Morphologically Motivated Lexical-Semantic Representations: The Causative Alternation and Change-of-State Verbs in Levin and Rappaport Hovav (1995)

Abstract

Levin and Rapport Hovav (1995) (LRH) have argued that LEXICAL-SEMANTIC REPRESENTATIONS for unaccusative verbs fall into two classes depending on whether they participate in the CAUSATIVE ALTERNATION. Unaccusatives that participate in the alternation, what they call the *change-of-state* class, have underlyingly transitive Lexical-Semantic Representations; those that do not, their *inherently-directed motion*, *appearance/disappearance*, and *existence* classes, have underlyingly intransitive Lexical-Semantic Representations. A crucial corollary of this claim is that all change-of-state unaccusatives participating in the alternation are derived from their corresponding transitive-lexical causatives.

I will demonstrate that the Causative Alternation is not a valid diagnostic for determining Lexical-Semantic Representations. By expanding LRH's database to include Japanese, Turkish, Korean, and Armenian, I will show that the change-of-state verbs, which LRH classify as a single type, are dichotomous between underlyingly transitive and intransitive types, consisting of EXTERNALLY and INTERNALLY CAUSED EVENTUALITIES, respectively. In other words, the LRH analysis holds only for one of two semantic subclasses of change-of-state verbs. I then motivate Lexical-Semantic Representations for change-of-state verbs in line with this data. The result is a more finely grained semantic classification, but one that does not map one-to-one onto syntax.

1. Introduction

In the introduction to their influential monograph on unaccusative verbs, Levin and Rappaport Hovav (1995) (LRH) declare the scope and goal of the hypothesis they defend:

> (W)e call regularities in the association of arguments bearing certain semantic roles to particular syntactic expressions *linking regularities*. The striking similarities in the linking regularities across languages strongly suggests that they are part of the architecture of language (LRH: 1)…(T)he goal of the book is to provide support for Perlmutter (1978)'s UNACCUSATIVE HYPOTHESIS that unaccusativity is syntactically represented but semantically determined … indeed the impressive similarity between verbs selected by unaccusative diagnostics cross-linguistically suggest that there are important semantic facets to the distinction (LRH:30).

By associating their hypothesis with the Unaccusative Hypothesis of Perlmutter (1978), which comprises the core of the UNIVERSAL ALIGNMENT HYPOTHESIS (Perlmutter and Postal, 1984), and attributing the "linking" of LEXICAL SEMANTIC REPRESENTATIONS to Argument Structure to the architecture of language, LRH make the cross-linguistic intent of their claims explicit.

LRH use two principal types of evidence to motivate their view of Lexical-Semantic Representations. The first is the CAUSATIVE ALTERNATION. For LRH, this is a diagnostic that discriminates those unaccusatives which have underlyingly transitive

Lexical-Semantic Representations, their '*change-of-state*' class, which participates in the Causative Alternation, from their underlyingly intransitive classes, '*inherently directed motion*', '*existence*', and '*appearance/disappearance*', which do not participate. They additionally motivate this dichotomy with cross-linguistic morphological evidence.

Employing the same two types of evidence, I show that Lexical-Semantic Representations for the change-of-state class are not as originally envisioned by LRH. I do this by expanding the database to include Japanese, Korean, Turkish, and Armenian. The primary aim of this article will be to demonstrate that participation in the Causative Alternation is not a valid diagnostic for underlying transitivity and therefore the claim about the relation between syntax and semantics, that "alternating verbs are inherently dyadic causative predicates" (LRH: 83), cannot be maintained.

2. The Causative Alternation

> In English, verbs that participate in this alternation show transitive and intransitive uses such that the transitive use has roughly the meaning 'cause to V-intransitive'…the semantic relationship between the two variants is reflected in the fact that the subject of the intransitive variant and the object of the transitive variant bear the same semantic role (LRH: 79)

The crucial relationship expressed by the Causative Alternation is necessarily defined by the semantic relationship between intransitive subjects and transitive objects. Expanding the rough paraphrase of LRH to include 'cause to be + past participle', in cases where no mono-morphemic English gloss is available for an intransitive verb, allows us to express the meaning for all possible verbs participating in the Causative

Alternation cross-linguistically. Additionally, I will stipulate that alternating verbs must share a common root. While the English *kill* is semantically the lexical causative of *die* (Parsons, 1990, among many), they are not participants in the alternation, by this narrow definition.

