Causatives across Components

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ABSTRACT: The paper argues that verbal alternations broadly speaking involving the cognitive notion of Causation result from two distinct generative mechanisms: (i) causativization (ii) decausativization. The latter operation is identical across languages and applies universally in the lexicon. The former exhibits linguistic variation that follows straightforwardly if in some languages the operation is lexical, while in others causatives involve a biclausal syntactic structure comprising a Cause predicate and an embedded one. The study reveals and derives the various clusters of properties associated with the alternations, and formulates the precise mechanisms underlying them.

Keywords: causative, unaccusative, external argument, Experiencer verb, lexicon

1. Introduction

Constructions with predicates, broadly speaking, realizing the cognitive notion of Causation have been playing a central role in the development of generative syntax throughout its history. Causative constructions and causative verbs have been taken to provide evidence for transformational verb-raising, incorporation operations in the syntax within the GB framework (e.g., Baker 1988 and related work), as well as for radically lexicalist, argument structure-based approaches such as Lexical Functional Grammar (e.g., Alsina, 1992). In the recent literature, morphological (affixal) causative constructions of languages such as Malagasy, Japanese, Finnish, etc. (see e.g. Travis 1994, Harley 1995, Pylkkänen 2002) have been claimed to provide confirming evidence for the introduction of the "little-*v*" hypothesis as the source of external arguments (based on Hale and Keyser 1993, Kratzer 1996, Chomsky 1995), and with it for the configurational theory of θ-roles. Specifically, the causative morpheme has been commonly assumed to be the spell-out of the little-*v* head, which gets attached to the main verb as a result of V-to-*v* raising. On the empirical side, a wide range of

constructions and verbal alternations both within and across languages have been construed to be instantiations of the notion "causative". In the current generative literature they are commonly argued to be uniformly derived by merger of a causative head in the syntax, differing only in the "size" of complement of this head, i.e., the number of functional categories above the verbal root (for instance Harley (2006), Pylkkänen (2002) to be discussed below). In the present study we uncover robust empirical evidence indicating that only a particular subset of morphological causatives are constructed in the syntax; the rest must be derived before syntactic structure is available, namely, in the lexicon.

We undertake a reassessment of the status and derivation of the various predicates and alternations pre-theoretically lumped together under the label "morphological causatives", namely, nonperiphrastic causative verbs. We take a fresh look at (a) the transitive–unaccusative alternation available cross-linguistically (e.g., *break-break*), (b) a consistently monoclausal causative-unergative/transitive alternation, as attested for instance in Hungarian, consisting of a single event, and (c) a biclausal causative construction, instantiated by Japanese *-(s)ase* causatives, denoting two events. We will present unequivocal empirical evidence that these actually constitute three distinct kinds of linguistic entities, each originating from a well-motivated distinct derivational source. The proposal we advance will motivate two distinct lexical arity (valence changing) operations, for alternations (a) and (b) respectively, and for the third type (c), a biclausal syntactic construction comprising two predicates.

It is important to note that the status of morphology (i.e., word formation) and its relation to the various components of the grammar is not the topic under debate here. It has already been shown by Baker (1988), Anderson (1992) among others that the traditional view that takes word-formation to be necessarily lexical is too restricted. Further, our proposal is compatible with different current alternative conceptions of morphology, specifically: (a) Word formation is "parallel", i.e., applicable along the whole derivation, thus applying to outputs of the lexicon as well as the syntax (see Borer 1988); (b) Word formation follows the syntactic derivation, i.e., involves "late insertion", as under the Distributed Morphology model (Halle and Marantz 1993), where phonological material fills syntactic terminals only at spell-out. The lexicon we assume is

active (operative) to the extent that it allows the application of thematic arity operations. This assumption has nothing to do with issues such as whether the lexicon is needed as a storehouse for words, whether the notion "word" is coherent at all, or whether words and phrases are built in one component, or by the same or different operations (see e.g. Marantz 1997 vs. Ackema and Neeleman 2007 on morphology). In sum, the question where morphology takes place is orthogonal to our argumentation and to our model. It is important to stress that if the late insertion of phonological material – as proposed within the framework of Distributed Morphology – is the correct approach (as it may well be; see Anderson 1992, Marantz 1993), this by no means entails a "single generative engine" model, contrary to common assumptions. Late insertion is clearly necessary for a model with a single generative system, but it is fully consistent with an active lexicon model as adopted here.

Finally, it is important to keep in mind that the decision whether or not a computationally active lexicon, where arity operations apply, is needed is clearly an empirical matter. As Marantz himself emphasizes, correctly, in his defense of a non-computational lexicon (1997, p. 223), "the question is not which theory is simpler or more pleasing; the question is which theory is right." We believe the investigation of causatives presented below provides robust empirical evidence in favor of a model incorporating a computationally active lexicon.

The paper is organized as follows. In section 2, we provide empirical evidence systematically distinguishing the causative alternation from the transitive-unaccusative (transitive-inchoative) alternation, and argue that this distinction holds cross-linguistically. Having isolated the causative alternation from the unaccusative one, section 3 explores the former and identifies two consistently distinct types: a biclausal causative, consisting of two distinct syntactic heads, denoting two separate events (Japanese -(*s*)*ase*) and a monoclausal type, denoting one event and involving a single predicate (Hungarian -(*t*)*at*-(*t*)*et*). We then show that uniformly syntactic approaches to causatives cannot provide an adequate account for the attested arrays of phenomena. Instead, we advance the proposal that monoclausal causatives (the Hungarian-type) are formed in the lexicon, by a lexical arity operation, while biclausal causatives (the Japanese-type) are derived postlexically via syntactic Merger. Section 4 provides novel

empirical evidence in support of this proposal. Specifically, we show that the monoclausal causative, in contrast to the biclausal type, must be derived in a locus where no syntactic structure is available, that is, prior to syntactic merger. Section 5 presents the formation of morphological causatives in the syntax (5.1), and the arity operation forming their counterparts in the lexicon (5.2). To complete the discussion of the various alternations pre-theoretically lumped together as causatives, section 6 resumes discussion of the transitive-unaccusative alternation, and evaluates the alternative derivations proposed for it in the literature: causativization (addition of the external role) versus decuasativization (its reduction). It is argued that reduction of the transitive alternate's external role by a lexical operation (Chierchia 2004, Levin and Rappaport 1995, Reinhart 2002, Reinhart and Siloni 2005) constitutes a conceptually and empirically superior account. Equipped with these findings, section 7 turns to determine the full set of licit inputs for the operation of causativization introduced in section 5.2 and formulates the operation. This exploration leads to surprising further confirmation for the lexical status of the causativization operation.

2. Two different alternations

Examining verbal pairs whose two members differ basically in that one of them has one more θ-role than the other, Reinhart (1991, 2002) Levin and Rappaport (1995) argue that the pairs split into two distinct alternations: (i) the transitive-unaccusative alternation and (ii) the causative-anticausative alternation. The former alternation is also labeled the causative-inchoative alternation; we use the term transitive-unaccusative (or simply unaccusative) alternation to avoid ambiguity in the course of the discussion. Literature on Japanese causatives provides robust support for this split.

Japanese has a productive operation of causativization. The operation systematically marks the causative alternate with the causative morpheme -(*s*)*ase*.[1, 2]

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[1] -(*S*)ase has an allomorph -(*s*)*as*. Hara (1999) claims that the difference between –(*s*)*ase* and –(*s*)*as* is sociolinguistic, -(*s*)*ase* is considered more formal. Miyagawa (1998) points out that the difference is regional. The initial [s] in both is deleted if the last segment of base is a consonant.

[2] Notational abbreviations: ACC= accusative, CAUS=causative, DEF=definite, DAT=dative, DO=direct object, INF=infinitive, INTR=intransitive, NEG=negation, NOM=nominative, PERF=perfective, PL=plural, POSS=possessive, PRES=present, REFL=reflexive, SG=singular, TOP=topic, TRANS= transitive, UNACC= unaccusative.

(1) a. Yosi-wa it-ta.
Yoshi-TOPgo-PAST
'Yoshi went'

b. Hanako-wa Yosi-o ik-ase-ta.
Hanako-TOPYoshi-ACC go-CAUS- PAST
'Hanako made Yoshi go'

The outputs of the operation show a number of biclausal properties to be discussed in more detail in section 3 (Dubinsky 1994, Hara 1999, Kitagawa 1986, Kuroda 2003, Shibatani 1990, Terada 1991). For example, an adjoined *-te*-verbal form (a nontensed verbal form), which requires subject control, can be controlled either by Taro (i) or by Hanako (ii). This optionality shows that the sentence involves two subjects, and hence, two predicates (two clauses) (Dubinsky 1994, Harley 2006, Terada 1991).

(2) Taroo-wa arui-te Hanako-o ik-ase-ta.
Taro-TOP walk-*te* Hanako-ACC go-CAUS- PAST
i 'Taro made Hanako go, walking'
ii 'Taro, walking, made Hanako go'

Alongside this operation, Japanese also has a transitive-unaccusative alternation, which is marked with an unpredictable morphology on the transitive and/or unaccusative alternate.

(3) a. Hanako-wa hi-e-ta.
Hanako-TOP cool-UNACC-PAST
'Hanako ('s body) cooled'

b. Taroo-wa Hanako-o hi-(y)as-ita.
Taro-TOP Hanako-ACC cool-TRANS-PAST
'Taro cooled Hanako'

Control of a *-te*-phrase diagnoses only one subject for the transitive alternate, Taro in (4a). Note that the notion of someone becoming cool by getting wet is semantically sensible, as shown by the acceptability of (4b), where the subject of the unaccusative controls the adjunct (Harley 2006). This strongly suggests that the transitive alternate involves one predicate (a monoclausal structure).

(4) a. Taroo-wa nure-te Hanako-o hi-(y)as-ita.
Taro-TOP wet-te Hanako-ACC cool-TRANS -PAST
'Taro getting wet cooled Hanako'
Impossible reading: 'Taro cooled Hanako getting wet'

b. Hanako-wa nure-te hi-e-ta.
Hanako-TOP wet-te cool-UNACC-PAST
'Hanako, getting wet, cooled'

In the same vein, while negation detects two predicates in the causative examples, only one predicate is available for negation when the transitive alternate of the unaccusative alternation is used. Thus, negation can either follow the causative morpheme -(*s*)*ase* and thus negate the causative predicate (5a) or intervene between the base verb and the causative morpheme, thereby negating the base verb (5b) (Hara 1999). In contrast, when the transitive member of the unaccusative alternation is negated, the position of negation is invariable – it cannot precede the morpheme marking transitivity if there is one – and accordingly it must negate the whole transitive predicate (6).

(5)a. Toru-wa Yoko-o ik-ase-nakat-ta.
Toru-TOP Yoko-ACC go-CAUS-NEG-PAST
'Toru did not make Yoko go'

b. Toru-wa Yoko-o ik-anaku-sase-ta.
Toru-TOP Yoko-ACC go-NEG-CAUS-PAST
'Toru made Yoko not go.'

(6) Taroo-wa niku-o kog-as-anakat-ta.
Taro-TOP meat-ACC burn-TRAN-NEG-PAST
'Taro did not burn the meat.'

In sum, the transitive-unaccusative alternation exhibits idiosyncratic morphology, unlike the causative alternation that systematically marks the causative by -(*s*)*ase*. Further, while the causative projects a biclausal structure, the transitive member of the unaccusative alternation is monoclausal.

