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Causativization as Antireflexivization: A Study of Middle and Ingestive Verbs

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Causativization as Antireflexivization: A Study of Middle and Ingestive Verbs

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This report investigates the causativization patterns of verbs of eating and drinking from a typological perspective, arguing that ingestive verbs may be grouped together with middle verbs with respect to causativization. It is argued that both ingestive verbs and middle verbs are lexically reflexive and, in some languages, their causative variants are derived from their non-causative variants by an antireflexivization operation that delinks the verbs' coidentified arguments. Evidence from English and Marathi shows that such an operation is plausible as a causativization strategy on both semantic and morphological grounds.

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Section 1

Introduction

A long-noted but so far unexplained phenomenon has been described in studies of South Asian languages: a small class of verbs semantically related to the activities of eating and drinking sometimes patterns in unexpected ways with respect to morphological causativization (Masica, 1976).[1] Specifically, in languages that causativize transitive verbs and intransitive verbs differently, transitive verbs like *eat* and *drink*, the so-called ingestive verbs, pattern as though they were intransitive.

Closer investigation reveals that the pattern involves more than just a simple distinction between transitive and intransitive verbs, but instead a distinction between unaccusatives, ingestive and middle verbs, unergatives, and transitives, as first noted by Shibatani (2002). Like Shibatani, I argue in favor

[1] Abbreviations used in this paper are as follows: 1 = first person, 2 = second person, 3 = third person, AB = absential, ABS = absolute state, ACC = accusative, ANT = anterior, ART = article, BE = bound element, BR = bound root, CAUS = causative, CONJ = conjunction, DAT = dative, DET = detransitivizer, DM = demonstrative, DR = bivalent direct voice, DSC = discontinuative, DUR = durative, ERG = ergative, EV = evidential, F = feminine, HAB = habitutal, INST = instrumental, INTR = intransitive, LV = linking vowel, M = masculine, MD = middle, N = neuter, NEG = negation, NOM = nominative, NST = non-standing, O = object, OBL = oblique, PERF = perfect, PL = plural, PRO = free pronoun, PST = past, RED = reduplication, REFL = reflexive, S = intransitive subject, SBR = subject clitic of subordinate clause, SG = singular.

of such a transitivity hierarchy as relevant for causativization, with supporting data from many languages that are geographically and typologically distinct.

A key to explaining the typological pattern involves verbs that express middle event types. While some languages, such as English, do not have explicit middle systems with a morphological middle marker on verbs with middle event types, middle verbs form a semantic class that is also crosslinguistically morphologically distinct from some other verbs (Kemmer, 1993). Middle verbs are verbs of intermediate transitivity, which include, among other classes, verbs of body position – what one does with one's own body – such as *sit, stand*, and *lie down* and verbs that denote self-directed action – what one does to one's own body – such as *dress oneself* and *comb one's hair*. I argue that ingestive verbs, as verbs that denote activities one does to one's own body, belong to this class, explaining their similar causativization pattern.

Canonical middle verbs are often thought to be reflexive (in their non-causative variants), so one way to explain the similarities between middles and ingestives is to say that both types of verbs are lexically reflexive. This explains why they might pattern similarly when they causativize. We can say that both types of verbs, when in their non-causativize or simple form, have in their lexical semantic representation two arguments, e.g. an agent and a patient, that are coidentified. In languages where intransitive middles are overtly derived from their transitive counterparts, the operation that does so is typically one of reflexivization. For example, as noted by Kemmer (1993), French has only one form to mark both middle event types like "wash" and

true reflexive situations for transitive verbs like "see". This suggests that the simple forms are inherently causative, and the middle forms are derived via reflexivization.[2]

However, Kemmer notes that other languages, such as Hua, a Papuan language of New Guinea, have middle verbs whose intransitive forms are morphologically basic. In these languages, the causative variant is clearly morphologically distinct from the intransitive form, being marked with a causative morpheme. While Kemmer says that the realization of the forms can be variable, with the intransitive, or simple, form being marked in some languages and the causative form being marked in others, I argue that there is a semantic motivation for the latter. I argue that causativization with middle verbs is not just the addition of a causer argument, the most common effect of causativization. Instead, in these rarer cases of languages where the causative is derived from the middle, I propose that causativization is an *antireflexivization operation*: it delinks the coidentified arguments, allowing the agent and patient to refer to separate entities. I argue that the antireflexivization analysis explains the behavior of these verbs better than an analysis based on causer addition. Data from English and Marathi are presented to support the argument that these verbs have a complex internal structure even when in their simple form, with a CAUSE operator in the representation and a coidentified agent and patient. The causative meaning of the causative forms of these verbs comes from

[2]Chierchia (2004) and Koontz-Garboden (2009) propose analyses of anticausativization as a reflexivization operation, consistent with this direction of derivation.

the already existing CAUSE operator; that is, causation in the causative form is simply causation preserved from the meaning of the non-causative form. This analysis thus explains (a) how it is the causative and non-causative variants of middle verbs may be related via overt causativization in some languages rather than the more common (and transparent) reflexivization, and (b) why ingestives would pattern with middles in this regard.

Finally, the antireflexivization analysis may be extended to explain a larger pattern, namely why ingestives and middles causativize in the same manner as unaccusatives in some languages. If ingestives and middles pattern together because they share a reflexive lexical semantics, and if causativization of these verbs is in fact antireflexivization, then perhaps the reason why they also pattern with unaccusatives is that some unaccusatives also share a reflexive lexical semantic structure and causativize via antireflexivization. Previous accounts, such as Koontz-Garboden (2009), suggest that, in languages with anticausativization – wherein the inchoative is derived from the causative, typically by reflexivization – some unaccusatives may have reflexive, causative semantics. If in other languages that derive the causative from the inchoative, the inchoatives are lexically reflexive and undergo antireflexivization, we can give a consistent lexical semantics for such verbs across languages and also explain why middles, ingestives, and unaccusatives all pattern alike.

This paper is organized as follows. In Section 2, I describe the typological pattern of causativization, showing that, crosslinguistically, ingestive verbs causativize in an unusual manner and that their behavior fits into a

larger pattern wherein less transitive verbs are causativized more readily than more transitive verbs. In Section 3, I show that previously proposed analyses lack the power to explain the full pattern of causativization, and argue that an analysis based on a reflexive lexical semantics for these verbs may be able to do so. In Section 4, I provide data primarily from English that suggests an antireflexivization analysis is plausible semantically. Section 5 provides evidence from Marathi, a language with more transparent morphological derivation than English, suggesting the same. The evidence presented in this paper suggests that one strategy languages employ to causativize verbs is to antireflexivize existing arguments already present in a verb's lexical structure.