LRH argue for:

> a fundamental division within the class of unaccusative verbs that is motivated with respect to the causative alternation... (V)erbs of existence and verbs of appearance [*and presumably verbs of inherently directed motion*], although bona fide unaccusatives, do not participate in the causative alternation. This property is not characteristic of only English, but is typical of a variety of languages (LRH: 119)

According to LRH's analysis "those intransitives that do not participate in the Causative Alternation are inherently monadic predicates, whereas the alternating verbs are inherently dyadic causative predicates" (LRH: 83). But all four of LRH's unaccusative classes participate in the Causative Alternation in Japanese. The validity of the Causative Alternation as a diagnostic for underlying transitivity thus breaks down, giving cause for a complete reappraisal:

A. Change-of-State

1a. Isu-ga koware-ta.
chair-NOM break-PAST
'The chair broke'

b. Gorira-ga isu-o kowashi-ta.

gorilla-NOM chair-ACC break-PAST

'The gorilla broke the chair.'

intransitive: *kowareru* / transitive: *kowasu*

2a. Kaminoke-ga kawai-ta

hair-NOM dry-PAST

'(Her) hair dried'

b. Kanojo-ga kaminoke-o kawakashi-ta

She-NOM hair-ACC dry-PAST

'She dried (her) hair'

intransitive: *kawaku* / transitive: *kawakasu*

B. Inherently Directed Motion

3a. Takushi-ga genkan-ni tsui-ta.

taxi-NOM front door-GOAL arrive-PAST

'The taxi arrived at the front door.'

b. Untenshû-ga takushi-o genkan-ni tsuke-ta.

driver-NOM taxi-ACC front door-GOAL arrive-PAST

'The taxi driver brought (his) taxi to the front door.'

intransitive: *tsuku* / transitive: *tsukeru*

4a. Satsujin yogisha-ga kôchisho-ni hait-ta

murder suspect-NOM jail-LOC enter-PAST

'The murder suspect entered the jail

b. Keisatsu-ga satsujin yogisha-o kôchisho-ni ire-ta

police-NOM murder suspect-ACC jail-LOC enter-PAST

'The police put the murder suspect in jail'

intransitive: *hairu*[1] / transitive: *ireru*

C. Existence

5a. Ichioku-en-ga ginkôkôza-ni nokot-ta.

one hundred million yen-NOM bank account-LOC remain-PAST

'100,000,000 yen remained in a bank account.'

b. Otôsan-ga ichioku-en-o ginkôkôza-ni nokoshi-ta.

father-NOM one-hundred million yen-ACC bank account-LOC remain-PAST

'My father left 100,000,000-yen in the bank account.'

intransitive: *nokoru* / transitive: *nokosu*

6a. Otôsan-ga mada ikite iru.

father-NOM still live-NON-FINITE be

'(My) father is still alive'

[1] The historical pairing is *iru* / *ireru*. The intransitive form *iru* is still found in extant idioms, e.g., *ki-ni iru* 'to like', and compounds, e.g., *iri-guchi* 'an entrance'. The modern form of the intransitive *hairu* was derived by combining the stem of the verb *hau* 'crawl' with the historic form *iru*, i.e., *hai-iru*, literally 'enter crawling' (Nakada, Wada, and Kitahara, 1983).

b. Watashi-no seikô-o miru made otôsan-o ikashite oki-ta-kat-ta.

I-GEN success-ACC see UNTIL father-ACC live-NON-FINITE keep-DESIR-PAST

'(I) wanted to keep (my) father alive until (he) saw my success.'

intransitive: *ikiru* / transitive: *ikasu*

D. Appearance/Disappearance

7a. Kotozuke-ga kie-ta.

message-NOM disappear-PAST

'The message disappeared.'

b. Dareka-ga kotozuke-o keshi-ta.

somebody-NOM message-ACC disappear-PAST

'Someone erased the message.'

intransitive: *kieru* / transitive: *kesu*

8a. Eizô-ga gamen-ni araware-ta

picture-NOM screen-LOC appear-PAST

'A picture appeared on the screen.'

b. Purogurama-ga eizô-o gamen-ni arawashi-ta

programmer-NOM picture-ACC screen-LOC appear-PAST

'The programmer made a picture appear on the screen.'

intransitive: *arawareru* / transitive: *arawasu*

All the verbs in the preceding examples show clear evidence of the Causative Alternation. The internal argument appears as the surface subject in the intransitive a-

examples. These same arguments receive accusative case in the transitive b-examples, for all semantic classes, not just the change-of-state class. This shows that the dichotomy based on the Causative Alternation is not valid for Japanese.[2]

Again LRH write:

> Verbs...that are morphologically related to transitive verbs, such as the Modern Hebrew verb *nimca* 'be found' (related to *maca* 'find') or its Russian and Italian counterparts *naxodit'sja* 'be found' and *trovarsi* 'be found' (related to *naxodit* 'find' and *trovare* 'find) cannot be related to them by the semantic relation that characterizes the transitive and intransitive variants such as *break* (1995: 123-4).