Moreover, the transitive-unaccusative alternation is found across languages. In this regard, too, the two alternations differ. French, for instance, does not form morphological causatives. The French causative construction is a periphrastic structure composed of two distinct verbs: the causative verb *faire* ('make') and the causativized, embedded

predicate, *marcher* ('walk') in (7). French does exhibit the unaccusative alternation, which, by and large, is morphologically encoded on the unaccusative alternate by means of the clitic *se* (8b).

(7) Jean a fait marcher Pierre.
Jean has made walk Pierre.

(8) a. Le laboratoire a développé un nouveau virus.
The laboratory has developed a new virus
b. Un nouveau virus s'est développé.
A new virus SE is developed
'A new virus has developed'

So languages differ as to whether they have morphological causatives or not. Reasonably, this is contingent upon the morphological inventory of the language: does it have a causative morpheme allowing the formation of morphological causatives or not? The unaccusative alternation, in contrast, seems to be universal.

The question, then, arises whether the partition to the two alternations corresponds to the split between biclausal and monoclausal structure. Taking this path, Harley (2006) derives both alternations syntactically. The biclausal causatives, according to her, are formed by a V_{CAUS} head that takes a phase, a *v*P, which is equipped with an external argument, as its complement. The biclausal properties follow from the presence of two phases. The transitive alternate of unaccusatives involves a V_{CAUS} that takes a bare root, a √P, which lacks an external argument, as its complement. Hence, it does not show any biclausal properties.

The next section shows that the split between the two alternations does not correspond to the biclausal-monoclausal split, and therefore cannot be captured by means of a distinct complement, *v*P or √P respectively.

3. The causative alternation across languages: Hungarian versus Japanese

In the above section we have demonstrated that what is commonly referred to as causative constructions involve (at least) two distinct alternations. Furthermore, it was noted that one of these, the transitive-unaccusative alternation, is available universally, while the other, the causative alternation, is not. The next question is whether

morphological causativization is a uniform operation in languages that do instantiate it. Namely do causatives cross-linguistically behave on a par with the Japanese biclausal –(*s*)*ase* construction?

Similarly to Japanese, Hungarian is a language known to have a fully productive morphological causative construction. It instantiates the causative alternation in a way that at first glance may appear to be parallel to Japanese causative -(*s*)*ase* alternation. It is formed productively by a uniform affix, namely the suffix *-(t)at/-(t)et*. As in Japanese, this alternation is clearly distinguishable from the transitive-unaccusative alternation. First, similarly to Japanese, the morphological encoding of the transitive-unaccusative alternation is not uniform; morphological markings occur in an unpredictable fashion on the transitive and/or the unaccusative member of the alternation, as illustrated in (9)), in contrast to the uniform morphological realization of causatives (for more on the morphology of the Hungarian unaccusative alternation, see Komlósy 1994; for more on the morphological variation that the unaccusative alternation shows across languages, see Haspelmath's (1993) study of a sample of 21 languages).

(9)

	Transitive	Unaccusative
a.	*old* 'dissolve'	*old-**ód**(-**ik**)* 'dissolve'
b.	*olv-**aszt*** 'melt'	*olv-**ad*** 'melt'
c.	fejl-**eszt** 'develop"	fejl-**őd(-ik)** 'develop'
d.	*szár-**ít*** 'dry'	*szár-**ad*** 'dry'
e.	*nyi-**t*** 'open up'	*nyí- **l**(-**ik**)* 'open up'
f.	*fagy-**aszt*** 'freeze'	*fagy* 'freeze'
g.	*zsugor-**ít*** 'shrink'	*zsugor-**od(-ik)*** 'shrink'
h.	*tör* 'break'	*tör**(-ik)*** 'break'

Corresponding to the dichotomy of morphological realization, the two alternations display a systematic distinction in interpretation as well. While transitive members of the unaccusative alternation exemplified in (9) roughly mean ‘α execute the action on β’, the causatives mean ‘α cause β to do the action’. Note that α here, informally speaking, is a Causee; the transitive alternate of unaccusatives involves no such argument. An additional striking difference attested between the two alternations involves the external role: causative verbs assign uniformly an Agent role (10a-b), while the external role of the transitive member of the unaccusative alternation is a Cause (11). A Cause role, in contrast to the Agent, is unspecified with regard to the mental state of the argument realizing it. Thus, in (11), not only animates like 'Mari', but also inanimates, such as 'the warm air', can materialize the external argument.

(10) a. Az edző/*az öröm ugrál-tat-ja Marit.
the coach-NOM/the-joy- NOM jump-CAUS-PRES.DEF.DO Mari-ACC
'The coach/ joy makes Mari jump'

b. Az edző/*a száraz meleg it-at-ott Marival
the coach- NOM / the dry heat- NOM drink-CAUS-PAST Mari-INSTR
két üveg vizet.
two bottle water- ACC
‘The coach/the dry heat made Mari drink two bottles of water’

(11) Mari/a meleg levegő meg-olv-aszt-ott-a a jeget. .
Mari-NOM/the warm air-NOM PERF-melt-TRANS-PAST-DEF.DO the ice -ACC
‘Mari/the warm air melted the ice.’

It is important to note here that the transitive members of the unaccusative alternation are systematically equipped with a Cause role not only in Hungarian but across languages. Observing that, Reinhart (2002) argues that this is what defines the set undergoing the alternation. We resume discussion of the characteristics of the unaccusative alternation in section 5, turning our attention now to a comparative study of the causative alternation.

In spite of the superficial parallelism between the Hungarian *-(t)at/-(t)et* causatives and their Japanese counterparts in terms of productivity and morphological uniformity, a systematic comparison of their syntactic and semantic behavior reveals that the

Hungarian causative alternation is significantly different from the Japanese biclausal *-(s)ase* alternation in its structure and derivation.

Below we present a variety of phenomena serving to diagnose the biclausal nature of the productive *-(s)ase* causative, and apply the same tests to the corresponding productive *-(t)at/-(t)et* causative of Hungarian. Our immediate goal is to determine whether the latter also involves a biclausal structure.

3.1 Diagnostics for biclausal structure

3.1.1 Condition B

Following Miyagawa's (1984) original observation, Hara (1999) shows that the application of Condition B of the binding theory provides evidence for a biclausal structure for Japanese -(*s*)*ase* causatives. Hara assumes Reflexivity (Reinhart and Reuland 1993) (but a parallel argument can be made under the traditional binding theory). Consider the contrast between (12a) and the causative (12b).

(12) a. Toru$_i$-wa Kitahara$_j$-ni kare$_{*i/*j}$-o syookai si-ta.
Toru-TOP Kitahara-DAT he- ACC introduction do-PAST
'Toru introduced him to Kitahara.'

b. Toru$_i$-wa [Kitahara$_j$-ni kare$_{i/*j}$-o syookai s]-*ase*-ta.
Toru-TOP Kitahara-DAT he-ACC introduction do-CAUS-PAST
'Toru made Kitahara introduce him.'

Condition B of Reflexivity states that a pronominal object of a semantic predicate cannot be co-indexed with the subject or any other co-argument if the predicate is not reflexive-marked (i.e., has a SELF-anaphor as an argument).

In (12a) co-indexation of the pronoun with either of the two other arguments of the ditransitive verb *syookai su* 'introduce' results in a Condition B violation, as none of these arguments is a SELF -anaphor. But crucially, the causativized verb *syookais-ase* in (12b) allows co-indexation of the subject *Toru* and the base object *kare* 'he' without any reflexive-marking. Thus, *Toru* is not a co-argument of the base object: the former is an argument of a causative predicate *-(s)ase* and the other of the base verb, as expected if the construction has a biclausal structure (co-indexation between *Kitahara* and *kare* in (12b)

is disallowed, as expected, since they are co-arguments of the base verb and neither is a SELF-anaphor).

Compare now the corresponding Hungarian causative (13b) with the Japanese (12b).[3] The Hungarian construction turns out to manifest a Condition B violation parallel to the clearly monoclausal (13a).

(13) a. A diákok$_i$ vásároltak *nekik$_i$/maguknak$_i$ egy új angol szótárt**.**
the students buy- PAST-3PL to-them/themselves-DAT a new English dictionary-ACC
'The students$_i$ bought for *them$_i$/themselves$_i$ a new English dictionary.'

b. A tanár$_j$ vásárol-tat-ott *neki$_j$ /magának$_j$ a diákokkal egy új
the teacher buy--CAUS-PAST to-him/himself-DAT the students-INSTR a new

angol szótárt**.**
English dictionary-ACC
'The teacher$_j$ made the students buy for him$_j$ a new English dictionary.'

Compare (13b) also with the Hungarian periphrastic (permissive) causative (14), involving two distinct verbs, which, as expected, manifests no Condition B violation:

(14) A tanár$_j$ {engedte a diákokat/engedett a diákoknak}
the teacher let- PAST-DEF.DO the students-ACC/ let- PAST the students-DAT
vásárol-ni neki$_j$ egy új angol szótárt.
buy-INF to-him a new English dictionary
'The teacher$_j$ let the students buy for him$_j$ a new Englsih dictionary.'

In (13b), co-indexation of the Causer with a pronominal argument of the base verb *ír* 'write' results in a Condition B violation; only a SELF-anaphor is possible. This indicates that in Hungarian *-(t)at/-(t)et* causatives, the causer and the arguments of the base verb are co-arguments, i.e., arguments of a single predicate. It follows that the causative morpheme *-(t)at/-(t)et* does involve a biclausal structure.

[3] The subject of a transitive base verb bears instrumental case in Hungarian causatives. The subject of intransitive base verbs normally gets accusative case. The issue of case and its varying realizations, which has been a central topic in the rich literature on causative constructions, falls outside the scope of the present study (For details on the range and variation of case marking in Hungarian causatives, see Hetzron (1976)**,** Komlósy (2000)).

3.1.2 Negation

As we saw in section 2 (examples (14)), negation also provides evidence for the biclausal nature of the Japanese *-(s)ase* causative construction. In contrast to Japanese, negation in Hungarian unambiguously scopes over the causative. The place of the negative morpheme with respect to the verb and the causative morpheme is invariant; negation cannot intervene between the base verb and the causative morpheme (15).

(15) Nem énekel-tet-tem a gyerekeket.
not sing-CAUS-PAST.1SG the kids-ACC
'I didn't make the kids sing'
(Narrow scope impossible: 'I made the kids not sing')

Again as expected, the Hungarian periphrastic causatives, in contrast, pattern with Japanese *-(s)ase* ((5) in section 2) in allowing both scopes.

(16) a. Nem engedtem a gyerekeket énekelni
not let-PAST.1SG the kids-ACC sing-INF
'I didn't let the kids sing'

b. Engedtem a gyerekeket nem énekelni
let-PAST.1SG the kids- ACC not sing-INF
'I let the kids not sing.'

3.1.3 VP-ellipsis

Japanese causative examples of the type in (17) are ambiguous between the interpretations given in (i) and (ii). As noted originally by Shibatani (1972), this ambiguity provides further evidence for the biclausal nature of -(*s*)*ase* causatives. If the sentence contains two VPs, then either the lower VP (consisting of a base verb and its complement) or the higher VP (headed by -(*s*)*ase*) is copied onto the second conjunct (or fails to get pronounced, under the PF-deletion view of ellipsis).