Section 2

Typological Pattern

The semantic class of verbs commonly referred to as "ingestive verbs" contains two central members, *eat* and *drink*. In many languages that are genetically and geographically distinct, these verbs and semantically related verbs exhibit unusual transitivity behavior. It has long been noted in the linguistics literature that languages more readily apply a morphological causativizer to an intransitive verb than a transitive verb (Dixon & Aikhenvald, 2000). The generalization addressed here is, in languages that differentially mark intransitive and transitive verbs for morphological causativization, if there are transitive verbs that pattern with intransitives, at least one of them will be from the semantic class of ingestive verbs (Masica, 1976). This section explores the causativization properties of ingestive verbs crosslinguistically, evaluates previously proposed analyses of the phenomenon, and provides an analysis of ingestive verbs that accounts for their unusual behavior. Shibatani (2002) suggests that languages with a causative morpheme will freely apply it to unaccusatives, and then possibly to middles and ingestives, followed by unergatives, followed by transitives. Shibatani does not provide much argumentation for such a hierarchy of causativizability, but it turns out to be typologically motivated, as I show with data from various languages. I ultimately propose that

ingestives' patterning with middles is due to both verbs having underlying reflexive structures.

I first present data from several languages that display this pattern. Each of these languages has a morphological causativization operation that differentially applies to verbs depending on their transitivity. Then, I present crosslinguistic evidence that there exists a transitivity hierarchy that is relevant for causativization, as first proposed by Shibatani (2002). I show that this hierarchy holds crosslinguistically, and this establishes a tier for ingestives and middles.

2.1 The Quirky Causativization Pattern of Ingestive Verbs

One of the earliest researchers to notice the quirky behavior of ingestives was Masica (1976), who examines the causativization patterns in Hindi-Urdu and other South Asian languages. Masica establishes the ingestive class as a relevant semantic class for causativization patterns. He argues that, if a language allows causativization of transitive verbs, it will include the ingestive subclass and perhaps only the ingestive subclass. For example, Kashmiri allows morphological causatives only of intransitives. The only exception to this rule is for ingestive verbs, such as *con* "to drink something", *caavun* "to give a drink to someone", and *caavinaavun* "have someone give a drink to someone". Other languages display the pattern as well.

In Hindi, each verb can take either of two causative suffixes. The first

type of causative consists of the base form plus the suffix *-aa*, and the second consists of the base form plus the suffix *-waa*. Most verbs show an alternation into all three forms. If the verb is intransitive, the *-aa* form produces a direct causative of the base form, and the *-waa* form produces an indirect causative of the base form. The causativized forms take a direct object and an optional instrumental agent. The three forms are illustrated in Table 2.1.[3]

Table 2.1: Causatives on intransitive bases in Hindi (Masica, 1976)

Stem	*-aa* Causative (direct)	*-waa* Causative (indirect)
uṭh "x rise, get up"	*uṭhaa* "x raise, pick up y"	*uṭhwaa* "x have y rise"
phail "x spread"	*phailaa* "x spread y"	*phailwaa* "x have y spread"
jal "x burn"	*jalaa* "x burn y"	*jalwaa* "x have someone burn y"

If the base is (di)transitive, both the *-aa* form and the *-waa* form produce indirect causatives of the base form. These share the same meaning, as seen in Table 2.2.

Table 2.2: Causatives on transitive bases in Hindi (Masica, 1976)

Stem	*-aa* Causative (indirect)	*-waa* Causative (indirect)
kar "x do y"	*karaa* "x have y do z"	*karwaa* "x have y do z"
dee "x give y z"	*dilaa* "w have x give y z"	*dilwaa* "w have x give y z"

For a small set of transitive verbs, however, the *-aa* and *-waa* forms are distinct, with the *-aa* forms making a "double transitive", taking a direct object and an indirect object instead of a direct object and an instrumental agent. The verbs that can form double transitives share a semantic similarity;

[3]See also Ramchand (2008) for a discussion of causativization in Hindi.

they are verbs of taking something into the body literally or figuratively. The *-aa* forms have the meaning of helping or causing someone to do the ingesting. The *-waa* forms are the indirect causatives of the double transitives. Table 2.3 illustrates these verb forms.

Table 2.3: Causatives of ingestives in Hindi (Masica, 1976)

Stem	*-aa* Causative (double tr.)	*-waa* Causative (indirect double tr.)
khaa "x eat y"	*khilaa* "x feed y to z"	*khilwaa* "w have x feed y to z"
pii "x drink y"	*pilaa* "x give a drink(y) to z"	*pilwaa* "w have x give a drink(y) to z"
sun "x hear y"	*sunaa* "x relate y to z"	*sunwaa* "w have x relate y to z"
samajh "x understand y"	*samjhaa* "x explain y to z"	*samajhwaa* "w have x explain y to z"
siikh "x learn y"	*sikhaa* "x teach y to z"	*sikhwaa* "w have x teach y to z"
paṛh "x read y"	*paṛhaa* "x teach y to z"	*paṛhwaa* "w have x teach y to z"
deekh "x see y"	*dikhaa* "x show y to z"	*dikhwaa* "w have x show y to z"

Masica notes that, for the South Asian languages in his study, if a language allows double transitives, it will do so for the ingestive class. Additionally, he mentions that English has distinct lexical items for the counterparts of the Hindi *-aa* forms from the ingestive verbs (except for "give drink to"), but not for other *-aa* terms derived from transitive verbs, suggesting that the uniqueness of the ingestive class is not limited to South Asian languages.

Indeed, many other languages display similar patterns. Amberber (2002) describes the pattern as it occurs in Amharic. In Amharic, the causative prefix *a-* can attach only to intransitive verbs, as in (1), while *as-* can attach to either intransitive or transitive verbs, as in (2).

(1) a. *k'omə* "x stand" → ***a***-*k'omə* "x stand y"

b. *kʾʷərrət'ə* "x cut y" → ∗***a***-*kʾʷərrət'ə* "x make y cut z"

(2) a. *mət't'a* "x come" → ***as***-*mət't'a* "x make y come"

b. *kʷərrət'a* "x cut y" → ***as***-*kʷərrət'ə* "x make y cut z"

(Amberber, 2002)

The causative *a-* cannot appear with transitive verbs, as shown in (1b). Additionally, *a-* does not usually occur with unergatives, as shown in (3).

(3) a. *č'əffərə* "x dance" → ∗***a***-*č'əffərə* "x make y dance"

b. *sak'e* "x laugh" → ∗***a***-*sak'e* "x make y laugh" (Amberber, 2000)

Some verbs, however, exhibit an unexpected causativization pattern. Verbs of eating and drinking exceptionally causativize with both *as-* and *a-*. We expect the verb for "eat", *bəlla*, to be able to occur with the transitive causative *as-*, which it can, as in (4a). But it can also appear with the intransitive causative, *a-*, as in (4b), even in its transitive use.