Although LRH argue that verbs that share common roots but do not fit comfortably into their change-of-state class are not true participants in the Causative Alternation, this view is parochial, taken from a predominantly English-centric viewpoint. Indeed, Japanese has the same pairing of unaccusative-lexical causative as Hebrew, Russian and Italian, i.e., *mitsukaru* 'be found' and *mitskeru* 'find', suggesting English is the exception, not Hebrew, Russian or Italian. Crucially, the subject of the intransitive *mitsukaru* corresponds to the object of the transitive *mitsukeru*, conforming to LRH's semantic criteria for a genuine example of the Causative Alternation, e.g., *Taikin-ga mitsukatta* 'A lot of money was found' and *Karera-ga taikin-o mitsuketa* 'They found a lot of money'.

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[2] While the Japanese data might seem to support Chierchia's (1989) claim that all unaccusative classes are underlyingly transitive, it is not the position I argue for below.

Further data is cited by LRH, again clearly displaying the cross-linguistic intent of their claim and clarifying their view on the role played by morphology:

> Certain facts concerning the formation of causatives across languages presented by Nedjalkov (1969) are not surprising in light of our analysis of the adicity of alternating and nonalternating intransitive verbs. Nedjalkov looks at the morphological relation between causative and noncausative uses of the verbs *break* and *laugh* (as well as two other verbs) in sixty languages. Nedjalkov finds that in most of his sample, the transitive form of *break* is morphologically unmarked, the intransitive form being identical to the transitive form (19 out of 60 languages) or derived form this form (22 out of 60 languages). If verbs such as *break* are appropriately characterized as inherently causative verbs, then the monadic form is in some sense derived, and *indeed morphological marking has a function: it is needed to indicate the nonexpression of the external cause* (87-88) (emphasis mine)

Putting aside the 19 languages with zero-derived alternating verbs, which LRH assume to be underlyingly transitive, the fact that 22 out of 41 languages have morphologically derived intransitives, the other 19 languages displaying the reverse process or being morphologically indeterminate, provides no support for LRH's hypothesis about the underlying transitivity of *break*. Statistically, the difference between 22 and 19 in a sample size of 41 is not significant.

Using unaccusative-lexical causative pairings from Japanese as my point of departure, I will show that the morphological marking goes in both directions for change-of-state verbs: some change-of-state verbs form their partners by

transitivization, while some form their partners by intransitivization. The same processes can be found in Armenian, Korean, and Turkish in the unambiguous morphological exponents of lexicalization.

3. Japanese

As seen above, morphology is involved in the Japanese Causative Alternation, which pairs intransitive unaccusatives with transitive lexical causatives:

Table 1. Japanese Causative Alternation

ROOT	Unaccusative	Lexical Causative
Class 1: *kawak-* 'dry'	*kawak-u*	*kawak-as-u*
wak- 'boil'	*wak-u*	*wak-as-u*
ugok- 'move'	*ugok-u*	*ugok-as-u*
Class 2: *war-* 'break'	*war-e-ru*	*war-u*
tok- 'dissolve, melt'	*tok-e-ru*	*tok-u*
yak- 'burn'	*yak-e-ru*	*yak-u*
Class 3: *tom-* 'stop'	*tomar-u*	*tome-ru*
shim- 'close'	*shimar-u*	*shime-ru*
taka- 'high'	*takamar-u*	*takame-ru* 'heighten'

The three classes of unaccusative-lexical causative pairings that I use in Table 1 are those of Watanabe (1993). There are approximately 16 distinct semi-productive morphological classes (Jacobsen, 1992)[3].

One generalization that seems to be well motivated is that some unaccusatives, e.g., *kawaku* 'dry', were historically prior, with lexical causatives formed from them; conversely, some lexical causatives, e.g., *waru* 'break', were prior, forming unaccusative partners by morphological affixation (Martin, 1975, Shibatani, 1990 and Jacobsen, 1992). This view is based on the transparent relation between the productive causative affix *-(s)ase-* and the *-as-/-se-* found among many lexical causatives, and similarly the relation of the passive morpheme *-(r)are-* to the *-ar-/-re* found among certain classes of unaccusatives. Shibatani notes "connections between passivization and intransitivization and between transitivization and causativization are widely observed in other languages..." (1990:236). This will indeed be seen to be the case.

The Class 1 unaccusative verbs, *kawak-u* 'dry', *wak-u* 'boil' and *ugok-u* 'move' show no morphological evidence that they were derived by intransitivization. Conversely, their lexical causative partners, *kawak-as-u*, *wak-as-u*, and *ugok-as-u* display the causative-related morphology *-as-*, evidence that they are derived.