(17) Yoko-wa [musuko-ni [huku-o ki]-*sase*]-ru to Junko mo soo
Yoko-TOP son-DAT clothes-ACC wear-CAUS-NON-PAST and Junko also so
si-ta.
do-PAST
(i) 'Yoko made her son wear clothes, and Junko made her son wear clothes, too.'
(ii) 'Yoko made her son wear clothes, and Junko wore clothes, too.'

In contrast, VP ellipsis in the Hungarian causative construction is unambiguous, as shown by the interpretation of (18). It can effect only the causative verb. This indicates that Hungarian causatives, unlike their Japanese counterparts (17), consist of a single VP, which necessarily includes the causative element.

(18) A tanár fel-olvas-tat-ott Marival egy verset és János
the teacher up-read-CAUS-PAST Mari-INSTR a poem- ACC and János
szintén (úgy tett)**.**
also (so did)
'The teacher made Mari read out a poem, and János made Mari read out a poem, too.'
(Impossible reading: 'The teacher made Mari read out a poem and János read out a poem, too.')

3.1.4 Agent-oriented adverbials

A biclausal analysis of Japanese -(*s*)*ase* causatives predicts that adverbs will be able to modify either an embedded base verb or the causative head -(*s*)*ase*. Indeed, as shown by Shibatani (1972), Japanese causatives turn out to permit a variety of adverbial modification both for the causing event and the caused event (base predicate). Significantly, Agent-oriented adverbial can modify either the subject of the causative head or the subject of the base verb (for a similar claim, see also Matsumoto 1998). In (19) the adverbials 'without hesitation' or 'with pleasure' can modify either the matrix subject (Causer) 'the lawyer' or the embedded one (Causee) 'John'. In fact, as pointed out by Yoshio Endo (personal communication), the two adverbials can also co-occur in a single causative sentence (19b): one of them modifying the subject of the causative (-(*s)ase*) predicate and the other – the subject of the embedded predicate ('sign').

(19)a. Sono bengosi-wa {tyuuchonaku/yorokonde} John-ni keiyakusyo-ni
the lawyer-TOP {without hesitation/with pleasure} John-DAT contract-DAT
sain saseta.
sign do-CAUS-PAST
'The lawyer made John sign the contract {without hesitation/with pleasure}.'
(ambiguous)

b. Sono bengosi-wa tyuuchonaku yorokonde John-ni keiyakusyo-ni sain
the lawyer-TOP without hesitation with pleasure John-DAT contract-DAT sign
saseta.
do-CAUS-PAST
'The lawyer made [John sign the contract with pleasure] without hesitation.'

Unlike Japanese, Hungarian causatives fail to display such ambiguity of Agent-oriented

adverbials (20)-(21). It is unambiguously the causer that is modified, while the causee is not accessible to Agent-oriented adverbs.

(20) Az ügyvéd {örömmel/habozás nélkül} aláír-at-t-a
the lawyer-NOM {joy-INSTR/hesitation without} sign- CAUS-PAST-DEF.DO
Jánossal a szerződést.
János-INSTR the contract-ACC
'The lawyer made [János sign the contract]{with pleasure/without hesitation}.'

Varying the position of the adverb as for instance in (21), where it immediately follows the cause, renders the sentence slightly degraded, but to the extent that it can be judged, the interpretation of the adverbials remains limited to modifying only the causer (the lawyer).

(21) ?Az ügyvéd aláír-at-t-a Jánossal
the lawyer-NOM sign-CAUS-PAST-DEF.DO János-INSTR
{örömmel/habozás nélkül} a szerződést.
{joy-INSTR/hesitation without} the contract-ACC
'The lawyer made [János sign the contract]{with pleasure/without hesitation}'

The impossibility of Agent-oriented modification of the causee has been noted also for Finnish causatives by Pylkkänen (2002). This impossibility will follow as a direct consequence of our account in section 5.

3.2 Interim conclusion

The above comparison of the productive *-(s)ase* causative of Japanese with the productive *-(tat/(t)et* causative of Hungarian has yielded unequivocal results: while the Japanese construction is biclausal, the Hungarian causative behaves systematically as monoclausal with respect to all the diagnostic tests.[4]

Consider now the question we raised at the end of section 2 as to the nature of the split between the unaccusative and the causative alternation: does this partition correspond to the distinction between monoclausal versus biclausal structure across languages, as is assumed by uniformly syntactic accounts such as Harley's (2006)? Recall that the Harley-type proposal derives the distinction by postulating two instances of a syntactic V_{CAUS}

[4] According to data we have collected (thanks to Aviad Eilam, personal communication), Finnish causatives pattern with their Hungarian counterparts: they systematically fail diagnostics of biclausality. For the sake of simplicity, we will however not discuss the Finnish case in the present study but will continue using data from Hungarian.

head, one selecting as complement a bare root (√P), which contains no external argument, and the other a *v*P phase including an external argument. The former yields the monoclausal structure, and the latter the biclausal one.

But in view of the monoclausal causative of Hungarian contrasting with the Japanese biclausal one, this account is clearly inadequate. Harley's proposed structural dichotomy fails to capture the fact that monoclausal causatives such as in Hungarian are freely formed from base verbs taking an external argument, namely, from transitive and unergative base verbs, as demonstrated by examples such as (10a-b), (13b), (15), (18). Obviously, these monoclausal structures cannot be treated as a V_{CAUS} head taking a bare root complement lacking an external argument.

Another purely syntactic treatment of morphological causatives, by Pylkkänen (2002), does take note of the existence of monoclausal causatives that embed transitive and unergative base verbs. Discussing Finnish causatives, Pylkkänen observes that this subtype of causatives can contain an argument interpreted as the Agent-participant of the caused event. Noting that "these embedded Agents are not 'agentive enough' to license Agent-oriented adverbial modifiers" (Pylkkänen 2002, p. 97), she stipulates that they get introduced in the causative construction in a different, ad hoc way by an extra head, unlike in noncausative structures. But such an account completely misses the obvious generalization as to when the verb forming a causative has this additional argument and when it does not: namely, whenever the base predicate has an external role its causative counterpart has a corresponding role. Any analysis adding the role independently of the base verb's external role completely misses this correlation, which cannot be accidental.

The following subsections present novel empirical evidence indicating that irrespective of the specifics of individual proposals, any uniformly syntactic (i.e., post-lexical) treatment of morphological causatives is inadequate. Specifically, in section 4.1 and 4.2 we present evidence showing that in fact no syntactic structure is present when the Hungarian-type causative is formed.

Subsequently, we will advance a proposal for the derivation of morphological causatives, according to which the cross-linguistic variation between causatives such as the Japanese and the Hungarian types is due to the distinct locus of their derivation: Japanese-type causatives are derived in the syntax, whereas the Hungarian-type is derived

in the lexicon. Their systematic biclausal versus monoclausal behavior observed above will then follow automatically from the nature of these respective components.

4. Lexical versus syntactic derivation for the causative alternation

4.1 Evidence from Coordinations

Important evidence in favor of the above hypothesis regarding the locus of derivation of causatives comes from a distinction between Japanese and Hungarian with respect to the causativization of coordinated base verbs.

The rationale of the argument is as follows. If a causative is formed in the lexicon, it cannot exhibit coordination (conjunction or disjunction) of the base verb, since no structure is available in the lexicon; coordinate structures are built only in the syntax. If on the other hand the base verb and the causative morpheme are distinct syntactic heads, coordination of the complements of the causative head should in principle be possible; i.e., the causative affix should be able to attach to coordinated base verbs, unless some independent factor excludes it (such as some morphological/phonological violation).

As observed by Kuroda (2003), Japanese causatives are permitted with coordination, in particular disjunction, of two (or more) base verbs, as shown in (22). This is expected, since they involve two verbal projections, as extensively discussed above; the same possibility could not be available if these causatives were formed in the lexicon.[5]

(22) Hanako-ga [[Masao-ni uti-o soozisuru]-ka [heya-dai-o haraw]]-aseru koto ni
Hanako-NOM Masao-DAT house-ACC clean-OR room-rent-ACC pay-CAUS that to
si-ta.
do- PAST
'Hanako decided to make Masao clean the house or pay room rent.'
(Reading: -(*s*)*ase* scopes over 'or'; Masao has a choice)
(from Harley 2006, citing Kuroda (2003:455)

[5] For independent reasons, Japanese seems to prohibit conjunction in these contexts. This is not directly relevant for our purposes. Unaware of the availability of disjunction as well as the novel data presented in the rest of this section, Manning, Sag and Iida (1999) advocate a lexical derivation for Japanese causatives. A considerable set of their arguments shows that the causative verb constitutes a single phonological word. We have no objection to that. However, as we emphasize in the introduction, this by no means entails that the predicate is formed in the lexicon. For reasons of space we do not address their arguments in detail here (see (omitted) for extensive discussion).

Crucially, Hungarian turns out to disallow causativization of coordinated base verbs (23a), both for conjunction and disjunction cases:

(23) a. *Mari olvas- és/vagy énekel-tet-te az osztályt.
Mari-NOM read and /or sing-CAUS-PAST.DEF.DO the class-ACC
'Mari made the class read and/or sing.'
b. Mari olvas-tat-ta és /vagy énekel-tet-te
Mari-NOM read-CAUS-PAST.DEF.DO and /or sing-CAUS-PAST.DEF.DO
az osztályt.
the class-ACC

Uniformly syntactic accounts of causativization, that is, those with V_{CAUS} heads selecting different projections as complements (e.g., Harley's 2006, Pylkkänen 2002) predict the possibility of causativizing coordinated base verbs in Hungarian just as well as in Japanese. The impossibility of cases like (23a) seems to pose a serious problem for such accounts, and to provide strong evidence in favour of a lexical derivation for Hungarian causatives.

At this point though there still could in principle be some independent, purely morphological or phonological factors in Hungarian that would exclude realization of the causative -(*t*)*at*/-(*t*)*et* affix on a coordinated verbal constituent. But upon further exploration, this in fact turns out not to be the case.

So let us consider whether it may be a general morphological property of Hungarian that prevents the causative affix from attaching to coordinated verbs. Could the reason for the impossibility of (23a) be that bound morphemes (affixes) in Hungarian must adjoin to lexical heads, i.e., cannot adjoin to coordinate structures?

It turns out that no such prohibition holds in Hungarian. This is demonstrated by the existence of other cases of bound morphemes that clearly are able to occur attached to coordinate structures, such as the suffix -*ként* 'as', or the suffix -*szerű* '-like':

(24) a. tanár- és barát-ként
teacher and friend-as
'as teacher and friend'

b. telefon- és auto-szerű (dolgok) (Kenesei 2007, (30a))
phone and car-like things
'phone and car-like (things)'

Neither can the impossibility of the causative affix on coordinated base verbs be attributed to some phonological/prosodic factor. At first it might seem plausible to assume that the prohibition may be due to phonological size, namely that the *-(t)at/-(t)et* suffix is too "small" or phonologically dependent for attaching to coordinations, rather than to a single phonological word (PW). This assumption may arise given that (a) the causative suffix is subject to vowel harmony, hence the alternation *-(t)at* vs. *-(t)et* and (b) the domain of vowel harmony is the PW (see Kenesei (2007) citing Vogel (1989)). Consequently, the causative affix must form a PW with the form it attaches to. Could then this PF requirement be what prevents it from attaching to coordinated verbs? Evidence that this cannot be the case is provided by the existence of other suffixes in the language that exhibit vowel harmony similarly to -(*t*)*at/*-(*t*)*et*, and thus must also form a PW at PF with what they attach to, but nonetheless do occur on coordinate structures. A case in point is for instance the suffix *-szor/-szer/-ször* 'times', as in *nyolc-szor* 'eight times', *tíz-szer* 'ten times':

(25) a. kilenc- vagy tíz-**szer**
nine or ten-times

b. hat- vagy nyolc-**szor**
six or eight-times

So the inability of the suffix *-(t)at/-(t)et* to occur with coordinated base forms is neither a consequence of a PF property, nor the result of being a bound morpheme. Thus under a syntactic derivation, this property of the Hungarian causative would have to be stipulated somehow as an ad hoc prohibition of the syntax on the causative head. In contrast, the attested non-occurrence of the causative affix on coordinated base verbs follows as a straightforward consequence of the lexical derivation proposed for the Hungarian-type causative.

