tell anything about the functional head VOICE.

(20) (a) âb   tavasote   Mahmud sard   šod-Ø.

   water   by   Mahmud cool   became-3.SG

   'the water was cooled by Mahmud'.

<div align="right">Dabir-Moghaddam (1982:235)</div>

(b) âb   xod.be.xod   sard   šod-Ø.

   water   by.itself   cool   became-3.SG

   'the water cooled by itself.'

Put differently, one should be able to say whether a proper syntactic structure for Persian data is like (5) or (6).

    I will follow the literature in holding that the 'agentivity tests' may show the differences between passives and anticausatives in Persian. However, deciding whether Persian anticausatives contain a VOICE head or not is subject to what I refer to as "VOICE visibility" tests, which are an extension of the 'agentivity test'. I will test Persian anticausatives with unintentional adverbs, in addition, to test

their co-occurrence with the topic –*râ* (e.g. Ganjavi 2007). I argue that the structure of Persian unmarked anticausatives contains a VOICE layer. This VOICE layer, which I refer to as "semi-anticausative", licenses unintentional adverbs as well as number neutral "agentive (human) causers". It will also be argued that the participation of agentive causer(s) in an event is indirect.

7.2 "Semi-anticausatives" in Persian

In the previous section, I showed that Persian 'anticausatives' can appear with the topic –*râ* and license unintentional adverbs. I also showed that the nature of morphological appearances of a verb (light verb or heavy verb) is irrelevant when it comes to licensing unintentional adverbs. Here, I specifically address two classes of anticausatives.

The first class of anticausatives licenses unintentional adverbs, in addition to allowing optional topicalization of the surface subject NP with –*râ*. *Xord-an* 'to eat (eat-INF)', *oftâd-an* 'to fall (fall-INF)' *gereft-an* 'to take (take-INF)' and *zad-an* 'to hit (hit-INF)' are among the light verbs, which, depending on their preverbal NP, can constitute constructions, whose meaning and behavior are the same as anticausatives.

(21) (a) x   gereh/ čoruk/ tâ/ tâb/ pič/ tarak   xord-Ø.

　　　　x   knot/ wrinkle/ fold/ twist/ crack   eat.3SG

　　　　'x got tied up/ creased/ folded/ wavy/ pleated/ cracked.'

　　(b) x   xat(xarâš)/ lak/ čoruk   oftâd-Ø.

　　　　x   scratch/ stain/ wrinkle   fell.3SG

　　　　'x got scratched/ stained/ wrinkled.'

　　(c) x   rang/ âjor/ gel   gereft-Ø.

　　　　x   paint/brick/mud   take.3SG

　　　　'x is affected by paint/ brick/ mud.'

　　(d) x xâk (gard-o gobâr)/nam(rotubat)   gereft-Ø.

x dust/dust and mist   damp   took.3SG

'x got dusted/dampened.'

(e) x kapak/ nam/ zang   zad-Ø.

x mold/ damp/rust   hit.3SG

'x got molded/dampened.'

Neither examples are passives, as it is shown by agentivity tests:

(22) (a) pirâhan   (*tavassote Ali/*amdan/   *ba otu) čoruk   xord-Ø /oftâd-Ø.

shirt   by Ali/   intentionally   with iron wrinkle   ate.3SG/fell.3SG

'The shirt wrinkled (* by Ali/ *intentionally/*with iron).'

(b) divâr   (*tavassote Ali/ *bâ   qalammu/ *amdan)   rang   gereft-Ø.

wall   by Ali/   with   brush   /intentionally pain   took.3SG

Int: 'the wall got painted on by what Ali did/by brush.'

(c) ketâb-hâ   (*tavassote Ali/ *bâ   pârč/ *amdan) nam

book-PL   by Ali/   with jar/   intentionally   damp

gereft-Ø/ zad-Ø.

took.3SG/hit.3SG

Int: 'the books got dampened (by Ali/ with a jar/ intentionally).'

However, they license unintentional adverbs, as shown below. In this case, the examples mean that

there was someone whose unintentional action resulted in some change of state.

(23) (a) pirâhan   **sahvan**   čoruk   xord-Ø/ oftâd-Ø.

shirt   unintentionally   wrinkle ate.3SG/ fell.3SG

Int: 'the shirt wrinkled by mistake.'

(b) pirâhan   **sahvan**   čoruk   xord-Ø / oftâd-Ø.