(4) a. *aster ləmma-n dabbo* ***as***-*bəlla-ččˇ-iw*
Aster Lemma-ACC bread **CAUS**-eat.PERF-3.F-3.MO.
"Aster made Lemma eat some bread."

b. *aster ləmma-n dabbo* ***a***-*bəlla-ččˇ-iw*
Aster Lemma-ACC bread **CAUS**-eat.PERF-3.F-3.M.O
"Aster fed Lemma some bread." (Amberber, 2002)

There are other verbs that behave like *bəlla*, listed in (5).

(5) a. *t'ət't'a* "drink/*a-t'ət't'a* "give to drink"

b. *lasə* "lick/*a-lasə* "give to lick"

c. *t'əbba* "suck"/*a-t'əbba* "to suckle"

d. *lək'k'əmə* "pick up"/*a-lək'k'əmə* "graze"

e. *gwərrəsə* "take a mouthful"/*a-gwərrəsə* "give a mouthful"

f. *wat'ə* "swallow"/ *a-wat'ə* "give to swallow"

g. *k'amə* "eat large mouthfuls of grain"/*a-k'amə* "give large mouthfuls of grain"

h. *gat'ə* "graze"/*a-gat'ə* "let graze"

The verbs that exhibit this pattern are semantically grouped around the actions of eating and drinking. Like Hindi's ingestive verbs, Amharic's are able to causativize in the same manner that intransitives are able to do.

Amberber (2002) provides examples of many languages that make a distinction between causativizing an intransitive verb and causativizing a transitive verb that exceptionally treat ingestives as intransitives. Berber allows verbs like *ttc* "eat", *sw* "drink", *jjawn* "be satiated with food", and *tted* "suckle" to exceptionally take the morphological causative (Guerssel, 1986). He also provides evidence from Jarawara, Urubu-Kaapor, Apalai, Sre, Malayalam, and Tariana that this semantic class of verbs often exhibits quirky transitivity behavior when causativized.

Rice (2000) furthermore notes that, in Ahtna, an Athabaskan language spoken in Alaska, only a small group of transitive verbs undergo causativization, the entire set of which consists of *yaan* "eat", *naan* "drink" and two other verbs for "eat" and "drink".

Nedyalkov and Silnitsky (1973) also find that, for many languages, if

the causative morpheme is limited in the types of transitive verbs it may attach to, it at least allows a few verbs of concrete action denoting the consumption of food (Table 2.4), and some verbs of abstract action, or verbs that can be thought of as metaphorically taking something into the body or mind (Table 2.5).

Table 2.4: Verbs of literal ingesting (Nedyalkov and Silnitsky 1973)

	"eat/feed"	"drink water/give to drink"	"suck/suckle"
Chukot		*pylyk/**ry**-pyl-**ŋat**-yk*	
Indonesian		*minum/**me**-minum-**kan***	
Armenian	*ut-el/ut-**ecn**-el*	*kemel/kem-**ecn**-el*	
Tažik	*xurdan/xur-**on**-dan*	*nušidan/nuš-**on**-dan*	
Hausa	*chi/chi **da***	*sha/sha **da***	
Kurdish			*metin/mej-**and**-in*

Table 2.5: Verbs of metaphorical ingesting (Nedyalkov and Silnitsky 1973)

	"see/show"	"remember/remind"	"understand/explain"
Chukot	*l?uk/**ry**-l?u-**ŋet**-yk*	*ket?ok/**ry**-ket?o-**ŋat**-yk*	
Standard Arabic	*ra'a/?a**r**a*	*zakara/za**kk**ara*	*fahima/?a**fh**ama*
Batsbien	*dag/dag-**d***		
Indonesian	*me-lihat/mem-**per**-lihat-**kan***		
Hausa	*gani/gana**d** **da***		*fanimta/fanimta**d** **da***
Armenian		*hišel/hiš-**ecn**-el*	
Tadžik			*faxmidan/faxm-**on**-dan*

Vasquez Soto (2002) describes a similar causativization process in Cora, and Uto-Aztecan language spoken in Mexico. The ingestive class consists of the verbs in (6).

(6) a. *séih* "to see"/*séih-te* "to show"

b. *tíʔi-kwa* "to eat corn products"/*tíʔi-kwa-te* "to make someone eat corn products"

c. *ʔíh* "to drink"/*ʔíh-te* "to make someone drink"

d. *mwáʔa-re* "to know something"/*mwa-re* "to teach"

e. *čuí:* "to take"/*čuí:-teʔe* "to give"

These verbs are unique among Cora verbs in allowing both morphological causatives (7b), which are otherwise reserved for unaccusatives, and analytic causatives (7c), which usually occur with transitives.

(7) a. *ɨ Juan María pu wa-séih*
DET John Mary S.3.SG CMP-see
"As for John, he saw Mary."

b. *ɨ Alberto bíʔiraʔa pu ɨ Juan séih-**raʔa-teʔe***
DET Albert corn.field S.3.SG DET John see-**CAUS-CAUS**
"As for Albert, he is showing the corn field to John."

c. *ɨ Pedro Juan pú wa-**taʔáih** ʈɨ ɨ María wa-séih*
DET Pedro John S.3.SG CMP-**send** SBR.3.SG DET Mary CMP-see
"As for Peter, he sent John to see Mary." (Vasquez Soto, 2002)

Thus, in Cora as in Amharic and Hindi, ingestive verbs are able causativize in a manner that is unexpected, given their transitivity.

Mohanan (1983) provides a description of the causativization process in Malayalam. Like Hindi, Malayalam has both an indirect and a direct causativization process. The less productive processes are gemination and denasalization, and they yield a direct causative reading, as in (8b). The more productive processes are the affixation of *-ikk* and *-ipp*, and they yield an indirect causative reading, as in (8c).

(8) a. *boo̱ttə* *muŋŋi*
boat.NOM sank
"The boat sank."

b. *kuṭṭi* *booṭṭə* *mu**kk**-i* (denasal.; dir. caus.)
child.NOM boat.NOM sink.**CAUSE**-PST
"The child sank the boat."

c. *kuṭṭi* *booṭṭə* *muŋŋ-**icc**-u* (affix.; indir. caus.)
child.NOM boat.NOM sink-**CAUS**-PST
"The child caused the boat to sink." (Mohanan, 1983)

Causativizing an intransitive and a transitive yields different results. When an intransitive is causativized, the subject becomes the object and a new causer is added, as when (9a) is causativized as in (9b). Note that the object in (9b) is in the accusative case. On the other hand, when a transitive is causativized, a new causer subject is added, and the original subject appears in the instrumental case with the postposition -*koṇṭə*, as in the doubly causativized sentence (9c).

(9) a. *kuṭṭi* *karāṉṉu*
child.NOM cried
"The child cried."

b. *acchan* *kuṭṭiye* *karāy-**icc**-u* (affix.)
father.NOM child.NOM cry-**CAUS**-PST
"The father made the child cry."

c. *amma* *acchanek-**koṇṭə*** *kuṭṭiye* *karāy-**ipp-icc**-u*
mother.NOM father.ACC-INST child.ACC cry-**CAUS-CAUS**-PST
"Mother caused the father to make the child cry."