4.2 Evidence from Raising predicates

Striking evidence from a different empirical domain that directly supports a lexical derivation for Hungarian morphological causatives and a syntactic one for their Japanese counterparts is provided by raising predicates.

Raising predicates take no thematic subject, and select a clausal internal argument. Despite their "meager" argument structure, raising verbs can be causativized in Japanese, as shown by the aspectual verb *owar* 'finish' (26), which is unambiguously a raising verb (see Fukuda 2007; to appear, Matsumoto 1996).[6] If -(*s*)*ase* causatives are formed in the syntax, this is not surprising, as will be explained below.

(26) a. watasi-wa hon-o kaki-owat-ta.
I -TOP book-ACC write-finish-PAST
'I finished writing the book.'

b. anata-wa watasi-ni hon o kaki-owar-ase-ta.
you-TOP I-DAT book ACC write-finish-CAUS-PAST
'You made me finish writing the book'

Note first that the subject of the raising verb ('I' in (26a)) does not receive its θ-role from the raising verb but from the embedded verb 'write'; that is, it is not part of the θ-grid of the raising verb. It can nonetheless participate in the causative construction as illustrated in (26b), because it occurs in a local configuration with the causativizing head. In the syntax both the raising verb and its derived subject are accessible: they are in the search domain of the causativizing head.

If in Hungarian, in contrast, morphological causatives are formed in the lexicon, as we argue, parallel causativization of raising verbs should be impossible in spite of the productivity of the phenomenon. This is so, because in the lexicon there is no relation whatsoever between distinct predicates; they are distinct entries on a list. A lexical operation applying to a raising verb cannot involve the role of another predicate.

Let us then try to causativize the raising verb *(el)kezd* 'start', illustrated in (27). (28b-c) and (29b) are the causative versions of (28a) and (29a) respectively.

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[6] The aspectual verb *owar* 'finish' cannot be passivized, unlike aspectual control verbs; it rejects the so-called 'long passive' (i.e., matrix passive), confining passivization only to the embedded verb. Further, *owar* does not allow the Subject Honorification affix, while its embedded verb does, again unlike control verbs. These data strongly suggest that the subject position of *owar* is not thematic (for more discussion, see Fukuda 2007; to appear, Matsumoto 1996). It is worth mentioning that Fukuda proposes that the distinction between aspectual raising versus control verbs can be captured by a monoclausal analysis that places the former higher in the clause than the latter. Which of these particular analyses is adopted for the data is not directly relevant for our present purposes: under the monoclausal analysis, too, the subject of *owar* is not its argument but that of the embedded verb.

(27) El-kezd-ett havaz-ni.
PERF-start-PAST.3SG snow-INF
'It started to snow'

(28) a. Mari (el)kezd-ett énekel-ni (valami népdalt).
Mari-NOM PERF-start- PAST.3 SG sing-INF some folksong-ACC
'Mari started to sing some folksong.'

b. *Kati (el)kezd-et-ett énekel-ni Marival valami népdalt.
Kati-NOM PERF start-CAUS-PAST.3SG sing-INF Mari-INSTR some folksong-ACC
'Kati made Mari start to sing some folksong.'

c. *Kati (el)kezd-et-te Marit énekel-ni.
Kati-NOM PERF -start-CAUS-PAST-DEF.DO Mari-ACC sing- INF
'Kati made Mari start to sing.'

(29) a. A szobalány el-kezd-t-e porszívóz-ni a szőnyegeket.
the maid-NOM PERF-start-PAST-DEF.DO vacuum- INF the carpets-ACC
'The maid started to vacuum the carpets.'

b. *El-kezd-et-t-ük porszívóz-ni a szőnyegeket a szobalánnyal.
PERF-start-CAUS-PAST-1PL.DEF.DO vacuum-INF the carpets-ACC the maid-INSTR
'We made the maid start to vacuum the carpets'

Note that there is no problem with the causative form of the particular verb *(el)kezd* itself; it does causativize when occurring as a two-place verb, with a DP as internal argument (30).[7]

[7] The verb *(el)kezd* 'start' taking an infinitival complement has a control verb version in addition, similar to its English counterpart *start* or *begin*. The latter selects an Agent external argument (see e.g., *Mari szándékosan túl későn kezdett el énekelni 'Mari intentionally started [PRO to sing] too late',* interpreted as her starting to sing was intentionally too late, not her singing). This homophonous subject control version of *(el)kezd* cannot causativize either (as shown by the unacceptability of (28b-c) and (29b)). The failure of subject control verbs to causativize is a general property in Hungarian, as can be observed also in the case of unambiguously control verbs, such as *megpróbál* 'try', *igyekszik* 'strive', *elfelejt* 'forget'; none of the subject control verbs can be causativized. This failure, in fact, provides additional support for the lexical derivation of Hungarian causatives. Under such an account the subject of the input verb of the operation necessarily ceases to be a subject argument, and becomes an internal argument of the derived causative verb (see section 5.2 for the formulation of the lexical operation). Thus the loss of the subject control property of the input verb follows straightforwardly. If on the other hand, Hungarian causatives were formed in the syntax, there would be no reason to expect that the base verb's subject should fail to retain its subject properties such as being a controller; one would need a special stipulation to achieve this effect. In contrast to Hungarian, subject control verbs in Japanese indeed allow causativization (Yoshio Endo, personal communication), as expected under the assumption that they are formed in the syntax:

(i) Mary-wa John-ni hon-o yonde misase-ta.
Mary-TOP John-DAT book-ACC read try+sase-PAST
'Mary made John try to read a book'

(30) El-kezd-et-t-ük Marival az órát.
PERF-start-CAUS-PAST-1PL.DEF.DO Mari-INSTR the class-ACC
'We made Mari start the class.'

Under a lexical analysis of Hungarian causatives, the reason for the failure of raising verbs to causativize is straightforward. The subject of the raising verb *(el)kezd* 'start' (e.g. 'Mari' in (28a), and 'the maid' in (29a)) does not receive its θ-role from the raising verb but from the verbs 'sing' and 'vacuum' respectively; that is, it is not part of the θ-grid of 'start'. In the lexicon, there is no relation between *(el)kezd* 'start' and the verb which will end up embedded under it in the syntax. Hence, a lexical operation applying to 'start' can absolutely not involve roles of this predicate.

In sum, under uniformly syntactic treatments of causatives across languages, the impossibility of causativizing raising verbs in Hungarian (as seen in (28)-(29)) – but not in Japanese (26) – remains a mystery. Under the lexicon-syntax theory we are proposing, it falls out naturally. Substantial further evidence for the lexical nature of the causativization operation attested in Hungarian will be presented in section 7, where we investigate a general constraint imposed on the input of causativization.

In the next section, we discuss the formation of morphological causatives in the syntax, and the arity operation deriving their counterparts in the lexicon. Prior to that, a note on the external argument is in order. The conclusion that the Hungarian-type causative ought to be formed in the lexicon provides evidence that the external argument of transitives and unergatives cannot be inserted in the syntax via a little *v* type head. This is so because for lexical causativization to be able to target transitive and unergative entries, the external role must be present in the θ-grid of the predicate in the lexicon (as argued on independent grounds by Horvath and Siloni's (2002), among others).

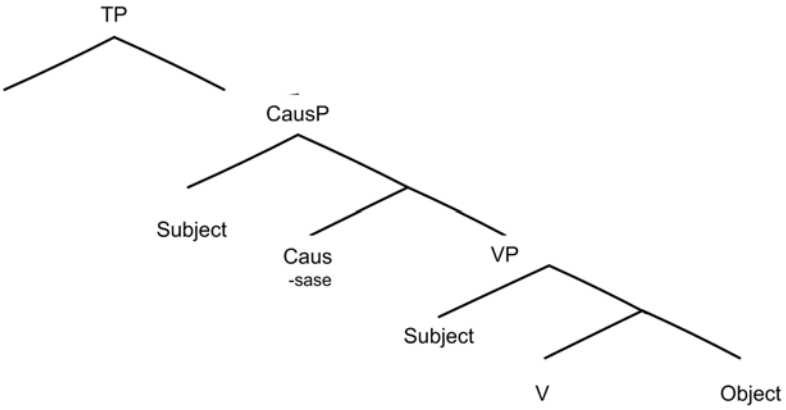
5. The formation of morphological causatives

5.1 Causatives formed in the Syntax

Biclausal morphological causatives are formed in the syntax. There is no reason to think that they undergo an operation affecting their base verb or its θ-grid. On the contrary,

various tests show that the embedded verb denotes its own event and keeps its original θ-grid. Thus, their syntactic structure can involve two Agents, each of a distinct event/head.[8] Structurally, these are periphrastic causatives, but their causative morphology does not constitute a separate verb, but a bound morpheme. We assume here that the embedded clause is a VP phase that does not project the higher functional categories (TP, CP) (31) but nothing crucial hinges on that (see Harley (2006) for some justification).

(31)



5.2 Lexical causatives

Morphological causatives formed in the lexicon do not involve two events, that is, they do not have a biclausal structure. Causativization in the lexicon, then, must causativize the event (verb) it applies to, and add an Agent to the original θ-grid. If so, then causativization forms a new, complex concept, which we can label CAUS-V, with a new θ-grid. The new grid is composed of the new Agent and the roles of the input grid, which now become roles of CAUS-V, as schematized in (32); < α > represents the input grid.

(32) Causativization in the lexicon (to be paraphrased in (34))
V< α > → CAUS-V <[Agent], α >

In case the input's θ-grid includes an Agent role, the addition of another Agent raises the obvious query: Is CAUS-V associated with two identical roles, the original Agent and the

[8] The argument added by the Caus head is not limited to Agents. Nonanimate (Cause) arguments also qualify, although they are much less frequent and probably less natural.

Agent added by causativization? Semantically, the Agent of the input verb is clearly not interpreted as the Agent of CAUS-V; it is not the argument that causes the event, the added Agent does it. In fact, if the Agent of the input remained an Agent, the new grid would be associated with two Agent roles. But it is well known that thematic relations cannot be instantiated more than once per θ-grid (see Bresnan 1982, Carlson 1998:40, Parsons 1990: 73-4, Pesetsky 1995:62, Williams 1981:100, and others). Natural languages impose a uniqueness condition on θ-roles.

(33) Uniqueness condition
A θ-grid cannot contain two instances of the same role.

If the Agent of the input verb is not an Agent in the newly formed θ-grid, then the operation of lexical causativization must involve an additional ingredient that adjusts the input's Agent into the newly formed θ-grid.