Class 2 unaccusative verbs, *war-e-ru* 'break', *yak-e-ru* 'burn' and *tok-e-ru* 'melt' display the overt morphology, i.e., *-(r)e-*, to indicate they were derived from their lexical causative partners.

[3] Not all classes betray their direction of morphological derivation as unambiguously as Class 1 and Class 2 above.

For Class 3, the morphology of unaccusative-lexical causative pairs gives no clear indication of whether intransitive, transitive, or neither, is basic.

4. Turkish

Turkish pairings of unaccusative-lexical causative show very clear similarities to Japanese. Some lexical causatives are formed from unaccusative-intransitives by a lexical causativization operation; others formed unaccusative-intransitive partners through lexical passivization:

Table 2. Turkish Causative Alternation

Unaccusative	**Lexical Causative**
Class 1: *büyü* 'grow'	*büyü-t*
uyan 'wake up'	*uyan-dýr*
kayna 'boil'	*kayna-t*
Class 2 : *kapa-n* 'close'	*kapa*
aç-ýl 'open'	*aç*
kýr-ýl 'break'	*kýr*

Class 1 shows underived unaccusatives forming lexical causatives by affixing a causative morpheme; Class 2 shows lexical causatives forming unaccusative partners with a passive affix. Analogous to the Japanese case, the causative and passive affixes are not always identical with the productive morphemes of modern Turkish used for causative and passive constructions. These lexical derivations are not productive in

both Turkish and Japanese. However, even in such cases, the relation of lexical causative and passive morphemes with their productive counterparts is sufficiently transparent.

The causative morphemes of Class 1 can be idiosyncratic for some verbs (Kornfilt, 1997). The productive causative is *–dVr*, but after a vowel-final stem, *-t*. The productive passive morpheme also varies in accord with the phonology of the verb stem and conforms to vowel harmony. Stems ending in a vowel affix *-n-*; stems ending in a consonant other than an *l* affix a vowel with *l*, i.e., *-Vl*; stems ending in *l* affix *-Vn*. Thus the derived transitive and intransitives are as expected.

Turkish also has a number of derived verbs, mostly deadjectivals, which participate in the Causative Alternation:

Table 3. Turkish Deadjectival Causative Alternation

Adjective	Unaccusative	Lexical Causative
ihtiyar ('aged')	*ihtiyar-l-amak* ('age')	*ihitiyar-l-at-mak*
az ('few')	*az-al-mak* ('diminish')	*az-al-t-mak*

These deadjectival verbs contain the passive morpheme *–l- /-Vl* in their intransitive versions. Together with this passive morpheme, the causative morpheme *–t- /-Vt-* creates the lexical causative, providing more examples of the Causative Alternation with morphologically simpler intransitives. As is the case in Japanese, Turkish verbs participating in the Causative Alternation may be simple in the intransitive variant with their transitive partners derived.

5. Korean

Similar to the pairings of verbs seen in Japanese and Turkish, some Korean intransitive-unaccusatives derive their transitive-lexical causatives as in the Class 1 examples above, some transitive-lexical causatives derive their intransitive-unaccusatives, examples of Class 2 verbs. The morpheme *-(h)i-* and its allomorphs *-li-*, *-si-*, and *-ki-* is ambiguous between causative and passive. Class 1 affixes it to derive lexical causatives, Class 2 to derive unaccusatives:

Table 4. Korean Causative Alternation[4]

Unaccusative	Lexical Causative
Class 1: *malu-ta* ('dry')	*mal-li-ta*
†*kkulh-ta* ('boil')	*kkul-hi-ta*
†*put-ta* ('increase')	*pul-li-ta*
Class 2: *tat-hi-ta* ('close')	*tat-ta*
yel-li-ta ('open')	*yel-ta*
†*tak-ki-ta* ('be polished')	*takk-ta* ('polish')

6. Armenian

The data in this section draws entirely from material contained in Megerdoomian's dissertation (2002). The Armenian data taken as a whole creates the most

[4] The Korean data was taken from two sources, each which use a different system of romanization. All examples are in Yale Romanization with the exception of those designated with †, which use the system of Song (1988).

unambiguous picture morphologically for the dichotomy among change-of-state verbs. Class 1 verbs are typically de-adjectival. Their partners are created with the causative morpheme -*ats*-. The remaining change of-state verbs create unaccusatives through the affixation of the passive/reflexive morpheme -*v*-:

Table 5. Armenian Causative Alternation

Unaccusative	**Lexical Causative**
Class 1: *coranal* ('dry')	*cor-ats-nel*
metzanal ('grow')	*metz-ats-nel*
yeRal ('boil')	*yeR-ats-nel*
Class 2: *k'ot'R-v-el* ('break')	*k'ot'Rel*
bats-v-el ('open')	*batsel*
k'oxp'-v-el ('close')	*k'oxp'el*

The conclusion that the morphology inexorably leads us to is that underived underlyingly intransitive verbs participate in the Causative Alternation.