Causativizing a basic transitive, as (10a) to (10b), yields the same result: the postposition *-koṇṭə* appears on the original subject, as in (10b).

(10) a. *kuṭṭi aanaye n̪uḷḷi*
child.NOM elephant.ACC pinched
"The child pinched the elephant."

b. *amma kuṭṭiyek-**koṇṭə** annaye n̪uḷḷ-**icc**-u* (aff.)
mother.NOM child.ACC-INST elephant.ACC pinch-**CAUS**-PST
"Mother made the child pinch the elephant." (Mohanan, 1983)

Therefore, the fundamental difference between the causatives of intransitives and the causatives of transitives is whether or not the original subject appears in the instrumental case. Interestingly, when ingestive verbs, such as *t̪inn* "eat", *kuṭikk* "drink", *kaaṇ* "see", and *paṭhikk* "learn" are causativized, they pattern with intransitives in that the original subject is not in the instrumental case, but rather in the accusative case. This is illustrated in (11).

(11) a. *kuṭṭi corrə t̪in̪n̪u*
child.NOM rice.ACC ate
"The child ate the rice."

b. *amma kuṭṭiye coorə t̪i**tt**-i* (denasalization)
mother.NOM child.ACC rice.NOM eat.**CAUS**-PST
"Mother fed the child rice." (Mohanan, 1983)

The causee, *kuṭṭiye* "child", is in the accusative case, not the instrumental case as expected.

Strouthes (1994) adds that it is not just that the causee argument can appear in the accusative; it must do so, with the instrumental case disallowed.

Additionally, Strouthes' data shows that there are some verbs of metaphorical ingesting, like *patthi* "study", that pattern with the more literal ingesting verbs, as in (12).

(12) a. *Raman pattham patthi-ccu*
Raman lesson study-PST
Raman studied the lesson."

b. *Amma Raman-e-*$*$***koṇṭə*** *pattham patti-****ppi****-ccu* (affix.)
Mother Raman-ACC-$*$**inst** lesson study-**CAUS**-PST
"Mother taught Raman the lesson." (Strouthes, 1994)

Thus, for Malayalam, the class of ingestives is expanded to include verbs of metaphorical ingesting. Like the other languages shown above, Malayalam allows ingestive verbs to causativize in the same manner than intransitives do.

Finally, a similar pattern emerges in Egyptian Arabic. Causatives are derived by geminating the middle consonant, as (13) and (14) show, which can be applied to all unaccusative verbs, as seen in (15).

(13) *xaaf* "to be afraid"→ *wawwif* "to frighten"
DaHik "to laugh" → *DaHHak* "to make s.o. laugh"

(Abdel-Massih et al., 2009)

(14) *fiDi* "to become empty" → *faDDa* "to empty (tr.)" (Zaheed, n.d.)

(15) a. *ʕali xarag.*
"Ali went out."

b. *ahmad xarrag ʕali.*

"Ahmad let Ali out." (Abdel-Massih et al., 2009)

Geminating the middle consonant produces a causative reading for all unaccusatives and some unergatives, but it does not produce a causative reading for transitive verbs. Instead, if it is allowed at all, it produces a meaning where the original action is intensified or repeated, as in (16) and (17).

(16) *kasar* "to break" → *kassar* "to smash"

ʔatal "to kill" → *ʔattil* "to slaughter" (Abdel-Massih et al., 2009)

(17) *fasax* "to disjoin" → *fassax* "to tear apart"

qaTaʕ "to cut" → *qaTTaʕa* "to chop" (Zaheed, n.d.)

Ingestive verbs are an exception to this. When their middle consonants are geminated, they do form causatives, as in (18).

(18) a. *fariid akal irruzz.*

"Farid ate the rice."

b. *ʔakkalt fariid irruzz.*

"I fed Farid the rice." (Abdel-Massih et al., 2009)

In Egyptian Arabic as in the languages above, ingestives are able to use the causativization strategy otherwise reserved for intransitive verbs. The verbs included in the ingestive class are listed in Table 2.6.

Table 2.6: Ingestive class in Egyptian Arabic (Zaheed, n.d.)

ʔakal "eat"	*ʔakkal* "to feed"
ʃirib "to drink"	*ʃarrab* "to serve/make a drink"
ʕaraf "to know someone"	*ʕarraf* "to introduce someone to someone"
HafaZ "to memorize something"	*HaffaZ* "to cause someone to memorize something"
samiʔ "to hear something"	*sammaʔ* "to make someone listen to something"
daras "to study something"	*darras* "to teach someone something"
fahim "to understand something"	*fahham* "to make someone understand something"

Thus, in numerous languages, the semantic class of ingestive verbs has a uniform status in terms of causativization. These verbs exceptionally causativize using a morphological marker usually reserved for a less transitive class, and pattern like direct causatives of intransitives in other ways (e.g. occurring in a particular case or with a distinct meaning). The next section illustrates the typological pattern more clearly, by classifying languages according to which verb classes pattern similarly according to how they causativize.

2.2 Hierarchy of Causativizability

Shibatani (2002) discusses some general patterns of morphological causatives, including an explanation of the types of verbs that are most often and least often causativized morphologically. He proposes a hierarchy of causativizable verbs, with unaccusatives on one end and transitives on the other. Linguists have long noted that intransitive verbs have been more susceptible to morphological causativization than transitive verbs, and that "inactive intransitives", roughly corresponding to unaccusatives, are more likely to allow a causative morpheme than "active intransitives", roughly corresponding to

unergatives (Dixon & Aikhenvald, 2000; Shibatani, 2002). Shibatani argues that languages that allow more transitive/more agentive verbs to causativize using a particular morpheme will also allow the less transitive/more patientive verbs to causativize using that same morpheme.

Evidence in support of Shibatani's hierarchy comes from Rice's (2000) study of the causativization patterns of Athabaskan languages. In all of the languages in her study, the causative morpheme can attach to intransitives with patient arguments; in some languages, it can attach to intransitives with agent arguments; and in some languages, it will allow both intransitive and transitive verbs as bases.

Shibatani, however, refines the hierarchy further, arguing that the class of middle verbs and ingestive verbs, including both intransitives like "sit down"/"ascend" and transitives like "put on clothes"/"eat"/"learn," form a separate tier sitting between unaccusatives and unergatives in terms of causativizability.

As Shibatani and Pardeshi (2002) note, Marathi ingestives and middles causativize similarly. Marathi unaccusatives are causativized using the synthetic causative suffix *-aw*, a suppletive form, or a labile form, depending on the particular verb. Because these are all word-level processes, Shibatani and Pardeshi group them together. On the other hand, unergatives and transitives are causativized using the syntactic causative *laaw*. Unaccusatives cannot use the syntactic causative form, and unergatives and transitives cannot be causativized lexically. Ingestives, however, can do both, as in (19).