If θ-roles are grammatical primitives, it is not clear how an operation can adjust a role; what could it mean to adjust an Agent: it is either an Agent or it is not. However, if θ-roles have an internal structure, adjustment becomes possible. We believe that the Agent role, Theme role etc. are conventionalized labels for feature clusters. Following Reinhart (2002), we assume that the atomic features underlying the set of θ-roles are: *c*, which determines whether or not the argument in question is necessarily responsible for causing the denoted event, and *m*, which determines whether or not the mental state of the argument in question is relevant to the denoted event. Each of these features can be valued for [+] or [−], or left unvalued. Thus, the Agent role is [+c +m], as it brings about the relevant event or change and must be animate (its mental state is relevant). The Cause, in contrast, is [+c] as it is unspecified with regard to mental state, and can either be realized by an animate argument or not. The Theme role is [-c -m], as it does not trigger the change in question nor is its mental state relevant to the event.[9] The Experiencer role is [-c +m] as it does not cause the change, but its mental state is relevant to the event. The feature clusters are not just translations of the traditional labels. They capture the nature of the roles

[9] At the semantics, an argument bearing a [+c] cluster, which is unspecified with regard to *m*, can be interpreted either as an Agent (*Dan* in (i)) or as a non-Agent (say, an Instrument, *this key* in (i)) (see Marelj 2004). The mental state of an argument specified -*m*, say [-c-m], *the door* in (i), remains irrelevant at all stages of the derivation, including the semantics.
(i) Dan /This key opened the door.

in a more precise fashion. Thus, the cluster [-c +m], for instance, is not just another label for the Experiencer, but ranges over all arguments that do not trigger the event in question but whose mental state is relevant to it. For our purposes this short description is sufficient; for more discussion, see Reinhart (2002). The operation of lexical causativization (35) is then paraphrased as follows:

(34) Causativization in the lexicon (to be revisited in (36))
V< α > → CAUS-V <[+c +m], α >

If the input's grid includes an Agent, the new grid would violate the uniqueness condition, and therefore some adjustment must take place, as noted above. Indeed, in section 3.1.4 we have discussed evidence suggesting that the original Agent, [+c +m], becoming a role of the newly formed predicate, loses its Agentive nature. In Hungarian, Agent oriented adverbials identify the added Agent but not the Agent of the input grid as the Agent of CAUS-V (20-21) repeated as (35a-b) below). (Recall that Agent oriented adverbs detect two Agents in the biclausal Japanese causative, as shown in ((19) above.)

(20)a. Az ügyvéd {örömmel/habozás nélkül} aláír-at-t-a
the lawyer-NOM {joy-INSTR/hesitation without} sign- CAUS-PAST-DEF.DO
Jánossal a szerződést
János-INSTR the contract-ACC
'The lawyer made [János sign the contract]{with pleasure/without hesitation}'

b. ?Az ügyvéd aláír-at-t-a Jánossal
the lawyer-NOM sign-CAUS-PAST-DEF.DO János-INSTR
{örömmel/habozás nélkül} a szerződést.
{joy-INSTR/hesitation without} the contract-ACC
'The lawyer made [János sign the contract]{with pleasure/without hesitation}.'

To make things more palpable, consider the verb *olvas* 'CAUS-read', for instance. Its input's Agent, namely the causee, performs the reading event and therefore its mental state is relevant, but it is not the one that triggers or brings about the event of reading. In feature terms, this means that the valuation of its *c* feature becomes negative, as suggested by Reinhart (2002). If so, then lexical causativization causativizes the event, adding an Agent and applies adjustment, if needed. α' stands for the output grid, which is slightly different from α in case adjustment applies, and identical to α – otherwise. Formulation (36) (like its predecessors) allows any input verb. In section 7 we will define the constraint that the input for causativization must obey.

(36) Causativization in the lexicon (to be revisited in (57))
V < α > → CAUS-V <[+c+m], α' >; if α includes a cluster β with a feature composition [+c +m], +c in β is revaluated to -c.

Applying the operation to the verb entry *sétál* 'walk', we obtain the verb entry in (37), which has two roles: a [+c +m] cluster, the added role, which corresponds to the animate argument that triggers the walking event, and a [-c +m] cluster, the adjusted Agent, which does not bring about the event but executes the actual walking and therefore its mental state is relevant.

(37) walk < [+c+m] > → CAUS-walk < [+c+m],[-c+m] >

Application of causativization to the transitive entry *olvas* 'read' yields the same result, modulo the inclusion of the [-c -m] cluster (Theme) in the grid of both input and output.

(38) read <[+c+m], [-c -m]> → CAUS-read <[+c+m],[-c+m], [-c-m]>

The next question concerns the interpretation of sentences involving CAUS-V. We adopt the common "neo-Davidsonean" system of the type proposed by Parsons (1990), which relies on θ-roles and an event variable. The event semantic representation of (39a) is shown in (39b).

(39) a. János meg-et-et-te Marival az almát.
Janos-NOM PERF-eat-CAUS-PAST.DEF.DO Mari-INSTR the apple-ACC
'János made Mari eat the apple.'

b. ∃e [CAUS-eat(e) & [+c +m](e, János) & [-c +m](e, Mari) & [-c -m] (e, the apple)]

Trivially, the Agent [+c +m] of CAUS-V has the entailments of an Agent. But what are the entailments of being [-c +m] or [-c –m] of CAUS-V? As the addition of (40a) makes (39a) a contradiction, it follows that being [-c +m] of CAUS-eat entails eating (the apple), that is, being [+c +m] of 'eat'. Similarly, extending (39a) with (40b) forms a contradictory sentence, which means that [-c -m] of CAUS-eat has the same entailment as being [-c –m] of the input 'eat'.

(40) a. #de nem Mari ette meg az almát
but not Mari-NOM eat-PAST.DEF.DO PERF the apple-ACC
'but it wasn't Mari who ate the apple.'

b. #de Mari nem az almát ette meg
but Mari-NOM not the apple-ACC eat-PAST.DEF.DO PERF
'but it wasn't the apple that Mari ate.'

The above entailment relationships between the roles of CAUS-V and those of its input are summarized in (41).

(41) i. [-c -m] of CAUS-V has the entailments of [-c -m] of the input.

ii. [-c +m] of CAUS-V has the entailments of [+c +m] of the input.

The entailments of all other possible θ-roles of the input are likewise unaffected under causativization. For reason of space, we do not provide the exhaustive list of examples. We are now in a position to formulate the meaning postulate governing the relation between CAUS-V and its input.

(42) The Causativization Meaning Postulate
The θ-roles of the input preserve their entailments under causativization.

Causativization, then, does not affect the entailments of the θ-roles of the input; most significantly, even the adjusted role preserves its entailments.

Finally it is important to mention that in some languages, e.g., English and Hebrew, we find only a small set of lexical causatives, and not the full range attested in Hungarian. In Hebrew, for example, the set is limited to verbs such as *hilbiš* ('dress'), *hin'il* ('put on shoes to someone'), *he'exil* ('fed'), *hextim* ('make sign') and some others. We tend to think that in such languages, the operation of lexical causativization is not operative (anymore), and the causative instances are underived entries (or relics). We currently investigate this linguistic variation, and therefore postpone a more detailed discussion of the issue. We note nonetheless that lexical causatives in these languages tend to undergo semantic drift from CAUS-V to actually 'execute the action on somebody'. Thus, for instance, in Hebrew *he'exil* has drifted from 'CAUS-eat' (make someone exercise eating) to 'feed'. The same is true for *hilbiš* (from 'make someone get dressed' to 'dress someone') and *hin'il* (from 'make someone put shoes on' to 'put shoes on someone').

The semantically drifted nature of these lexical causatives provides preliminary support for our claim that at present the languages in question do no employ the operation of lexical causativization. If they did, why would the automatic interpretation obtained by causativization (CAUS-V) not be available, in addition to the drifted meaning? Hungarian in fact exhibits precisely this state of affairs: pairs of drifted meaning and undrifted causatives coexist in the lexicon for a variety of items, such as *felöltöztet* (i) 'make someone get dressed' (ii) 'dress someone', *etet* (i) 'make someone exercise eating' (ii) 'feed someone'. Finally, note that a small set of drifted lexical causatives with unpredictable morphology is also found in Japanese alongside the productive, biclausal -(*s*)*ase* causatives.

It has been argued recently that certain arity operations are subject to the lex(icon)-syn(tax) parameter, which forces their application in certain languages in the lexicon and in others in the syntax (Reinhart and Siloni 2005). Is causativization an operation subject to the lex-syn parameter? Morphological causatives formed in the syntax do not undergo an arity operation. As we saw earlier, they involve a biclausal structure, namely, two predicates. The embedded predicate's θ-grid is intact just like its counterpart in periphrastic causatives. The only distinction is that in the former the causative predicate is a bound morpheme while in the latter it is a free standing verb. Thus, only lexical causatives are subject to the arity operation of causativization; causatives derived in syntax involve no arity operation.[10] In this respect, morphological causatives do not fall in the scope of the parameter defined by Reinhart and Siloni (2005). Nonetheless, languages do differ as to whether or not they allow (i) the operation of lexical causativization, (ii) the syntactic formation of biclausal morphological causatives. This

[10] Within our approach, this is by no means a coincidence; on the contrary, it is expected. It follows from the fact that causativization is an operation that adds a θ-role, Agent, to the input grid. We assume that the syntactic component must preserve lexical information, in the spirit of the requirement put forth by the projection principle (Chomsky 1981). More precisely, we believe that the syntax cannot manipulate the thematic information that predicates are equipped with upon syntactic merging. The syntax cannot alter θ-grids, as stated by the Lexicon Interface Guideline (Siloni 2002).

(i) The Lexicon Interface Guideline
The syntactic component cannot manipulate θ-grids: elimination, modification, and addition of θ-role are illicit in the syntax.

Thus, causativization of a predicate in the syntax can only happen through the addition of a distinct predicate, a causativizing head, which adds the causation event and the Causer.

may follow directly from the morphological inventory of the language: whether or not it has the morpheme appropriate for the specific construction. We leave further questions on the topic for future research.

In sum, the causative alternation includes (i) causatives derived by a lexical arity operation, (ii) causatives involving a biclausal structure. We now turn to discuss the unaccusative alternation, which we set aside at the beginning of the paper owing to its systematically distinct characteristics.

6. The Unaccusative alternation: decausativization

As noted in sections 2 and 3, the main characteristics of the transitive-unaccusative alternation are the following. First, the alternation seems to be universal. We are not aware of a language not exhibiting it (see note 14). Second, across languages the transitive alternate of unaccusatives systematically fails the tests diagnosing biclausal structure (and behaves as a single event/predicate), as shown, for instance, by the control and negation diagnostics for Japanese ((4a), (6) in section 2). Finally, the transitive member of the alternation has a Cause [+c] external role, and the interpretation of the predicate is 'α execute the action on β'.

Unaccusative verbs themselves contain no information as to the existence of an entity that triggers the event at hand as shown in (43a-b), unlike passive verbs, for instance, which necessarily imply the existence of such an entity (43c-d) (Roeper 1987 among others).[11]

(43) a. The ice melted.

b. ∃e [melt (e) & Theme (e, the ice)]

c. The room was cleaned.