7. A Proposal

The Class 1 verbs of Japanese, Turkish, Korean, and Armenian show by their morphology that they are underlyingly intransitive. Their partners in the Causative Alternation are created by a lexical variety of causativization. Class 2 verbs are the

reverse; that is, they are underlyingly transitive creating Causative Alternation partners by morphological intransitivization.

Rappaport Hovav and Levin (1998) (RHL) demonstrate that intransitive verbs with the simplest Lexical-Semantic Representation, activities, i.e., [x ACT], are relatively open-ended and can be freely augmented by TEMPLATE AUGMENTATION. The Lexical-Semantic Representation [x ACT <SWEEP>] can be augmented in, at least, the following ways:

9a. Terry swept.

b. Terry swept the floor.

c. Terry swept the crumbs into the corner.

d. Terry swept the leaves off the sidewalk.

e. Terry swept the floor clean. (RHL: 97)

Conversely the complex Lexical-Semantic Representation of accomplishments, [x CAUSE [BECOME [y <STATE>]]], has little option, if any, for augmentation.

LRH (1995) propose that all change-of-state verbs participating in the Causative Alternation, which necessarily include the Japanese, Turkish, Korean, and Armenian data discussed above, are underlyingly transitive with their intransitive partners in the Causative Alternation derived by a "binding of the external argument in the mapping" resulting in its suppression, as in 10a (LRH: 108):

10a. Intransitive *break*

LSR: [[*x* DO-SOMETHING] CAUSE [*y* BECOME *BROKEN*]]

↓ |

Lexical binding : ∅ |

Linking Rules: ↓

Argument Structure: <y>

b.Transitive *break*

LSR [[*x* DO-SOMETHING] CAUSE [*y* BECOME *BROKEN*]]

Linking Rules: | |

↓ ↓

Argument Structure: x <y> (ibid: 108).

Since the data, cited in tables 1, 2, 3, 4 and 5, above, show that the intransitive partner of verbs that participate in the Causative Alternation is often basic, the transitive partner derived, this approach becomes difficult to maintain. Moreover, conceptually, this is an inelegant result. The primary motivation for a level of Linking between Argument Structure and Lexical-Semantic Representations is to provide a transparent mapping to surface arguments. Linking should comprise "regularities in the association of arguments bearing certain semantic roles to particular expressions." (LRH 95: 1). To account for the de-transitivizing of lexical causatives LRH postulate a "binding of the external argument in the mapping" as in 10a (ibid: 108). But allowing empty arguments to mediate at an additional "lexical-binding level" pushes the search

for regularities in the association of Argument Structure and Lexical-Semantic Representations even further below the surface.

I believe the data argues for underlyingly intransitive-unaccusatives in Class 1 that create their Causative Alternation partners through Template Augmentation by *Lexical-Semantic Transitivization*:

11.

Template Augmentation: LS-Transitivization:

Morpho-syntax: Verb **Semantics**: BE [y <State>] □ BE [y <*boil*>]	**Morph-Syntax**: Verb + affix **Semantics**: x FACILITATE[5] [BE [y <State>]] □ x FACILITATE [BE [y <*boil*>]]
Japanese: *wak-u*	*wak-as-u*
Turkish: *kayna*	*kayna-t*
Korean*: kkullh-ta*	*kkul-hi-ta*
Armenian: *yeRal*	*yeR-ats-nel*

[5] Anticipating section 8, where I argue that underlyingly intransitive verbs consist of INTERNALLY-CAUSED EVENTS, if "the change-of-state that internally caused verbs describe are inherent to the natural course of development of the entities they are predicated of and do not need to be brought about by an external cause" (LRH: 97), the subjects of transitive internally caused verbs are not agents, but rather FACILITATORS (see Harley and Noyer, 2000). Consider the semantic role of "John" in *John grows tomatoes*. Additionally, as noted by LRH, internally caused events are ambiguous as to telicity. I consider the "be in a state" reading to be basic, as do RHL. (See RHL: 125 for discussion)

Additionally, to account for the Class 2 underlyingly transitive-lexical causatives, a TEMPLATE DIMINUTION must be recognized; that is, a *Lexical-Semantic Intransitivization*, replacing LRH's "lexical-binding" of subject arguments:

12.