DAT-shirt unintentionally   wrinkle ate.3SG/ fell.3SG

Int: 'the shirt wrinkled by mistake.'

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(c) divâr **sahvan** rang gereft-Ø.

    wall-ACC unintentionally paint took.3SG

    Int: 'accidently, the wall was splashed with paint.'

(d) ketâb-hâ **sahvan** nam gereft-Ø / zad-Ø.

    book-PL unintentionally damp took.3SG/ hit.3SG

    Int: 'the books were dampened by negligence.'

In addition, they can optionally be topicalized by *-râ* (colloquially pronounced *-ro* or *-o*). In this case, they are a natural response to the equivalent of the question 'what happened to *x*'. The topicalization canonically forces a topicalized NP to leave a copy/trace (e.g., Karimi 2005; Ganjavi 2007) in the form of a clitic. When an NP is *-râ* marked, the clitic may optionally appear on a preposition or as double clitic on the verb.

(24) (a) divâr-(o$_i$) (ru-š$_i$) tarak xord-Ø-(eš$_i$).

    wall-RÂ on-3SG crack eat-3SG-3SG

    'As for the wall, it has cracked.'

  (b) einak-am-(o$_i$) (ru-š$_i$) xat oftâd-Ø-(eš$_i$).

    glass-1sg-RÂ on-3sg scratch fell-3SG

    'As for my glasses, they are scratched.'

  (c) divâr-(ro$_i$) (ru-š$_i$) rang gereft-Ø-(eš$_i$).

    wall-RÂ on-3SG paint take-3SG-3SG

    'As for the wall, some paint splashed on it.'

  (d) âyine-(ro$_i$) (ru-š$_i$) xâk gereft-Ø-(eš$_i$).

    mirror-RÂ on-3SG dust take-3SG-3SG

    'As for the mirror, it became dusty.'

  (e) nun-(o$_i$) (ru-š$_i$) kapak zad-Ø-(eš$_i$).

    bread-RÂ on-3SG mold hit-3SG-3SG

'As for the bread, it is molded.'

The other class of anticausatives (e.g. *šekast-an* 'to break'), behave similarly with respect to incompatibility with agentivity tests (see 13~17). However, even though the verbs in this class license unintentional adverbs, they behave differently in that they do not allow topicalization with –*râ*[61]:

(25) *šiše-ro   šekast-Ø-(**eš**ᵢ).

     glass-RÂ broke-3sg-3sg

     'as for the glass, it broke'.

The above data shows certain characteristics of anticausatives in Persian, which, to my knowledge, have hitherto gone unnoticed. In the next section, I argue whether unintentional adverbs are modifiers of VOICE or not, why certain anticausatives allow topicalization with –*râ*, and how it changes the syntactic/semantic structure of a predicate.

7.3   Analysis and Proposal

In this section, I argue why the two groups of anticausatives behave differently with respect to topicalization with –*râ,* and what this can tell about VOICE. I also argue that *sahvan* in our data is a modifier of VOICE. Then, I briefly discuss the relation between intentionality and causation in anticausatives, and lastly, I offer my analysis.

7.3.1   Topic *-râ* in Anticausatives

As I showed in the previous section, anticausatives can optionally be –*râ* marked. Karimi (2005), and Ganjavi (2007:159-160) assume that topic –*râ* must precede an overt subject and the copy/trace of

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[61] Notice that as a causative, the predicate is grammatical.

the topicalized element may appear as a clitic pronoun. In the following example, the grammatical subject is *mâ* 'we' and the topic *–râ* marked NP moves over it:

(26) (a) (un ketâb-ro)ᵢ   man   be   Kimea   dâd-am-ešᵢ

     that book-RÂ   I   to   Kimea   gave-1SG-it

   'As for that book, I gave it to Kimea.'

Karimi (2005: 84)

  (b) **Hamid**-o   mâ   zan-**eš**-o   did-im.

     Hamid-RÂ   we   wife-3SG-RÂ   saw-1PL

     'As for Hamid, we saw his wife'.