[11] Alexiadou, Anagnostopoulou and Schäfer (2006) among others note that it is possible to add a Cause-like adjunct to unaccusatives (i). Crucially, this does not mean that their argument structure bears some information about the existence of such an entity. Note that the addition of such an adjunct is allowed also by verbs that do not participate in any parallel alternation, such as *jump*, *scream,* etc. (ii). As is conspicuous from the comparison with passive verbs, unaccusatives imply no implicit Agent/Cause.
(i) The window cracked/broke from the pressure/from the explosion.
(ii) They jumped from joy/screamed from the pain.

d. ∃e [clean (e) & Agent (e, X) & Theme (e, the room)]

The question then arises: Does the unaccusative alternation result from the addition of a Cause [+c] external role to the unaccusative entry (as argued by Harley (2006), Pesetsky (1995), Ramchand (2006) and many others)? Or is it the result of an operation targeting the transitive alternate and reducing its external role altogether (along lines proposed by Chierchia (2004), Levin and Rappaport (1995), Reinhart (1991, 2002), Reinhart and Siloni (2005))? As will become clear below, we believe that there are theoretical and empirical reasons to prefer the reduction to the addition approach. (44) presents an adapted version of Reinhart and Siloni's formulation of the operation.

(44) Decausativization: Reduction of an external [+c] role
$V\ (\theta_{i[+c]}, \theta_j) \rightarrow V\ (\theta_j)$

Two questions immediately arise. (i) What are the reasons to assume reduction rather than addition? (ii) Is an operation reducing a role licit? Let us start with the latter.

An operation of reduction is clearly not likely to apply in the syntax by standard assumptions. Reducing a θ-role after syntactic merging would violate any version of the principle requiring preservation of lexical information that entries are equipped with when merged.[12] What about reduction in the lexicon? Is it licit? In order to evaluate that, let us make our basic assumptions regarding the lexicon more explicit. We believe that lexical arity operations apply to the verb entry itself, which is a collection of properties/features, and not to an abstract event semantic representation (e.g., *λyλxλe(break(e) & Agent(e, x) & Theme(e, y)*). More specifically, we assume that the event semantic representation is associated with the verb only during the syntactic derivation, it is built compositionally on the basis of syntactic structure. The central reason for this is that the order of the λ-operators in such representations must reflect the order of merging, namely, argument hierarchy. While in simple cases it is possible to determine the syntactic argument hierarchy from the verb entry itself, this is not always the case.[13] Attempting to

[12]The traditional Projection Principle requires preservation of subcategorization information. See Borer (1984) for a broader formulation. More specifically, the Lexicon Interface Guideline (Siloni 2002) (see note 9) prohibits alteration of θ-grids in the syntax.

[13] See Reinhart (2002) for the claim that the Experiencer role can merge both internally and externally, in sensitivity to Case considerations, and Preminger (2006) for the claim that the internal arguments of ditransitives merge in either order modulo Case.

build the full argument hierarchy into the lexicon would amount to duplicating the syntax in the lexicon. Eliminating an argument from the semantic representation would be logically illicit. But reducing the [+c] role of a transitive entry in the lexicon, forming a related intransitive, which does not bear any information regarding the executer should not be problematic. Note that (45a), which includes the transitive entry, entails ((45b), which is built from the decausativized unaccusative entry. This is so, because the event semantic representation of (45a) is a conjunction, which entails its conjuncts.

(45) a. The wind broke the vase.
∃e [break (e) & Cause (e, the wind) & Theme (e, the vase)]

b. The vase broke.
∃e [break (e) & Theme (e, the vase)]

In conclusion, if the operation in question is indeed reduction it must be a lexical operation. Let us then focus on the evidence for reduction.[14]

Given the existence of Theme-unergatives, that is, unergative verbs whose subject is a Theme such as *stink*, *glitter, shine, echo* (see Levin and Rappaport 1995, Reinhart 2002), unaccusatives cannot be simply defined on the basis of the thematic nature of their argument. Addressing the question of what defines the set of unaccusatives, Reinhart (1996) observes that across languages they have a transitive alternate whose external role is a Cause ([+c], unspecified for mental state), as already mentioned above (see also Haspelmath (1993) for a similar observation).[15] Indeed, the vast majority of intransitives whose subject is an internal argument has a [+c] transitive alternate, which can feed an operation of reduction. The transitive alternate may be missing idiosyncratically in a given language for a few instances, but the gaps are arbitrary, and the same instances

[14] Languages can realize the transitive-unaccusative alternation by means of a light verb and an additional (possibly nonverbal) element, as shown by Karimi (1997) and Folli, Harley, and Karimi (2005) for Persian. Crucially, the authors demonstrate that in these languages, too, each member of the alternation constitutes a single predicate. These findings are, thus, entirely compatible with the present view. Under our approach, the thematic ingredient (whether verbal, nominal, adjectival or possibly, categorically unspecified) is the one that undergoes the lexical operation of reduction. On a par with other verbs is these languages, the reduced form has to be realized by the use of a light verb, for language specific reasons.

[15] Reinhart (1996), Ramchand (2006) and others convincingly discard attempts a la Borer (1994), van Hout (1994) and van Valin (1990) to define the set of unaccusatives by aspectual means. Two-place unaccusatives are irrelevant here as their mapping can be derived form their argument structure as shown by Reinhart (2002).

always have a [+c] transitive alternate in earlier stages of the same language or at present in other languages. Proponents of the reduction approach therefore suggest that when the transitive alternate is missing in the actual vocabulary of a given language (by vocabulary we mean the sum of words speakers can utter, not a component of the grammar), it exists in the lexicon as a frozen entry that cannot be inserted in the syntax but can feed lexical operations. Fadlon (2006) provides experimental evidence in favor of the existence of such frozen entries. At any rate, the missing transitives cannot help us decide between reduction and addition approach: while the former approach assumes frozen inputs, the latter would have to block the application of addition idiosyncratically for some entries in certain languages and not in others.[16]

Reinhart then states the following descriptive generalization:

(46) An intransitive involving a Theme role is unaccusative iff it has a [+c] transitive alternate.

The next question is: Which approach can better derive the generalization, the one assuming reduction or addition? Consider language acquisition. Under the reduction approach, the acquirer has to be able to identify transitive concepts involving a [+c] role. The rest would follow: (i) any such entry can undergo reduction; (ii) outputs of reduction obey the same mapping instructions as their input and hence map their Theme internally, unlike underived intransitives whose sole role is a Theme. Under the addition approach, the language acquirer would have to figure out for each verbal root whether it selects addition of a [+c] or [+c +m] role. Internal mapping of the argument of the intransitive would have to be contingent upon selection of [+c]. This is technically possible, but if the unaccusative is the base, there is no reason why [+c], rather than [+c+m], selection should impose internal mapping for the base. In contrast, if the transitive is the base (as under the reduction approach), the derivational history of the reduced form can naturally determine its mapping. Further, lexical information about the type of role a predicate

[16] Likewise the rare existence of instances of a [+c] transitive in a given language that does not have an intransitive counterpart (e.g., the verb *destroy*) cannot really decide between the approaches. While proponents of reduction would argue that this rare and diachronically unstable phenomenon can be marked idiosyncratically on the relevant item, proponents of addition of [+c] would have to either assume that the operation is lexical and can be fed by frozen inputs (the nonexisting unaccusative), or somehow block the occurrence of certain intransitives without addition of a [+c] argument in syntax, thereby forcing them to appear only as transitives.

involves is straightforward and very plausibly innate to a large extent.[17] In contrast, allowing predicates to be specified regarding the type of role associated with the adding operation they may undergo is conceptually unnatural. It is an enrichment of the type of lexical information the grammar uses for the sole purpose of accommodating the preference to assume addition rather than reduction, it is an unmotivated "translation from reduction to addition".[18]

Further, it would be completely unclear how it would be captured that only "Theme-verbs" that select a [+c] role upon addition can merge without the added role, giving rise to unaccusatives. Theme-verbs whose subject is an Agent cannot be merged as intransitives and have only a transitive occurrence in natural language (e.g., *read*).

Finally, under the reduction approach, one would expect any [+c] role to be able to be reduced, independently of what the internal role of the verb is. This expectation is borne out. The reduction approach thus presents an additional advantage. It allows capturing the [+c] reduction generalization: any transitive entry can undergo [+c] reduction independently of the type of its internal role(s). Thus, decausativization equally applies to object-Experiencer verbs whose external role is [+c], forming subject-Experiencer verbs, as extensively discussed by Reinhart (2002). The relevant alternation is illustrated in (47). The external role of *fâcher* ('anger') is [+c]; it is unspecified with regard to the feature *m* (mental state relevant), as shown by the fact that it allows both an animate and an inanimate subject (*le bruit* 'the noise' and *Jean* in (47a)).

(47) a. Le bruit / Jean a fâché Pierre.
the noise / Jean has angered Pierre

[17] The set of [+c] transitive concepts is coherent across languages, modulo a small number of sporadic gaps, which we know can be filled or be created in the history of a language. If this were acquired information, we would not expect it to be uniform. But if this kind of information is innate, a view advanced most strongly in Jerry Fodor's work, uniformity is expected. Indeed, the extent to which linguistic concepts are similar across languages cannot plausibly be a coincidence. Fine distinctions regarding the realization of arguments (θ-roles) exist and are expected to exist, in accordance with other properties of the language (Case properties, etc.).

[18] Potashnik (2007) argues that the sole role of Theme-unergatives is not a Theme as it contains a causal ingredient. If this interesting line of investigation turns out to be correct, the internal mapping of unaccusatives is straightforward: the Theme role is always mapped internally. Reduction is still preferable to addition for further reasons to be directly explained in the text.

b. Pierre s'est fâché.
Pierre SE is angered
'Pierre is angry'

Indeed, subject-Experiencer verbs having a [+c] transitive alternate are morphologically marked in French (by *se* in (47b)), Romance, in general, and other languages, the same way their unaccusative counterparts are (see (8b) in section 2). This morphology is typical of valence reducing operations, e.g., decausativiztion, reflexivization, reciprocalization, etc. (Reinhart and Siloni 2005). Note that alongside decausativized subject-Experiencer verbs, there are also non-alternating subject-Experiencer verbs such as *love*, *like*, *understand*, or *hate*, namely, verbs that universally have no [+c] (monoclausal) alternate. Reasonably, these verbs are not outputs of decausativization. Indeed, they do not show the reduction morphology (e.g., *aimer* 'love', *comprendre* 'understand' in French).

Under the addition approach, the neat fact that decausativization can reduce any [+c] role can only be captured by a list that idiosyncratically specifies (i) which verbs allow the addition of [+c], i.e., certain Theme-verbs (unaccusatives) and certain subject-Experiencer verbs and (ii) which Theme-verbs require addition of an Agent (e.g., read). Other Theme-verbs would be Theme-unergatives.

In light of the above discussion, we believe that it is evident that the reduction approach is conceptually and empirically superior.

For the purposes of the subsequent section, it is important to remind the reader that the subject-Experiencer alternates (47b) of object-Experiencer verbs (47a) map their Experiencer role externally (as shown by Pesetsky 1995, Reinhart 2002 among others by various diagnostics of internality). Following Reinhart (2002) among others, we assume that a concept with a role that has both internal and external realizations does not lexically mark the role either for inherently internal or inherently external mapping. Rather, the role is mapped externally when possible, namely, in the absence of a role external by nature (e.g., Agent, Cause), and internally in its presence. Non-alternating subject Experiencer verbs, such as *love* and *hate*, always map their Experiencer role externally, unlike derived (alternating) subject-Experiencer verbs. Hence, plausibly, their Experiencer role is marked for external mapping.

Returning to the causativization operation (discussed in section 5.2), the last section is devoted to determining which entries constitute licit input for the operation. The facts uncovered in the course of the section will provide crucial evidence confirming the lexical nature of the causativization operation.