(19) a. *tyaa-ne bhaat khaa-ll-aa*
he-ERG rice.M eat-PERF-M
"He ate rice."

b. *raam-ne tyaa-laa bhaat* ***bharaw****-l-aa* (suppletive)
Ram-ERG he-DAT rice.M **feed**-PERF-M
"Ram fed him rice."

c. *raam-ne tyaa-laa bhaat khaa-ylaa* ***laaw****-l-aa* (syntactic)
Ram-ERG he-DAT rice.M eat-PTCP **make**-PERF-M
"Ram made him eat rice." (Shibatani & Pardeshi, 2002)

Similarly, middle verbs can also do both, whether they are transitive, as in (20), or intransitive, as in (21).

(20) a. *tyaa-ne kapDe ghaat-le*
he-ERG clothes.N wear-PERF-N
"He wore the clothes."

b. *raam-ne tyaa-laa kapDe* ***ghaat****-l-e* (labile)
Ram-ERG he-DAT clothes.M **dress**-PERF-N
"Ram dressed him."

c. *raam-ne tyaa-laa kapDe ghaal-aaylaa* ***laaw****-l-e* (syn.)
Ram-ERG he-DAT clothes.N wear-PTCP **make**-PERF-N
"Ram made him wear the clothes."

(21) a. *raam bas-l-aa*
Ram sit-PERF-M
"Ram sat."

b. *mi raam-laa bas-****aw****-l-a* (synthetic)
I Ram-DAT sit-**CAUSE**-PERF-N
"I sat/seated Ram."

c. *mi raam kholi-t bas-aaylaa* ***laaw****-l-a* (syntactic)
I Ram-DAT room-in sit-PTCP **make**-PERF-N
"I made Ram sit in the room." (Shibatani & Pardeshi, 2002)

A summary of the possibilities is shown in (2.7).

Table 2.7: Causativization options in Marathi

	unaccusative	middles	ingestives	unergatives	transitives
lexical	✓	✓	✓	*	*
laaw syntactic	*?	✓	✓	✓	✓

While Shibatani claims that, typologically, unaccusatives are the most likely to causativize morphologically, followed by middles and ingestives (which sit on a single tier), followed by unergatives, followed by transitives, he does not present much argumentation for a hierarchy. Here, I argue for such a hierarchy, presenting evidence from a survey of languages which motivates its existence. Below is my description of the hierarchy of causativizable verb types, based on Shibatani's observations and my own survey of languages.

(22) **Hierarchy of causativizability:** *unaccusatives* > *middles/ingestives* > *unergatives* > *simple transitives*[4]

If a language has a single derivational causativization process that applies to unaccusatives and a verb of some other class, that process will also apply to at least one of the verbs of each type between unaccusatives and that verb class

[4]There is evidence that some languages differentially causativize simple transitives and ditransitives. Dixon (2000b) says that Basque, Sonrai, Dulong/Rawang, and Abkhaz are such languages. For simplicity, I do not include ditransitives in my discussion.

on the hierarchy.

As defined in (22), the hierarchy predicts that a language that uses a single morpheme to causativize both unaccusatives and unergatives will also use that morpheme for middles/ingestives, and a language that uses a single morpheme for unaccusatives and transitives will also use that morpheme for middles/ingestives and unergatives. It is not necessarily the case that every causative morpheme that applies to a verb will apply to every verb to its left on the hierarchy. First, the requirement that the morpheme must apply to unaccusatives is meant to account for the fact that there are morphemes that apply to, for example, unergatives and transitives that do not apply to middles/ingestives or unaccusatives, such as *-l-tia* in Classical Nahuatl (Launey, 2002). This suggests that a morpheme can attach to verbs starting from the left of the hierarchy or starting on the right, but that it may not "skip" tiers. The existence of a language that skips a tier by applying a single causative process to, for example, unaccusatives and unergatives but not ingestives/middles would contradict the hierarchy.

Second, the description suggests that it is possible for a language to allow a morpheme to apply to verbs to the right of ingestives/middles and to the left, but to only include one ingestive/middle verb. In describing Jarawara, a dialect of Madi, an Arauan language spoken in Brazil, Dixon (2000a) gives only one example of a transitive verb that may be causativized with the prefix *na-*, which is *fawa* "drink". Likewise, Masica (1976) gives only one Kashmiri

transitive verb that may be exceptionally causativized, *con* "to drink". So it is possible to have just a few verbs behaving this way, rather than the whole semantic class. This is not an unprecedented claim. Malchukov (2005) suggests that implicational hierarchies dealing with semantic classes "should be formulated in existential terms (for some member of the class X) rather than universal terms (for every member of the class X)". That is, we should not expect *every* verb lower on the hierarchy to causativize in the same way; rather, we should expect *at least one* verb of each class lower than the relevant verb to causativize in the same manner as that verb. Malchukov gives examples of this in other domains.

To motivate the hierarchy in (22), I compiled data from several languages, each of whose causativization pattern adheres to the generalizations made above. I found no languages, out of thirty-two surveyed, that skip tiers. I argue that the fact that these generalizations hold crosslinguistically confirms the three tiers of causativizability as proposed by Shibatani and provides strong evidence in favor of a fourth tier for middles and ingestives. In order to show that languages follow the pattern, *unaccusatives* > *middles/ingestives* > *unergatives* > *transitives*, it is necessary to find (1) languages that use a morpheme to causativize only unaccusatives, (2) languages that use a single morpheme to causativize only unaccusatives and ingestives/middles, (3) languages that use a single morpheme to causativize only unaccusatives, ingestives/middles, and unergatives, and (4) languages that use a single morpheme

to causativize all four types.[5,6] Twelve such languages are listed in Table 2.8.

Table 2.8: Crosslinguistic application of causative processes by verb type

		Unacc.	Middles/ingestives	Unerg.	Simple Tr.
(1)	a. Slave	✓			
	b. Mapudungun	✓			
	c. Classical Nahuatl	✓			
(2)	d. Cora	✓	✓		
	e. Marathi	✓	✓		
	f. Amharic	✓	✓		
(3)	g. Ahtna	✓	✓	✓	
	h. Tariana	✓	✓	✓	
	i. Malayalam	✓	✓	✓	(see ft. 6)
(4)	j. Basque	✓	✓	✓	✓
	k. Dulong/Rawang	✓	✓	✓	✓
	l. Koyukon	✓	✓	✓	✓

(a) Slave: Athabaskan, Canada. *-h-*. (Rice, 1989), cited in (Rice, 2000).

(b) Mapudungun: Araucanian, Chile and Argentina. *-ïm*. (Golluscio, 2007).