  (c)*mâ   **Hamid-o**   zan-**eš**-o   did-im.

     we   Hamid-RÂ   wife-3SG-RÂ   saw-1PL

Ganjavi (2007: 159)

The clitic may attach as a clitic doubling to a verb, to an NP, or to a preposition phrase, as (26a), (26b), and (28) show respectively. However, according to Ganjavi, all topic marked NPs appear with a structure as in the following:

(27) Ganjavi (2007: 159-168)
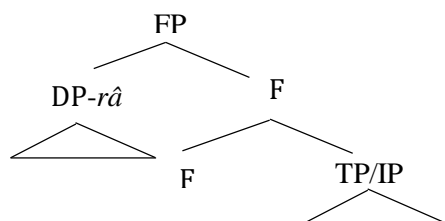
One should notice that the topic *-râ* can colloquially, appear in certain passive predicates too, which to my knowledge has gone unnoticed. In (27), the topic *-râ* can optionally occur. However, it has to leave a lower copy/trace on a preposition.

(28) (a) âvâre-hâ-(roᵢ)   *(beh-ešunᵢ)   komak   šod-Ø.

refugee-PL-RÂ   to-3PL   help   become-3SG

'As for the refugees, the received help.'

(b) âvâre-hâ-(ro$_i$)   *(barâ-šun$_i$)   xune   sâxt-e   šod-Ø.

  refugee-PL-RÂ   for-3PL   house   built.PP   become.3SG

'As for the refugees, houses were built for them.'

(c) Ali-(ro$_i$)   *(beh-eš$_i$)   jâyeze   dâd-e   šod-Ø.

  Ali-RÂ   to-3PL   prize   given-PP become.3SG

'As for Ali, he was given a prize.'

(e) *âvâre-hâ-(ro)   xune   sâxt-e   šod-Ø.

  refugee-PL-RÂ-KE   house   built-PP   become.3SG

In (28a, b, c), the topicalized element is the *–râ* marked NP, which has a lower copy/trace. The ungrammaticality of (28e) is partly because it has no lower copy (see below).

The data clearly shows that the topic *-râ* does not need an overt NP subject as was assumed in Karimi (2005) and Ganjavi (2007). I claim that having a VOICEP in our data would license topicalization (see Blanco (2011), and her argument that passives contains a VOICE). Thus, licensing the 'topic *–râ*' requires VOICE. By comparison, one can conclude that the anticausatives, which allow topicalization with *–râ*, also contain VOICE. That is why they license modification with unintentional adverbs.

Now, we can discuss the other class, which, although it allows unintentional adverbs, does not allow topicalization with *–râ*. One should notice that semi-anticausatives in the first class denote a HAVE relation. In fact, predicates in the first class can be paraphrased into a sentence with *dâštan* 'to have'.

(29) pirâhan   čoruk   dâre.Ø.

  shirt   wrinkle have.3SG

Lit: 'the shirt has wrinkles'.

This is also true in the case of the 'topic –*râ*' marked passive examples in (28), as they entail a HAVE relation between *the refugees* and *help*/*house*, or *Ali* and *prize*. However, this is not the case for the anticausatives in the second class. Put differently, there is no implication such as the following:

(30) *šiše   šekast-(an)   dâre.Ø.

   glass   break-INF   has.3SG

Thus, the fact that certain anticausatives do not allow the topic –*râ* cannot be the result of a lack of VOICE. Therefore, I maintain the assumption that *sahvan* is the modifier of VOICE, and –*râ* marking makes VOICE visible when the semantic/ syntactic conditions are proper.

7.3.2   Unintentional Adverbs in Persian

Although, I follow the literature in holding that *sahvan* is a modifier of VOICE (Shojaei & Karimi Doostan (2015)), let us momentarily doubt this fact. If it is not modifying VOICE, then it can be a conjecture of a speaker or a 'speaker–oriented' adverb. A 'speaker–oriented' adverb does not need to show any implication regarding the manner of an external argument:

(31) *bâ.xoš.šânsi* 'fortunately', *bâ.bad.šânsi* 'unfortunately', *be.surate qeire montazere* 'unexpectedly', *ettefâqi* 'accidently', *šâyad* 'probably', *hatman* 'definitely' etc.

(32) šiše *ettefâqi*   šekast-Ø.

   glass accidently   broke.3SG

   'The glass broke accidently.'