7. The input: further evidence for a lexical operation

Our examples of lexical causatives so far involved an input, transitive or intransitive, with an Agent (i.e., [+c+m]) external role (e.g., examples (10a-b), (39) etc.). Below we proceed to investigate a variety of other verb types in order to delineate the set of possible inputs for the operation and assess its consequences for the present account.

First recall that in section 4.2 we found that raising verbs in Hungarian are unable to undergo causativization (see examples (28)-(29)). Raising verbs, as already noted, select a clausal complement and have no external θ-role. Their subject receives its role from the embedded predicate, and is not part of the raising verb's θ-grid at all. It follows that it cannot be targeted by a lexical operation applying to the raising verb, since in the lexicon there is no relation between distinct predicates. Thus the case supports our claim that the causativization operation in Hungarian is indeed lexical. The observation regarding raising verbs directly leads to a more general query: what properties are required for a verb to provide licit input for the causativization operation?

To determine the relevant requirement on the input verb, let us examine first the class of unaccusatives, which also have no external role, but whose internal role (unlike that of raising verbs) is not clausal. Consider the transitive-unaccusative pairs in (48) below. As shown by the right-hand column, and by the corresponding sentences in (49), unaccusative members of the transitive-unaccusative alternation fail to causativize.[19]

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[19] This phenomenon is independent of whether the verb root takes a suffix or not. Clearly, the impossibility of adding the causative *-(t)at/-(t)et* to unaccusatives is not due to its inability to attach to other suffixes. This is demonstrated by its occurrence on transitive suffixed verb forms, as shown by *kinyi-t-tat* 'open+TRANS+CAUS', or the contrasting causativized pair, both derived from an affixed base form *fejl-eszt-et* 'develop+TRANS+CAUS' vs. *fejl-*őd-(t)et* 'develop+UNACC+CAUS'. It is further supported by the impossibility of causativization of non-affixed unaccusative verb forms, such as *fagy* 'freeze (UNACC) (vs. fagy-aszt 'freeze+TRANS') but *fagy-(t)at 'freeze (UNACC)+CAUS'; moreover, the causative suffix attaches also to a variety of other suffixed verbs, such as lexically derived reflexives and reciprocals (e.g., *borotvál-koz-tat* shave+REFL+CAUS ='make X shave').

(48)

	Transitive	Unaccusative	Causative of Unaccusative[20]
a.	fel-ébr-eszt up-wake-TRANS 'wake up'	fel-ébr-ed up-wake-UNACC 'wake up'	*fel-ébr-ed-(t)et up-wake-UNACC-CAUS Intended meaning: 'make X wake up'
b.	meg-erős-ít PERF-strong-TRANS 'strengthen'	meg-erős-öd(-ik) PERF-strong-UNACC 'strengthen '	*meg-erős-öd-(t)et PERF-strong-UNACC-CAUS Intended meaning: 'make X strengthen'
c.	felold dissolve-TRANS	felold-ód(-ik) dissolve-UNACC	*felold-ód-(t)at dissolve-UNACC-CAUS Intended meaning: 'make X dissolve'
d.	meg-gyógy-ít PERF-heal-TRANS 'heal'	meg-gyógy-ul PERF-heal-UNACC 'heal'	*meg-gyógy-ul-(t)at PERF-heal-UNACC-CAUS Intended meaning: 'make X heal'

(49) a. *Mari **fel-ébr-ed-(t)et-i** a gyerekeket
Mari-NOM up-wake-UNACC-CAUS-PRES.3SG.DEF.DO the kids-ACC
két órával az indulás előtt.
two hour-INSTR the departure before
'Mari makes the kids wake up two hours before the departure.'

b. *Az edző **meg-erős-öd-(t)et-te** a játékosokat.
the coach- NOM PERF-strong-UNACC-CAUS-PAST.DEF.DO the players- ACC
'The coach made the players strengthen.'

c. *A szakács **felold-ód-(t)at-ta** a cukrot.
the cook-NOM dissolve-UNACC-CAUS-PAST the sugar-ACC
'The cook made the sugar dissolve.'

d. *Az ápolónő **meggyógy-ul-(t)at-ta** a beteget.
the nurse-NOM heal-UNACC-CAUS-PAST the patient-ACC
"The nurse made the patient heal.'

[20] The *-ik* suffix, occurring on some intransitive verbs in the 3rd person present tense form, is irrelevant for the issue at hand. It gets deleted whenever the verb takes other suffixes; its addition to the causative examples here leaves them ungrammatical (in fact they sound even more severely ill-formed, due to the additional morphological violation).

A hypothesis that immediately comes to mind it that causativization of unaccusatives in Hungarian – similar to causativization of raising verbs – is impossible due to the lack of an external role in the input form. We can formulate this hypothesis as generalization (50).

(50) The input for Causativization must have an externally mapped θ-role; in the absence of such a role in the input θ-grid, Causativization fails to apply.

Further support in favor of the generalization will be provided shortly. Let us first step back for a moment from this first approximation, in order to evaluate the precise nature and proper formulation of the generalization. We hypothesize that causativization can apply only if the input verb has an external role. But this rough generalization can, in principle, be construed in two distinct ways. The alternative interpretations of (50) are given in (51a-b).

(51) a. The base verb must have an argument that *de facto* gets mapped externally in order to make it a licit input for causativization.

b. The base verb must have a θ-role marked in the lexicon as external.

Although these options may seem equivalent at first glance, they are empirically distinguishable. This is so because not all roles mapped externally are also marked in the lexicon for externality (i.e., are inherently external). Some roles get mapped externally only in the absence of a role marked as external, as mentioned in section 6 and will be discussed shortly.

Prior to that, it is important to note that formulation (51b) is compatible only with a lexical causativization operation. Lexical markings internal to the base verb's θ-grid are accessible to lexical causativization, but obviously inaccessible in the syntax. If contrary to our proposal, Hungarian causatives were built in the syntax – as under uniformly syntactic approaches such as Harley's or Pylkkänen's – then only formulation (51a) could be relevant: the external argument requirement could only refer to the actual externally mapped argument of the particular base verb. Thus, making an empirically motivated choice between the above alternative formulations is of obvious theoretical significance.

Relevant evidence to settle the issue is provided by subject-Experiencer verbs. As will become clear shortly, subject-Experiencer verbs surprisingly split into two types: those that cannot causativize and those that can. The split matches the partition discussed at the end of section 6 into derived versus underived subject-Experiencer verbs. The nonalternating, underived subject-Experiencer verbs, such as *love*, *hate* etc., can undergo causativization, as shown in (52). This is expected under both formulations of (51): the Experiencer role of these subject-Experiencer verbs is uniformly mapped externally; plausibly then it is lexically marked in the verb's θ-grid as external, just like any other invariant external role.

(52) a. János meg-kedvel-te/meg-utál-ta
János-NOM PERF-like-PAST.DEF.DO/PERF-hate-PAST.DEF.DO
a barátaimat.
the friends-POSS1SG-ACC
'János became fond of/hated my friends.'

b. Mari **meg-kedvel-tet-te/meg-utál-tat-ta** Jánossal .
Mari-NOM PERF-like-CAUS-PAST.DEF.DO-hate-CAUS-PAST.DEF.DO János-INSTR
a barátaimat.
the friends- POSS1SG-ACC
'Mari made János become fond of/hate my friends.'

Let us now consider the derived subject-Experiencer verbs. (53) illustrates pairs of subject-Experiencer outputs (in the right-hand column), and the transitive alternates which they are derived from (in the left-hand column).

(53) a. meglep meglep-őd(-ik)
'surprise' 'get surprised'

b. megije-szt megije-d
'scare' 'get scared'

c. felvid-ít felvid-ul
'cheer up' 'cheer up(INTR)'

Derived subject-Experiencer verbs illustrated in (54) fail to causativize, as shown by the ungrammaticality of (55a-c) (irrespective of choice of accusative or instrumental case for the causee).

(54) a. A vendégek meglep-őd-tek
the guests-NOM PERF-surprise-INTR-PAST
'The guests got surprised.'

b. A szülők megije-d-tek.
the parents-NOM PERF-scare-INTR-PAST
'The parents got scared.'

c. Mari felvid-ul-t.
Mari-NOM up-cheer- INTR-PAST
'Mari cheered up.'

(55) a. *Mari {**meglep-őd-(t)et-te** a vendégeket/
Mari- NOM surprise-INTR-CAUS-PAST.DEF.DO the guests-ACC/
meglep-őd-(t)et-ett a vendégekkel}.
surprise- INTR-CAUS-PAST the guests-INSTR
(Intended meaning: 'Mari made the guests get surprised.')

b. *A gyerekek {**megije-d-(t)et-ték** a szüleiket/.
the kids-NOM scare-INTR-CAUS-PAST.DEF.DO the parents-theirs- ACC/
megijed-(t)et-tek a szüleikkel}
scare- INTR-CAUS-PAST the parents-theirs-INSTR
(Intended meaning: 'The kids made their parents get scared.')

c. *János {**felvid-ul-tat-ta** Marit/
János-ACC up-cheer-INTR-CAUS-PAST.DEF.DO Mari-ACC/
felvidul-tat-ott Marival}.
up-cheer-INTR-CAUS-PAST Mari- INSTR
(Intended meaning: 'János made Mari cheer up.')

Why do subject-Experiencer verbs split this way? A closer inspection reveals that this contrasting behavior is precisely what we predict under the formulation in (51b). As already mentioned in section 6, the derived subject-Experiencer verbs, unlike their object Experiencer alternates, map their Experiencer role externally. Specifically, in the absence of an external role (owing to +*c* reduction), the Experiencer is mapped externally, as shown by diagnostics of internality (Pesetsky 1995, Reinhart 2002). But in its presence, the role is internally mapped. As mentioned, we believe that roles with realizations alternating between internal and external, depending on the mapping availabilities, can be lexically marked neither as internal nor as external. Thus, even though the Experiencer role of the input verbs in (54) is actually mapped externally, it still fails to render the verb a licit input for causativization, as the role is not marked in the verb's θ-grid for external

mapping. It is mapped externally due to the absence of a role marked as external. As these input verbs (in contrast to their object-Experiencer alternates) have no role marked as external in their grid, they fail to meet version (51b) of the constraint on the input, and therefore cannot be causativized (55a-c).

In contrast, formulation (51a) of the constraint would incorrectly predict that the externally mapped Experiencer role of the subject-Experiencer verbs in (54) should satisfy the requirement, and therefore should enable these verbs to undergo causativization, just like the underived (non-alternating) subject-Experiencer verbs do (52).

In sum, the contrasting behavior of derived versus underived subject-Experiencer verbs shows that it is the lexical marking of a θ-role for external mapping, not their actual mapping, that is crucial for determining whether or not the verb is licit as input for causativization.[21] This finding lends further support to the lexical status of the operation of causativization.[22] Observe that the above constraint on the input verb can only be relevant for lexical causativization. Syntactic causative constructions are not expected to exhibit any parallel constraint on the set of licit base verbs. Although there may in principle be limitations on the type of complement selected by the Caus head of a syntactic causative, the constraint cannot refer to the lexical marking on the θ-grid of the base verb.[23]

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[21] Reinhart's theta-system (2002), not designed for this purpose, allows capturing this generalization in an elegant fashion. In the theta system, uniformly negatively valued roles (e.g., the Theme, [-c –m]) are mapped internally. Uniformly positively valued roles (e.g., the Agent ([+c +m]), Cause ([+c]) and the Experiencer role of non-alternating subject-Experiencer verbs, such as *love* and *hate*, which is [+m]) are mapped externally. Nonuniformly valued roles, such as the subject of derived subject-Experiencer verbs, which is [-c +m], are mapped according to the mapping availabilities. If so, then what renders an entry licit input for causativization is the presence of a + role, namely, a (uniformly) positively valued role. Of course, the feature composition of roles just like their traditional labels are inaccessible to the syntax.