Template Diminution: LS-Intransitivization

Morpho-syntax: Verb	**Morpho-syntax**: Verb + affix
Semantics: x CAUSE [BECOME [y <state>]]	**Semantics:** BECOME [y <state>]
□ x CAUSE [BECOME [y <*break*>]]	□ BECOME [y <*break*>]
Japanese: *war-u*	*war-e-ru*
Turkish: *kir*	*kir-il*
Armenian: *k'ot'rel*	*k'ot'r-v-el*

Underived verbs that undergo morpho-semantic Template Augmentation or Diminution become morphologically more complex. Note that Template Diminution, where intransitive verbs are morphologically more complex despite being syntactically simpler, is in conflict with the MIRROR PRINCIPLE (Baker, 1985), the claim that "morphological derivations must directly reflect syntactic derivations (and vice versa)" (ibid: 375). Instead, the facts at hand support a fundamentally different view: this morphology mirrors lexical-semantic operations rather than the phrase structure[6]. The difference only emerges when the operation is subtractive in the sense of Anderson (1992), as Diminution is.

[6] Baker (2003: 280) suggests there "is a residue of morphology that seems to have nothing to do with syntax". To the extent that Argument Structure is related to syntax,

Notably, Korean is missing from example 12, since its 'break' is underlyingly intransitive. Japanese has another lexeme *kow-are-ru /kow-as-u* 'it breaks/break it' with a more general meaning of 'break'. The Japanese pairing *war-e-ru/war-u* of example 12 applies only to the breaking of glass, e.g., windows, plates, etc. For *kow-are-ru* / *kow-as-u*, both the intransitive and transitive forms are derived, the intransitive by affixation of the productive passive morpheme –(*r)are*, the transitive by affixation of –(*s)as*-, a colloquial allomorph of the productive causative affix –(*s)ase*- (Jacobsen, 1992). There is no underived simple form based on its root *kow*-.

Perhaps it bears stressing that Template Augmentation and Diminution are not productive rules either for morphology or lexical-semantics, as is the type of Template Augmentation of RHL shown in example 9. They represent processes that account for the relationships found between unaccusative-lexical causative pairings participating in the Causative Alternation cross-linguistically. Some may question the validity of no-longer-productive morphology to Lexical-Semantic Representations, but there is syntactic evidence that it is relevant.

Baker (1988: 413) has observed that passives do not embed under REDUCED CAUSATIVES[7] (Watanabe, 1993). More specifically, it is the passive **morpheme** that does not embed under Reduced Causatives. Consider here examples 13 and 14 from

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it is not the case that the morphology discussed in this article has "nothing to do with syntax". Indeed, immediately below I show it has clear syntactic consequences.

[7] REDUCED CAUSATIVE is Watanabe's term for Baker (1988)'s CAUSATIVE RULE 1. Some salient characteristics of Reduced Causatives are that embedded subjects of transitive verbs are marked with oblique case and only the accusative marked object can become the subject under passivization. Representative languages with only Reduced Causatives are Turkish and Italian.

Turkish. Class 2 unaccusatives in Turkish are ambiguous between a passive and an unaccusative reading:

13. Saatim kýr-ýl-dý.

watch (NOM) break-PASS-PAST

'A watch broke /was broken.' (Thomas, 1967)

Only elimination of the embedded passive morpheme in Reduced Causatives, regardless of whether it is an exponent of an unaccusative or passive feature, makes it acceptable, as in 14b:

14a. *Hasan bavul-u aç-ýl-dýr-dý.

Hasan suitcase-ACC open-PASS-PAST-CAUSE

b. Hasan bavul-u aç-týr-dý.

Hasan suitcase-ACC open-CAUSE-PAST

'Hasan had the suitcase open /opened.' (Watanabe, 1993: 366)

Similarly, in the so-called JAPANESE ADVERSATIVE PASSIVE, a bi-clausal valence-changing construction, which affixes the verb with the productive passive morpheme *–(r)are-*; unaccusatives with overt passive morphology, i.e., Class 2 unaccusatives, are unacceptable:

15. *Boku-wa mado-ni totsuzen war-e-rare-ta.

I-TOP window-DAT suddenly break-PASS-PAST

'I had a window break on me out of the blue.' (Watanabe, 1993: 378, translation mine)

In the Armenian causative construction, the exact opposite effect is seen. Only unaccusatives with overt passive morphology are acceptable:

16. k'axard-e duRer-e bats-v-el t'vets.

witch-NOM doors-ACC open-PASS-INF gave

'The witch made the doors open'

17. *k'axard-e sore-e coranal t'vets.

witch-NOM clothes-ACC dry gave

'The witch made the clothes dry' (Megerdoomian, 2002)[8]

In all cases, reference must be made to the overt passive-related morphology. The fact that the class of unaccusative, determined by the proposed Lexical-Semantic Representations, influences productive syntactic processes gives reason to believe that the Lexical-Semantic Representations suggested above are relevant.