(c) Classical Nahuatl. Uto-Aztecan, extinct. *-tia*. (Launey, 2002).

(d) Cora: Uto-Aztecan, Mexico. *-te*. (Vasquez Soto, 2002).

(e) Marathi: Indo-Aryan, India. *-aw*. (Shibatani & Pardeshi, 2002).

[5]Most of the languages I found were of type (3), or the authors of their grammars did not distinguish between unaccusatives and unergatives.

[6]Malayalam actually does allow the relevant causative morpheme to appear on transitives. However, when it does so, the causee appears in the instrumental case, a requirement that does not hold for ingestives. I list it with Ahtna and Tariana because it treats unaccusatives, ingestives, and unergatives similarly, to the exclusion of transitives, just as those languages do.

(f) Amharic: Semitic, Ethiopia. *a-*. (Amberber, 2002).

(g) Ahtna: Athabaskan, Alaska. *-ɬ-*. (Kari, 1990), cited in (Rice, 2000).

(h) Tariana: Arawakan, Brazil. *-i-ta*. (Aikhenvald, 2000).

(i) Malayalam: Dravidian, India. *-icc*. (Mohanan, 1983).

(j) Basque: Isolate, Spain and France. *-arazi*. (Oyharçabal, 2003).

(k) Dulong/Rawong: Tibeto-Burman, China and Myanmar. *shv-*. (LaPolla, 2000).

(l) Koyukon: Athabaskan, Alaska. *-ɬ-*. (Axelrod, 1996), cited in (Rice, 2000).

Table 2.8 illustrates the hierarchy of causativizability and enables us to make some specific claims about middles' and ingestives' position in that hierarchy. First, we know that middles and ingestives cannot be grouped into another category of verb but belong on their own tier. The fact that Type 1 languages distinguish between unaccusatives versus middles and ingestives show that we cannot group these classes together. The fact that Type 2 languages distinguish between unaccusatives, middles, and ingestives versus unergatives indicates that we cannot group middles and ingestives with unergatives. Similarly, Type 3 languages distinguish between unaccusatives, middles, ingestives, and unergatives versus simple transitives, indicating that we cannot group middles and ingestives with transitives. Instead, they must form their own tier. Second, when the classes of verbs are ordered as they are

above, no language of those surveyed has a causativization process that "skips" tiers. This motivates the order of the classes in the hierarchy presented above. However, while the data so far does not show for certain that ingestives are treated exactly like middles, it does suggest that they have some similarities. Before proposing an analysis of this fact, I first review three previous analyses of why ingestives causativize the way that they do.

Section 3

Three Analyses

Three analyses that I am aware have been proposed to account for the quirky causativization behavior of ingestive verbs. I go through each in turn, suggesting that none of them fully accounts for the relevant data.

3.1 An Object Deletion Analysis

Masica's (1976) explanation of the quirky behavior of ingestives is largely based on the deletability of the object of ingestives. He argues that, because ingestives can often occur in intransitive forms (e.g. *John ate*), they can be conceived of as activities not involving an object.

Recall that Hindi has two causative suffixes, *-aa* and *-waa*; when applied to intransitives, the former produces a direct causative and the latter produces an indirect causative.

(23) a. *uṭh* "x rise, get up"

b. *uṭhaa* "x raise, pick up y"

c. *uṭhwaa* "x have y rise"

When the suffixes are applied to most transitive verbs, there is no distinction

between the meanings of the causatives.

(24) a. *kar* "x do y"

b. *karaa* "x have y do z"

c. *karwaa* "x have y do z"

Ingestive verbs, on the other hand, do show a meaning difference when causativized with the different suffixes.

(25) a. *khaa* "x eat y"

b. *khilaa* "x feed y to z"

c. *khilwaa* "w have x feed y to z"

Masica argues that ingestives' status as transitive verbs whose objects are readily deletable in many languages explains why their *-aa* derivatives in Hindi are double transitives and not indirect causatives. Instead, they are "too close" to intransitive verbs themselves to allow an intransitive form.

However, Masica's analysis does not fully explain the behavior of these verbs. First, as Masica admits, the object of an ingestive in Hindi is not as deletable as it is in English. Ingestives normally require an object that might seem redundant in English: *kyaa aap-nee khaanaa khaayaa hai* "Have you eaten food?" This shows that, while ingestive verbs may have very deletable objects crosslinguistically, and therefore may not be prototypically transitive (see Næss, 2009), the deletability of the object is not a requirement for ingestives to pattern with intransitives.

Second, an object deletion analysis will not hold up crosslinguistically since there are languages such as Amharic, Marathi, and Cora whose causative morphemes apply only to unaccusative verbs and not to unergative verbs, neither of which have objects. If the factor that prevented some verbs from causativizing was that they have objects, we would not see languages that pattern as Amharic does. These two facts should lead us to conclude that, while ingestive verbs in Hindi do exhibit behavior similar to that of intransitives, it is not due to the fact that their objects are highly deletable, contra Masica.

3.2 A Dual PAS Analysis

Working within a different framework, Guerssel (1986) proposes an analysis of the unusual causativization pattern of *eat* in Berber that is similar to Masica's. Guerssel assumes that verbs have a Predicate Argument Structure (PAS) composed of two parts: the Lexical Conceptual Structure (LCS) and the Lexical Structure (LS) (for a more in depth discussion, see Guerssel et al., 1985). The LCS is linked to the LS via language-specific linking conventions, and the PAS interacts with the syntax.

Guerssel notes that the process of causativization cannot apply to transitive verbs, even if they appear in intransitive forms. However, the ingestive class, consisting of *ttc* "eat", *sw* "drink", *jjawn* "be satiated with food", and *ṭṭed* "suckle", are able to causativize, whether they are in the transitive or intransitive form. The sentences in (26) show intransitive causativization, and those in (27) show transitive *ttc* causativization, both with the prefix *ss-*.

(26) a. *Y-ttcu* *wqqzin.*
3.M.SG-eat dog:CST
"The dog ate."

b. *Y-**ss**-ttc* *wryaz* *aqqzin.*
3.M.S-**CAUS**-eat man:CST dog
"The man fed the dog."

(27) a. *Y-ttcu* *wqqzin* *aysum.*
3.M.S-eat dog:CST meat
"The dog are the meat."

b. *Y-**ss**-ttc* *wryaz* *aysum* *i-wqqzin.*
3.M.S-**CAUS**-eat:PERF man:CST meat DAT-dog:CST
"The man fed meat to the dog." (Guerssel, 1986)

Guerssel explains this fact by saying that the LCS of *ttc* includes two arguments, an agent and a patient that has an identifying clause that specifies that it is typically food. Because the identifying clause somewhat semantically specifies the patient, the patient is not obligatorily projected when the LCS is mapped to LS.