Unlike *sahvan*, none of the adverbs in (31) imply the existence of an external argument. *Sahvan* means 'unintentionally', and having intention or not is a property of a human agent/causer. Another possibility is that *sahvan* is ambiguous between a conjecture reading and a reading in which it (*sahvan*)

modifies the VOICE. Quirk et al (1985) and Cinque (1999) among others also report such cases in English, where certain adverbs appear on different heads or modify different subevents. This is because adverbs can take scope with respect to certain subevents or functional heads. *Again,* for example, can modify a result (restitutive reading) and VOICE (repetitive reading), in addition to appearing somewhere between the two and giving an 'intimidate' reading (see e.g., von Stechow 1996). Here, I assume that adverbs with a conjecture reading are 'speaker–oriented', and adverbs, which modify the manner of an external argument are modifiers of VOICE. Both can be available for *sahvan* in different environments. As the examples below show, the conjecture reading of the unintentional adverb is readily available, when the predicate is in the perfect tense. This reading is not available in the simple past tense. Notice that perfect tenses in Persian are generally assumed to denote evidentiality (see Rezai (2014) and from there the short list of previous studies):

(33) guyâ/šâyad/qat'an   šiše   sahvan   šekaste   (ast-Ø).

     evidently/ perhaps/surely   glass   unintentionally   broken.PP   is.3SG

     Int: 'evidently/perhaps/surely the glass has been broken by mistake.'

(34) guyâ/šâyad/qat'an   #šiše   sahvan   šekast-Ø.

     evidently/ perhaps/surely   glass   unintentionally   broke.3SG

     Int: 'evidently/perhaps/surely the glass was broken by mistake.'

The examples above must show the contrast between a conjecture reading and a VOICE modification, as the conjecture reading is only available in the perfect tense. Here again, I maintain the assumption that in our data *sahvan* is a VOICE modification.

7.3.3 Intentionality and Indirectness of Causation in Semi-anticausatives

Persian semi-anticausatives exhibit a different level of participation of an argument, which is modified by *sahvan.* Based on chapter 4 and chapter 5, I claim that at a certain level of participation,

participants' unintentional action in an event may be perceived differently from the action, which is asserted by the lexicalized verb. Consider the following example:

(35) German (Schäfer 2008: 44)

Dem	Hans	zerbrach	die	Vase
the.dat	John	broke	the	vase

weil	er	sie	zu	fest	auf	dem	Boden	aufsetzte
because	he	it	too	heavily	on	the	floor	put

'The vase broke and John caused this unintentionally because he put it on the floor too heavily.'

In (35), John engages in some actions (here putting down the vase), and by doing so perhaps improperly (putting the vase on the floor too heavily), he breaks the vase. Schäfer (2008) refer to the thematic role of John in the above example as an 'unintentional causer'[62].

The same interpretation holds for semi-anticausatives in Persian. A participant's unintended action means there was no engagement in an event, which is lexicalized. Only the result e.g., *broken glass,* is attributed to the participant. That is why, unlike passives, they cannot license a PRO, since licensing a PRO in these environments requires intentions, while participants in a semi-anticausaitve predicate, which is modified by *sahvan,* have none:

(36) *šiše (sahvan) šekast-Ø tâ mâdar bi-âd-Ø

glass	unintentionally	broke-3SG	so.that	mother	SBJV-come-3SG

However, the difference between semi-anticausatives and the example in (34) is that semi-anticausatives are number neutral:

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[62] According to Schäfer (2008: 44), 'the unintentional causer reading' in (27) is 'blocked in transitive and passive sentences'. In addition, 'non-human dative DPs are not allowed'.

(37) (a) šiše   sahvan   šekast-Ø-(eš).

      glass   unintentionally broke-3SG-3SG

      Int: 'the glass broke by mistake.'

  (b) šiše-hâ   sahvan   šekast-an-ešun

      glass-PL   unintentionally   broke-3PL-3PL

      Int: 'the glasses broke by mistake.'

  (c) *šiše sahvan   šekast-Ø;   un/un-hâ mard   bud-Ø/bud-and

     glass   unintentionally   broke-3PL   he/he-pl man   was-3SG/was-3PL

     Int: 'the glass broke by mistake; the person(s) who made the mistake was/were a

        man/men'.

In (37a, b), the agreement markers show agreement with the grammatical subject, and in both cases, *sahvan* can be interpreted as modifying one or more participants. (37c) shows that participant(s) are not just number neutral but also indefinite. Due to their indefiniteness and number neutrality, I refer to the hidden participants in semi-anticausatives as "agentive causers".

7.3.4   Analysis

While Dabir-Moghaddam (1982) assumes a passive category independent from an 'inchoative' (light verb constructions containing *šod-an* 'to become'), he notices that certain passives are ambiguous between a passive reading and an inchoative reading (see (19)).