[22] The impossibility of derived subject-Experiencer verbs to causativize is not a matter of a semantically-based functional "blocking" effect caused by an existing transitive alternate with a roughly similar meaning in the language (in the vocabulary). Decausativized subject-Experiencer verbs with no existing transitive alternate in the vocabulary of Hungarian, namely, subject-Experiencer verbs derived from a frozen input (see discussion of frozen input in section 6), still cannot be causativized: e.g., *csal-ódik* 'get disappointed', **csal-ód-tat* 'make disappointed'; *örül* 'rejoice/be happy' **örül-tet* 'make rejoice/be-happy'. Their failure to causativize is shown below.

(i) *Mari csal-ód-(t)at-ta/örül-(t)et-te Jánost
Mari-NOM disappoint-INTR-CAUS-PAST.DEF.DO /rejoice-INTR-CAUS-PAST.DEF.DO János-ACC
(Intended meaning: 'Mari made János get disappointed/rejoice.')

Japanese causatives, as anticipated by our analysis, indeed freely permit raising verbs (as shown in section 4.2 (26b)) as well as unaccusatives as base verbs, even though none of these verbs have a role specified as externally mapped in their θ-grid. The occurrence of unaccusative base verbs in the -(*s*)*ase* causative construction is demonstrated by (56a). Note that this case is distinct from the monoclausal transitive alternate of the same unaccusative (56b); this is shown by the morphologically distinct affixes the two exhibit, and their syntactic behavior (Harley (2006)).

(56) (adapted from Miyagawa 1989:130 (43a,b), cited by Harley (2006))

a. Causative (biclausal -*sase*) of unaccusative 'drop':
Boku-wa kodomo-o gake-kara ot-i-sase-ta
I-TOP child-ACC cliff from drop-BECOME-CAUS-PAST
'I caused the child to drop from the cliff.'

b. Transitive alternate of unaccusative 'drop':
Boku-wa kodomo-o gake-kara ot-os-ita
I-TOP child-ACC cliff from drop-TRANS-PAST
'I dropped the child from the cliff.'

The contrast between Japanese causatives and Hungarian causatives established above, provides confirmation that Japanese causatives are derived in the syntax, by Merge of a Caus head, while Hungarian causatives in the lexicon, by the arity operation of causativization.

The facts reviewed so far suggest the following elaboration of the causativization operation formulated in section 5 (36) (recall that α' stands for the output grid, which is slightly different from α, in case adjustment applies, and identical to α otherwise.):

(57) Causativization in the lexicon (to be revised in (60)
V < α > → CAUS-V <[+c+m], α' >, where α includes a role marked for externality; if α includes a cluster β with a feature composition [+c +m], +c in β is revaluated to -c.

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[23] Periphrastic causatives in Italian, for instance, are known to prohibit object-experiencer verbs in their infinitival complement (for a detailed discussion and analysis, see Folli and Harley (2007)). This phenomenon is in no way parallel to the limitations on the input set of causativization observed above for Hungarian. Causatives of the latter kind exhibit a comprehensive prohibition against unaccusative base verbs (49) as well as alternating/derived (but not underived) subject-experiencer verbs (55); both of these verb classes are permitted in the Italian syntactic (periphrastic) causatives (Folli and Harley (2007)). Thus, the two sets of limitations must be of different origin.

As discussed in section 5.2, Agents undergo revaluation of their +*c* feature to -*c* upon causativization. Owing to the revaluation, the uniqueness condition (33) on θ-roles is not violated after addition of the new Agent [+c+m]. This procedure was shown to be empirically well-motivated based on the fact that the Agent of the base verb rejects Agent-oriented adverbs under causativization (20)-(21). More generally, the question arises whether revaluation is specific to the Agent or applies to the [+c] feature of any cause independently of the uniqueness condition, since under causativization the latter ceases to trigger the event in question. Let us consider the verb *megszárít* (dry+TRANS), whose external role is a Cause [+c], unspecified for mental state, as shown by the fact that it allows both an animate and inanimate subject.

(58) János/A nap megszár-ít-ja a haját.
János-NOM/the sun-NOM PERF-dry-TRANS-PRES.DEF.DO the hair-3SG.POSS-ACC
'János/The sun dries his/her hair.'

Applying the test of Agent-oriented adverbs to the causative version, it becomes clear that only the causer (in boldface) can be modified by the adverb.[24]

(59) a. **Mari** örömmel szár-ít-tat-ja meg Jánossal
Mari-NOM joy-INSTR dry-TRANS-CAUS-PRES.DEF.DO PERF János-INSTR
a haját.
the hair-3SG.POSS-ACC
'Mari made [János dry his/her hair] with pleasure.'

[24] Given that in the causativized version (59) we apply the Agent-oriented adverb diagnostic, only an animate noun phrase (interpretable as an Agent), *János*, is relevant for the test (and not *a nap* 'the sun'). As the base verb's external role however is [+c], it permits either animates or inanimates, as seen in (58). Accordingly, the corresponding causativized form permits an inanimate causee as well:

(i) Mari megszár-ít-tat-ja a nappal a haját.
Mari-NOM PERF-dry- TRANS-CAUS-PRES.DEF.DO the sun-INSTR the hair-3SG.POSS -ACC
'Mari has/lets the sun dry his/her hair.'

It is worth noting here that there seem to be some semantic factors that influence the acceptability of inanimate causees in certain cases. But according to our preliminary exploration, these effects involve independent properties of the semantics of causation (possibly, obligation versus permission), and may not be specific to lexically derived causatives (a prima facie similar constraint is discussed regarding Italian periphrastic causatives by Folli and Harley (2007)).

b. ?**Mari** megszár-ít-tat-ja Jánossal örömmel
Mari-NOM PERF-dry-TRANS-CAUS-PRES.DEF.DO János-INSTR joy-INSTR
a haját.
the hair-3SG.POSS-ACC
'Mari made [János dry his/her hair] with pleasure.'

(59b) is judged marginally acceptable by some owing to the position of the adverb; importantly, however, even in this position, it can refer only to the causer. Thus, in the case of [+c] input verbs as well, only the causer behaves as an Agent according to the diagnostic. This means that revaluation of the *+c* feature to *-c* in the causativization operation is a general procedure independent of whether the external role of the input verb is an Agent [+c+m] or a Cause [+c], that is, independent of the uniqueness condition (33). The causativization operation should thus be defined as follows.

(60) Causativization in the lexicon
V < α > → CAUS-V <[+c+m], α' >, where α includes a role marked for externality; if this role includes a *+c* feature, the feature is revaluated to *–c*.

8. Conclusion

In this article we have examined with a fresh perspective the source and status of the various verbal alternations commonly considered as instances of (morphological) causativization. Our investigation focused on exposing and accounting for the thematic and syntactic properties of this set of alternations. In current syntactic literature, it is widely accepted to derive all these alternations uniformly by merger of a causative head in the syntax, attributing variation only to the "size" of the complement selected by the causative head (e.g. Harley (2006), Pylkkänen (2002) discussed above). The present study uncovered a range of significant empirical evidence indicating that only a particular subset of morphological causatives, namely those showing biclausal properties, are constructed in the syntax. We have provided novel arguments in favor of deriving the two other alternations commonly referred to as causatives in the lexicon.

The empirical array of morphological causativization phenomena has been sorted and assessed in a comparative perspective. Based on distributional, syntactic and semantic properties, we have identified two distinct dichotomies distributing the set of the alleged

causatives: (i) a split between the transitive-unaccusative alternation and causative-anticausative alternation, (ii) a split among causative verbs, namely, between biclausal versus monoclausal causatives. Our investigation of the nature of these dichotomies resulted in an account that makes sense of – and can in fact predict – the particular distinctive properties we uncovered.

Starting with causatives, the study presented robust evidence indicating that (i) biclausal morphological causatives (such as the Japanese -(*s*)*ase* causatives) are indeed formed in the syntax and involve two events each corresponding to a separate head, (ii) monoclausal (single-event) causatives (such as the Hungarian *-(t)at/-(t)et* ones) are derived (a) before any syntactic structure is available (see our evidence in section 4), and (b) in a place where information about properties internal to the verb's θ-grid is accessible (see section 7). These findings led us to the unequivocal conclusion that the latter type of causatives must be formed in the lexicon.

The transitive-unaccusative alternation (discussed in section 6) was argued to arise also in the lexicon, yet it was demonstrated to be clearly distinct from lexical (monoclausal) causatives derived by causativization. The operation deriving the transitive-unaccusative alternation was shown to be an arity operation of Decausativization (Reinhart (2002), among others), which takes transitive verbs having a Cause ([+c]) external role as input and reduces this role, thereby deriving the unaccusative alternate. We have argued that reduction of the Cause role of the transitive member of the alternation was superior to the popular alternative of adding a Cause role both on conceptual and empirical grounds. Further, it was established that reduction of a role is a licit operation only in the lexicon. An additional advantage of the decausativization hypothesis is that it can not only properly capture the set of (one-place) unaccusative verbs, but also provides an automatic account for the set of alternating subject-Experiencer verbs, by means of the same simple lexical arity operation.

Under the approach motivated in this article the following global picture emerges. Languages differ as to whether they allow (i) the operation of lexical causativization, (ii) the syntactic formation of biclausal morphological causatives. Plausibly, this may follow directly from the morphological inventory of the language, i.e., from whether or not it has the morpheme appropriate for the specific construction. In contrast, the transitive-

unaccusative alternation, derived by decausativization, occurs consistently across languages. The transitive members of this alternation were shown to be clearly distinct in their properties from causatives. The alternation is attested irrespective of the status of causatives in the particular language: it was demonstrated to occur in languages with no morphological causatives (e.g., French), in languages with monoclausal (single-event) causatives (e.g., Hungarian), and in languages with biclausal (two-event) morphological causatives (e.g., Japanese).

Our investigation of morphological causatives provides evidence that the model of grammar must include a computationally active lexicon where arity (valence changing) operations can apply. Further, if causativization of the monoclausal type (as in Hungarian) and the derivation of the unaccusative alternation (across languages) is lexical, it means that the external argument of transitives and unergatives must be present in the θ-grid of the predicate in the lexicon.

Acknowledgements

We would like to dedicate this paper to the memory of Tanya Reinhart, whose approach to linguistics has been a source of inspiration for us. For comments and help we are grateful to Aviad Eilam, Roey Gafter, Lior Laks, György Rákosi, Jenny Birger, Irena Botwinik-Rotem, Julie Fadlon, David Hron, Tal Kedar, Aya Meltzer and Omer Preminger. We would also like to thank for helpful feedback the participants of the Syntax, Lexicon and Event Structure Workshop held in Jerusalem (July 2006) and the audience at the colloquium of the Research Institute for Linguistics of the Hungarian Academy of Sciences in Budapest (October 2007), where parts of this research have been presented. Finally, many thanks to Yoshio Endo, Roey Gafter, Kyoji Tsujita, and Yukiko Lustig for their help with the Japanese data. This work was supported by grant 44/05 of the Israel Science Foundation.

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