This means that *eat* will have two Predicate Argument Structures, one with an agent and a patient (for *John ate beans* or *John ate sand*) and one with only an agent, where the patient must be understood to be food (for *John ate*). Because *eat* can have an intransitive PAS, it can be causativized as though it were an intransitive, even if the actual PAS has a patient argument. However, like Masica's analysis, Guerssel's only accounts for a difference between intransitives and transitives with respect to causativization, being unable to account for languages where unaccusatives and unergatives differ.

3.3 A Coindexation Analysis

Building on his (2000) description of the causativization process in Amharic generally, Amberber (2002) presents an analysis of ingestives specifically aimed at explaining their unusual crosslinguistic causativization patterns, beginning with a rebuttal to Guerssel's analysis. A major problem with Guerssel's analysis, according to Amberber, is apparent when we consider case facts in Berber. When an ingestive verb is causativized, the causee appears in the dative case. In Berber, dative is used to mark goal arguments, not agents; on Guerssel's analysis, there is no way to predict that the causee gets dative case.

To solve this problem, Amberber argues for a ditransitive structure of *eat*, with an agent, an optional theme, and a goal coindexed with the agent. This is based on Jackendoff's (1990, p. 253) proposed LCS of *eat* in (28).

(28) *eat*
V
[$_{Event}$ CAUSE ([Thing$_i$], [INCH ([Thing], [$_{Path}$ TO[IN[MOUTH-OF[Thing$_i$]]]])])]

The representation in (28) indicates that there is an event in which one argument (the agent) causes another argument (the theme) to go into the goal argument, which is the agent's mouth. In this way, the agent and goal are coindexed.

Amberber notes that, for most verbs, the agent, theme, and goal are mapped onto the subject, object, and indirect object positions, respectively. However, because ingestives have agent and goal arguments that are coindexed,

they are linked to the same NP, which, since the agent is highest on the Thematic Hierarchy, therefore gets mapped to subject. Thus, a ditransitive LCS in this case can yield a transitive or even intransitive structure at syntax (the latter if the patient object is left unexpressed). The representation in (29) shows an LCS with an agent (x), an optional theme (y), and a goal coindexed with the agent (z).

(29) *bəlla* "eat"

[x_i CAUS (y) INCH z_i PATH]

↓

∅

⟨Agent, Theme⟩

In (29), the goal argument does not get projected to the syntax; it is suppressed at the linking to LS. Instead, it is semantically recoverable from the agent. The resulting LS is that the verb has an agent and a theme.

Amberber argues that such an LCS allows ingestives to exceptionally causativize. We can suppose that some causative morphemes, such as Amharic *a-*, cannot attach to verbs that already have an internal causer. Ingestives, however, are special in being able to not project the original causer. Instead, they can project the goal argument. Because the agent and goal are coindexed, the agent is semantically recoverable from the goal and does not need to be projected. This means that ingestives can optionally not have an internal causer, and so they can occur with the causative prefix *a-*, normally reserved

for verbs lacking agents. The representation in (30) shows the three arguments of the original verb – the agent (x), the optional theme (y), and the goal (z) – along with the new causer (w). The agent (x) is suppressed during the linking to LS, and a new causer (w) is allowed to appear. The resulting LS is that the verb takes an agent, a theme, and a goal.

(30) *a-bəlla* "feed"

[w CAUS [$\underline{x_i}$ CAUS (y) INCH z_i PATH]]

↓

∅

⟨Agent, Theme, Goal⟩

The LS in (30) yields the ditransitive structure of causativized transitive verbs (e.g. *John fed applesauce to the baby*). The option to suppress the agent argument is not available for most transitive verbs since their agents are not also goals. These verbs either do not allow causativization, or they require a different morpheme or construction for doing so. Importantly, it is also possible for the agent of ingestives to remain unsuppressed, which explains why ingestives may also take the causative prefix *as-* used with transitive verbs. The benefit of this analysis is that it explains why both of Amharic's causative morphemes may attach to ingestives.

Amberber's analysis also captures some of the case facts present with ingestives. In Berber, for example, the causee of *ss-ttc* "to feed" is in the dative case, which is the case Berber uses to encode goal arguments. Similarly, the

causee of Malayalam *t̪iitti* "feed" appears in the accusative case, which is the case Malayalam uses to encode goals. Another analysis might have a more difficult time explaining the case facts.

Amberber's analysis is the most complete to date, and indeed I will incorporate some of his insights – namely the idea that ingestives are reflexive à la Jackendoff – into my own. However, there are some problems with Amberber's analysis. First, it is not applicable to every language. If an ingestive verb in any language were able to suppress either its goal or its agent, it would be able to sometimes behave as transitives in that language do and sometimes behave as intransitives do. While Amharic allows ingestives to be flexible in taking either kind of causative morpheme, other languages, such as Malayalam, do not show such flexibility. If Malayalam *t̪iṉṉu* "eat" were causativized the way that transitives usually are, the causee would be able to appear in the instrumental case, but it cannot do so. The example in (31) shows that the instrumental case is disallowed for the verb *patthi* "study", which is a member of the ingestive class in Malayalam.

(31) a. *Raman pattham patthi-ccu*
Raman lesson study-PST
Raman studied the lesson."

b. *Amma Raman-e-∗**koṇṭə** pattham patti-**ppi**-ccu*
Mother Raman-ACC-∗**INST** lesson study-**CAUS**-PST
"Mother taught Raman the lesson." (Strouthes, 1994)

The fact that some languages' ingestive verbs cannot be treated as both in-

transitives and transitives suggests that the agent/goal suppression analysis allows ingestives to be too flexible.

Additionally, Amberber's analysis potentially predicts that any language that differentially causativizes intransitives and transitives will exceptionally allow ingestives to pattern with intransitives, by being able to suppress their agents. While many languages do so, not every language does. Slave, for example, uses the morpheme *-h-* to causativize intransitives only (specifically unaccusatives), which does not apply to ingestives (Rice, 2000).

This analysis might also suggest that the only distinction relevant for causativization is agentivity. Amberber says that causativization with some morphemes cannot happen if the verb has an agent; if this were true crosslinguistically, it would predict that causative morphemes should be allowed to attach freely to unaccusative verbs, but show a higher degree of restriction when attaching to unergatives and transitives. While this is true, it is not the whole story. There are languages whose causative processes distinguish between unergatives and transitives. For these languages, proposing that ingestives have the ability to suppress their agents would not help them to exceptionally causativize, because having an agent was not the factor preventing their causativization in the first place. This suggests that the factor that brings about some morphemes' dispreference for some verbs is not entirely based on agentivity of the subject.

My final objection to this analysis is that it fails to make a semantic distinction between *feed* and *make eat*. Amberber does not think that the dif-

ference between the two expressions is important. However, as I argue in later sections, there is a much larger difference between the two expressions than simply directness versus indirectness of causation. I argue that a situation of feeding is something very different from a situation of eating with an additional causer participant. On Amberber's analysis, the would be semantically equivalent.