This ambiguity can be seen in 'semi-anticausatives' too. I believe this ambiguity is the result of the incompatibility of the two adverbs in (38).

(38) #šiše   sahvan   xod.be.xod   šekast-Ø.

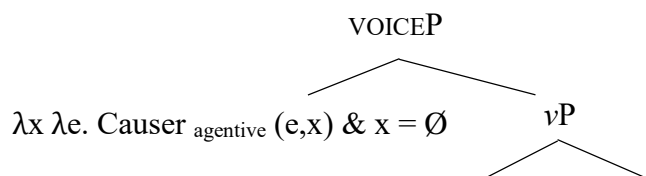   glass   unintentionally by itself   broke.3SG

Does this mean that one has to posit two structures, one with a VOICE and one without it, for the same predicate? I believe that such complexity may not be necessary.

Without overgeneralizing this view to other languages, I believe that agentivity in Persian can be regarded as a continuum. "Agentive causers" denote a low degree of participation as an external argument in an event. However, zero–degree participation is also a degree of participation:
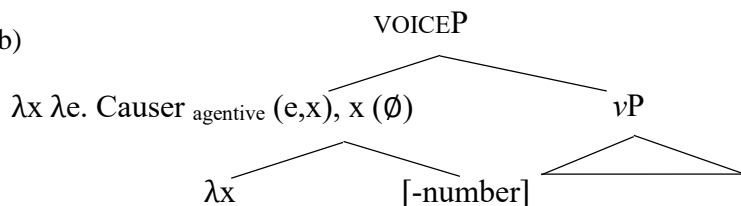
(39) agent > causer > agentive causer > zero–degree participation

Thus, an event occurring 'by itself' does not necessarily mean that the VOICE layer does not exist, at least in the case of Persian. This is contrary to what was suggested by Alexiadou et al and Schäfer. Something occurring by itself, only suggests that, there is a level of transitivity in which the participation of an external argument in an event can be completely ignored, and/or VOICE has zero known participant(s) at the sentence level. I suggest the following representations:

(40) (a)

$$\text{VOICEP}$$

$\lambda x\ \lambda e.\ \text{Causer}\ _{agentive}\ (e,x)\ \&\ x = \emptyset$ vP

(b)

$$\text{VOICEP}$$

$\lambda x\ \lambda e.\ \text{Causer}\ _{agentive}\ (e,x),\ x\ (\emptyset)$ vP

λx [-number]

One should notice that the two are different in terms of the features which they assign, but structurally, they are the same. As x is null, direct or indirect participation is not defined in (40a). In (40b), however, the direct participation of agentive causers is implausible, as discussed in the previous subsection. Thus, in both structures, x is considered as an "agentive causer" by default, since in (40b) it is the agentive causer which takes x, and in (40a), the agentive causer is the closest degree to zero–degree participation, which means not even an "agentive causer" is available ($x = \emptyset$), and *xod be xod* can be

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licensed. The structures in (40b), however, are slightly different, as the "agentive causer *x*" has to be number neutral. In both cases, the grammatical subject is the internal argument. Thus, it has to move to Spec, TP for case reasons. Following Ganji (2007), I assume that the *–râ* marked NP appears on FP as in (27).

The drastic effect of the unintentional participation of an "agentive causer" in an event may give an implication in which an "agentive causer" is affected negatively by the outcome. However, the reader should notice that a semi-anticausative is different from an adversity passive (41a), and an adversity causative (41b).

(41) (a) Japanese

      Taroo-ga   dorobou-ni   heya-o   aras-are-ta.

      Taro-NOM thief-DAT room-ACC   destroy-PASS-PAST

      'Taro's room got destroyed on him by the thief.'

                                             (Pylkkänen, 2008, p. 64)

   (b) Taroo-ga   musuko-o   sin-ase-ta.

      Taro-NOM   son-ACC   die-CAUSE-PAST

      'Taro's son died on him.' (Adversity causative)

                                           (Pylkkänen, 2008, p. 90)

In the adversity predicates, an affectee is the subject of the predicate, while in the semi–anticausative, the subject is the internal argument, which moves to Spec, TP.