8. Generalizations

LRH propose a general semantic distinction that bifurcates change-of-state verbs into EXTERNALLY CAUSED and INTERNALLY CAUSED EVENTUALITIES.

> The change-of-state that they [i.e., *internally caused verbs*] describe are inherent to the natural course of development of the entities they are predicated of and do not need to be brought about by an external cause (LRH: 97).

LRH cite *bloom*, *decay* and *grow* as examples of internally caused events (ibid):

[8] Karine Megerdoomian notes that while not all speakers find the causatives with embedded Class 2 unaccusatives perfectly acceptable, as in example 16, they are

> (A) distinction between verbs describing internally and externally caused eventualities… more accurately predicts which verbs do and do not participate in the Causative Alternation (ibid: 89).

The distinction is clearly not relevant to participation in the Causative Alternation in a database that includes Japanese, Turkish, Korean, and Armenian. The expanded set of languages shows that internally caused events are Class 1 underlyingly intransitive unaccusatives, while externally caused events are Class 2 underlyingly transitive unaccusatives, though both participate in the Causative Alternation in these languages, as I have shown.

A review of the tables above shows that verbs glossed as 'boil', 'dry', 'increase', and 'wake up' are Class 1; that is, internally caused events. Those verbs with the glosses 'open', 'close', and 'break' are generally Class 2 externally caused events. These, however, will only be tendencies and there should be no surprise at cross-linguistic variation as the database is expanded.

The de-adjectival verbs in Armenian, and arguably in Turkish as well, conform to internally caused events in being underlyingly intransitive. The Turkish examples in Table 3 show the passive morpheme embedded in the causative. Japanese de-adjectival verbs are almost entirely of the Class 3-type of Table 1, e.g., *taka-mar-u / taka-me-ru* ('it heightens / heighten it'), and *kata-mar-u / kata-me-ru* ('it hardens / harden it'). They give no morphological evidence for their underlying form.

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always interpretable. This contrasts markedly with the reverse case shown in example 17. These sentences can be given no sensible interpretation (personal communication).

LRH cite the work of Pinker (1989) and Grimshaw (1994) who stress the fact that "there are events that are compatible with more than one cognitive construal" (LRH: 99). This is an important source for the cross-linguistic variability. Morphological data of Nedjalkov (1969) shows that *melt* is an example of a verb "compatible with more than one cognitive construal". Haspelmath (1993), in an even wider cross-linguistic context, discusses *melt* and *burn*. The variability of morphological marking cross-linguistically indicates that they are susceptible to being construed as either internally or externally caused. Japanese is instructive in this regard.

The Japanese equivalents of transitive *melt* and *burn* in table 1 above, *toku* and *yaku*, respectively, are Class 2 externally caused events. Japanese has additional lexemes for *melt* and *burn* that the causative morphology shows us to be internally caused. The internally caused transitive *moy-as-u* 'burn', with the causative morpheme *–as-*, can only be used with internal arguments that inherently burn, e.g., 'camp fires' and 'torches'. The internally caused transitive *tok-as-u* 'melt' occurs with internal arguments that inherently melt, e.g., 'ice'.

Zero-derived alternating pairs of the type found in English seem to be indeterminate as to their underlying Lexical Semantic Representations with no infallible diagnostic available. LRH argue that:

> The asymmetry in selectional restrictions is significant since it provides a guide to which variant is basic. The set of subjects for the intransitive use of a verb appears to be a subset of the set of possible objects for the transitive use of the same verb. (LRH: 86)

They cite the non-literal examples *He broke his promise* vs. **His promise broke* and *The book opened his mind* vs. **His mind opened* to uphold the underlying transitivity of *break* and *open*, respectively (ibid). It is not clear, however, if this is a valid diagnostic. Even *break* in English, which would seem to be a canonical externally caused event, has an intransitive subject not found as its transitive object, e.g., *The waves broke on the shore* (cf. **The ocean broke the waves on the shore*). The morphological marking of Korean *break* (section 5, table 4) shows that the underlying transitivity of *break* cannot be assumed in the absence of valid diagnostics.

9. Summary

In this article I have argued against the use of the Causative Alternation as a diagnostic for the underlying transitivity of verbs and LRH's characterization of all participating verbs as inherently dyadic causative predicates. By providing evidence from languages that display transitivity alternations morphologically, I demonstrated that the change-of-state class is dichotomous between verbs with underlyingly transitive and intransitive sources. The Causative Alternation, LRH's basis for their claim that change-of-state verbs are underlyingly transitive, is not a valid diagnostic for Lexical-Semantic Representations, but only an indication of a semantic relatedness between participating pairs. The bifurcation of verbs into those that are internally and externally caused eventualities, rather than being an explanation for the non-participation of verbs in the Causative Alternation, is instead a more dependable diagnostic for the underlying Lexical-Semantic Representation of verbs. Additionally, I have shown that the underlying Lexical-Semantic Representation determines the

morphology (and vice versa) and more generally, morphological complexity does not always reliably track phrasal complexity.

References

Anderson, Stephen (1992). *A-Morphous Morphology*. Cambridge University Press, Cambridge and New York.

Baker, Mark (1985). "The Mirror Principle and morpho-syntactic explanation." *Linguistic Inquiry* 16:373-416.

Baker, Mark (1988). *Incorporation: A Theory of Grammatical Function Changing*. University of Chicago Press, Chicago.

Baker, Mark (2003). *Lexical Categories: Verbs, Nouns, and Adjectives*. Cambridge University Press, Cambridge and New York.

Butt, Miriam and Wilhelm Geuder (eds). *The Projection of Arguments*. CSLI Publications, Stanford.

Chierchia, Gennaro (1989). "A Semantics for Unaccusatives and Its Syntactic Consequences." Ms., Cornell University, Ithaca.

Comrie, Bernard and Maria Polinsky (eds) *Causatives and Transitivity*. John Benjamin, Philadelphia.

Grimshaw, Jane (1994). "Lexical Reconciliation." *Lingua* 92: 411-430.

Harley, Heidi and Rolf Noyer. (2000). "Formal versus Enclyclopedic Properties of Vocabulary: Evidence from Nominalizations." Peters, Bert (ed.).*The Lexicon-Encyclopedia Interface*, Elsevier Press, Amsterdam. 349-374

Hasplemath, Martin (1993). "More on the Typology of Inchoative/Causative Verb Alternations." Comrie, Bernard and Maria Polinsky (eds) *Causatives and Transitivity*. John Benjamin, Philadelphia. 87- 120

Jacobsen, Wesley (1992). *The Transitive Structure of Events in Japanese*. Kuroshio, Tokyo.

Kornfilt, Jaklin (1997). *Turkish*. Routledge, London and New York.

Levin, Beth and Malka Rappaport Hovav (1995). *Unaccusativity: At the Syntax-Lexical Semantic Interface.* MIT Press, Cambridge, MA.

Martin, Samuel E. (1975). *A Reference Grammar of Japanese*. Yale University Press, New Haven.

Martin, Samuel E. and Young-Sook C. Lee (1986). *Beginning Korean*. Charles E. Tuttle Co., Rutland, VT and Tokyo.

Megerdoomian, Karine (2002). *Beyond Words and Phrases: A Unified Theory of Predicate Composition*. Ph.D. Dissertation, University of Southern California.

Nakada, Norio, Toshimasa Wada, and Yasuo Kitahara (1983) *Kogo Daijiten*. Shogakukan, Tokyo

Nedjalkov, Vladimir. P. (1969). Nekotoyre verojatsnostyne universalii v glagol'nam slovoobrazovanii." in Vardul, I. F. (ed) *Jackovye universakii i linguisticeskaja tipologiija.* Nauka, Moscow 106-114.

Parsons, Terrence (1990). *Events in the Semantics of English: A Study in Subatomic Semantics*. MIT Press, Cambridge, MA.

Peters, Bert (ed.).*The Lexicon-Encyclopedia Interface*. Elsevier Press, Amsterdam.

Perlmutter David (1978). "Impersonal Passives and the Unaccusative Hypothesis." *Proceedings of the 4th Annual Berkeley Linguistics Society*, Berkeley Linguistics Society, Berkeley. 157- 189

Perlmutter, David and Carol Rosen (eds) *Relational Grammar 2*. University of Chicago Press, Chicago.

Perlmutter, David and Paul Postal (1984). "The 1-Advancement Exclusiveness Law." Perlmutter, David and Carol Rosen (eds) *Relational Grammar 2*, University of Chicago Press, Chicago. 81-125

Pinker, Steven (1989*). Learnability and Cognition: The Acquisition of Argument Structure.* MIT Press, Cambridge, MA.

Rappaport Hovav, Malka and Beth Levin (1998). "Building Verb Meanings." in Butt, Miriam and Wilhelm Geuder (eds). *The Projection of Arguments*. CSLI Publications, Stanford. 97- 134.

Shibatani, Masayoshi (1990). *The Languages of Japan*. Cambridge University Press, Cambridge and New York.

Song, Seok Choong (1988). *201 Korean Verbs*. Barron's Educational Series, Inc. New York, London, Toronto, and Sydney.

Watanabe, Akira (1993). *AGR-Based Case Theory and its Interaction with the A-Bar System*. Ph.D. Dissertation, MIT.