7.4   Interim Conclusion

In the previous section, the properties of "semi–anticausatives" were discussed. It was argued that their structure contains a functional VOICE head, which either introduces number neutral "agentive causers" or zero participants. It was also argued that the agentive causers' participation in an event is indirect, which, based on the semantic definition presented in chapter 3, means CAUSE must appear

as the higher functional head. Put differently, there is no direct engagement of the 'agentive causer' in the event:

(41) *(λe′ [√root [CAUSE (∃e [e_s (y)] (e′)])])

As an action above the CAUSE is not possible, the only option is a structure that introduces indirect causation in which the lower domain is a self–initiative subevent:

(42) λe′ [CAUSE ([root (y)]) (e′)]

I believe that the indirectness of causation based on (42) can be extended to all anti–causatives. This is because the causation in anticausatives is indirect (Alexiadou 2006), and in a situation where a result occurs because of an entity's inner properties, the change can be regarded as self–initiative (or, as Levin & Rappaport Hovav (1995) call it, an 'internally caused change'). This means that there is a caused change of state, which is only compatible with (42). Notice that, although Rappaport Hovav (2014) argues that English anticausatives can have contextual agents, and this could mean that they are not internally changed events (e.g. *the door opened; two men came in*), it is always the case that an indirect causation can be understood sententially. Put differently, the contextual existence of an agent does not affect the sentential syntax of a predicate.

7.5   Indirectness of Causation in 'Non-causatives'

In the previous section, I argued for the indirectness of CAUSE and its syntactic position above the root in anticausatives. This gives an event structure in which CAUSE appears above the lexicalized action. Based on Alexiadou et al (2006), we assume that the structure of all change of state predicates involves a CAUSE head. This section looks at the combined effect of these facts on 'noncausative resultatives' (Goldberg & Jackendoff 2004) and certain aspects of lexicalization patterns argued for by Talmy (1991).

Goldberg & Jackendoff (2004), categorize two classes of noncausative resultatives: 'noncausative property resultatives' (44a) and 'noncausative path resultatives' (44b, c).

(43) (a) The pond froze solid.

   (b) The ball rolled down the hill.

   (c) The truck rumbled into the station.

Talmy's (1991) lexicalization patterns also contain causative and noncausative 'coevents':

(44) (a) The lamp *stood/lay/leaned* on the table.

   (b) [the lamp WAS$_{LOC}$ on the table] WITH-THE-MANNER-OF [the lamp lay there]

(44) (a) the rock *slid/rolled/bounced* down the hill.

   (b) [the rock MOVED down the hill] WITH-THE-MANNER-OF [the rock rolled]

(46) (a) The napkins *blew* off the table.

   (b) [the napkins MOVED off the table] WITH-THE-CAUSE-OF [(something) blew on the

   napkin]

(44) is the lexical decomposition of the verb and preposition into a manner, and a BE$_{loc}$ element; (45) is the lexical decomposition of a particle verb into a manner, and a motion; and (46) is the lexical decomposition of a particle verb into a motion and CAUSE. As discussed in the previous section, assuming a CAUSE below the lexical verb requires an agent's direct engagement in an activity, while unmarked anticausatives and unaccusatives in English do not appear with a VOICE to express any degree of agentivity (Alexiadou et al 2015). None of the examples in (43)~(46) show any signs of agentivity:

(47) *the truck **(un)intentionally** rumbled into the station **to inform its arrival**.

   Thus, these predicates are self–initiative and this makes CAUSE appear above the verbal root (indirect causation).

The indirectness of causation, however, does not apply to predicates that have animate participants e.g., *the dog is rolling in the mud*, since their subjects are not internal arguments (also see Levin and Rappaport Hovav 1995: chapters 4 and 5).

7.6   Summary of Results

In this study, the properties of what I referred to as "semi–anticausatives" were discussed. It was argued that their structure contains a functional VOICE head, which either introduces number neutral "agentive causers" or denotes zero–degree participation. It was also argued that participation in an event can be hierarchical (see (39)), and that therefore "semi–anticausatives" can show a lost piece between agentivity, causation, and zero–degree participation. Based on Persian semi–anticausatives, it was argued that the indirectness of causation can be extended to 'unmarked' anticausatives as they cannot show any type of participation. It was also argued that the noncausative categorization of certain resultatives in English also comes from ignoring the syntax of CAUSE, which is above the root element (indirect causation).

8   Concluding Remarks

This thesis was structured to cover a variety of topics regarding the syntax and semantics of causation, through which the following questions were answered:

(i) How can causation be semantically characterized in monophasal causatives?

This thesis argues that, semantically, argues that a monophasal predicates can denote four types of causation: "causation with an atomic result" (a type of causation, whose result is entailed or implied to be atomic), "causation with plural sub-results" (a type of causation, which is composed of plural homogeneous sub-results), "causation with zero-results" (a causation which may bring out a zero-result) and "destined causation" (a type of causation whose result derives from a plurality of an "extended chain of disjoint sub-events").

(ii) How can causation be syntactically characterized in monophasal causatives? How can we account for (in)direct causation without assuming superfluous subevent/heads?

Previous syntactic approaches face many problems. The configurational problems of the three main approaches were pointed out, and as a solution, a participant based analysis of events was suggested. It was also concluded that a proper syntax of CAUSE i.e., whether it appears below or above the root, can explain the indirect vs. direct causation readings.

(iii) What can English resultatives say about "Causative Fluctuation"?

It was argued that the differences between 'induced action' verbs and other resultatives (Talmy's 'induced to GO' predicates and resultatives with unselected objects) are that the former can show causative fluctuation but the latter cannot. It was argued that feature dependencies can play a major role in licensing Talmy's 'induced to GO' predicates and resultatives with unselected objects.

(iv) How can we prove the indirectness of causation in anticausatives?

It was argued that Persian anti-causatives are in fact "semi-anticausatives", whose VOICE head either introduces 'agentive causers' or zero participants. It was also argued that causation in "semi-anticausatives" is indirect since their structures do not license agents, which can directly participate in an action. This leaves only one option. Without a VOICE (unmarked anticausatives) or with 'semi–anticausative' VOICE, only **indirect causation** can express a self–initiative event.

In short, this thesis accounts for causation in various predicates including lexical causatives, light verbs, secondary result predicates, anticausatives, and what the literature has categorized as 'noncausative resultative'. However, the (in)directness of causation in many other areas including 'biclausal causatives', 'passives', and 'middles formation' and 'serialization' in addition to denominalization, and nominalization has been left unexplored.

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국문초록

직접사역과 간접사역:

단일국면 사역구문의 통사와 의미

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본고는 기존 연구들에 비판적으로 접근하여 사역의 통사와 의미를 구별함으로써 단일국면 구문에서 표현되는 사역사건의 의미와 통사를 밝히고자 한다.

의미론적 측면에서 함축되는 결과를 지니는 defeasible causative 구문의 의미에 관해 여러 연구들이 있지만 아주 강하거나 모든 defeasible causative 구문에 해당하지 않다고 주장한다. 이러한 문제를 해결하기 위해서 본고에서는 atomicity라는 개념을 사건 구조에 적용하여 사역사건을 유형화하여 제시한다. 이에 따라 오직 원인 하위 사건 복수성이 함축되면 "causation with zero-results", 불특정한 하위 결과사건이 함축되면 "causation with plural sub-results" 그리고 "분리결과"의 복수성이 함축되면 "destined causation"으로 관찰된다. 이러한 유형들과는 달리 함의되거나 함축되는 atomic 결과사건은 "causation with an atomic result"으로 유형화된다.

통사론적 측면에서 기존 연구는 핵(head)의 결합문제가 있다는 사실을 주장하고 이 문제를 해결하는 데에도 기여하였다. 본고는 외부 논항의 직접 및 간접 참여가 구분된다. 이로써 CAUSE가 동사 어근(root)의 위나 아래에 생성됨으로써, 다시 말하면 사역 변동(fluctuation)으로, 핵(head)의 결합문제를 설명할 수 있음을 보인다.

본고는 사역 변동의 특징을 나타내는 구문 중에 결과 구문(resultatives)과 반사역 구문을

대상으로 한다. 예컨대 "unselected" 목적어를 지니는 영어의 결과 구문이 "induced action" 구문과 달리 사역 변동을 보여주지 못한다고 주장한다. 또한, 페르시아어의 "semi-anticausative" 동사들의 의미통사적 행동을 관찰함으로써 모든 "반사역동사" (anticausatives) 또한 "비사역결과구문" (noncausative resultatives)에는 사역이 어근 위에만 나타날 수 있다고 주장하고 이러한 행동의 의미통사적 원인을 설명한다.

지금까지의 발견을 종합하여 본고는 사역 통사가 사역과 동사 어근의 통사적 위치에서 온 것이고 사역에 의미는 결과사건에 해석에서 온 것이라고 주장한다.

주요어: 영어, 한국어, 페르시아어, 직접/간접사역, 사동, 결과구문, 반사역

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