A better analysis would explain the three-way distinction between the causativization patterns of unaccusatives, unergatives, and transitives, and it would also explain the semantic difference between the lexical and syntactic causatives. The next section builds the argument that ingestives and middle verbs are indeed lexically reflexive, which explains why they appear in an intermediate position on the transitivity hierarchy that is relevant for causativization. However, I suggest that the appropriate causativization operation is not causer addition but antireflexivization, obviating the need for for some of Amberber's stipulations. This analysis can also explain the relevant semantic differences between the different types of causatives, in particular *feed* versus *make eat* types, as well as link ingestives to middles and even ultimately unaccusatives.

Section 4

Lexical Reflexivity, Causation, and the Ingestive/Middle Class

In this section I propose that middles and ingestives both have a reflexive, bieventive, causative lexical structure in their simple form. I examine evidence that ingestives may morphologically pattern as middles, as well as looking at semantic facts about English middles and ingestives that suggest their similarity. The analysis that the causativization operation for these verbs is one of antireflexivization is compatible with the full range of typological data presented above.

4.1 Morphological Data

In this section I tentatively motivate the idea that, for some languages, ingestives may be assimilated into the class of middles on purely morphological grounds in that they sometimes appear with middle morphology. The class of verbs described as middles varies widely across the literature (see Dixon, 2000b). One common theme that emerges, however, is that verbs marked with middle morphology across languages belong to similar semantic classes, such as grooming or body care and change in body posture, which often involve

actions one does to one's own body. Kemmer (1994) argues that while middle verbs and reflexive verbs are often conflated, they actually form two distinct intermediate levels on a hierarchy of transitivity. True reflexives are closer to transitives, having two participants, an initiator and an endpoint, that have the same referent. Middles have only one participant that is internally complex, being both the initiator and the endpoint, which puts them closer to intransitives on the hierarchy. Nevertheless, some languages encode middles with reflexive morphology.

Data from Movima, an isolate spoken in Bolivia, provides evidence that ingestives fall into the middle class. Movima marks middle verbs with reduplication (Haude, 2006, p. 345). Haude defines middle verbs as those that have typical middle features semantically, in the sense of Kemmer (1994), and they have morphological properties of both monovalent and bivalent roots. Some middles that Haude lists are given in (32), and an example sentence is given in (33).

(32) a. *łoʼ-* "fall"

b. *łamʹ-* "bathe"

c. *deń-* "infect"

d. *kay-* "eat"

e. *chi-* "go out"

f. *dejal-* "cook"

g. *jiwa-* "come"

(33) *n-os* *la'* *walayo,* *iń* ***ɬamń*∼*ɬamń*** *n-os*
obl-ART.N.PST ANT afternoon 1.INTR **MD**∼bathe OBL-ART.N.PST
jayna lasseys
DSC six_o'clock
"Yesterday afternoon, I bathed when it was already six o'clock."

(Haude, 2006, p. 345)

The sentences in (34) show that *kay* "eat" also often occurs with reduplication, just like canonical middles.

(34) a. *jayna* ***kay*∼*kay*** *ni-kis* *cho∼choɬ-a=kis*
DSC **MD**∼eat OBL-ART.PL.AB RED∼BR.nut-LV=ART.PL.AB
ney *ɬo'im*
here ɬo'im
"They [the macaws] eat the nuts of those ɬo'im trees."

b. *kide:* *da'* ***kay*∼*kay*** *jayna* *n-us* *alwaj-a='ne*
DM.NST.PL DUR.NST **MD**∼eat DCS OBL-ART.M spouse-LV=F
"They are eating now with her husband."

c. *siye:te* *is* ***kay*∼*kay*** *n-is* *tochi'* *wu'tu* *ney*
seven ART.PL **MD**∼eat OBL-ART.pl small pan here
"It was seven [people] who ate from those small pans."

d. ***kay*∼*kay*** *n-as* *tas-lo:maj* *n-as* *je:mes*
MD∼eat obl-ART.n three-BE.time obl-ART.N day
"[You] eat three times a day." (lit. "at three times in the day")

(Haude, 2006, p. 282)

The verb *kay-* does not always occur with reduplication. Adding the direct voice marker *-na* to a middle verb creates a bivalent verb. On some

verbs, like *łamń-* "bathe", the added argument is the patient, as in (35a). For others, like *kay-* "eat" and *chi-* "go out", the added argument is the location, as in (35b).

(35) a. *ił* ***łamń-na*** *is* *ona:cho*
1 bathe-DR ART.PL grandchild
"I bathe my grandchildren."

b. *a'ko* *łań joy-na=is,* *a'ko* ***kay-na****=is*
PRO.N EV go-DR=PL.AB PRO.N eat-DR=PL.AB
"There they went, they say, there they ate." (lit. "That (is) their place of going, that (is) their place of eating.")

c. *asko* *choń* ***chi:-na****=is* *noł-kwa*
PRO.N.AB HAB go_out-DR=PL.AB mouse-ABS
"That [hole] is where the mice always went out."

(Haude, 2006, p. 270, 346)

Causativizing a verb in Movima involves adding the suffix *-poj*. Many kinds of verbs, including both middle verbs and ingestives, can take *-poj*, in which case the middle marker again does not appear, as in (36). (The direct voice marker *-a:* alternates with *-na* and appears on *kay-* for phonological reasons.)

(36) a. *ulkwań* *kay-a:-****poj***
PRO.2.SG eat-DR-**CAUS**
"I feed you."

b. *chi-****poj****-na-as*
go_out-**CAUS**-DR-N.AB

"I put it outside."

Data from Movima shows that middle marking can appear on ingestive verbs, and ingestives can behave like middles on other morphological grounds. I argue next that they can also behave like middles semantically in some languages.

4.2 Evidence from English: Lexical Entailments

While evidence from multiple languages can show broad typological patterns, examining a single language in depth provides a different perspective, allowing us to see the details of what a reflexive lexical structure would mean for the semantics of a language and how an antireflexivization operation might work. In this and the following sections, I attempt to show that the predictions such an analysis makes turn out to hold true for English.

The previous discussion raises the question of what *eat*, *feed*, and *make eat* entail. If *feed* and *make eat* have significant meaning differences beyond directness versus indirectness of causation, it indicates that they are adding an argument to the structure of *eat* in different ways, and provides a hint as to the lexical representation of *eat*. I show that *eat* is lexically reflexive and *feed* is the antireflexivized variant of *eat*. To this end, I have also chosen three other verbs to serve as test cases. The middle verbs *wash* and *dress*, and a proposed metaphorical ingestive, *learn*, as well as their transitive and syntactic causative counterparts, are also included. I argue that the meaning differences between these verbs' lexical and syntactic causative variants go beyond directness versus

indirectness of causation and instead support an antireflexivization analysis of causativization.

To illustrate the analysis, I have constructed lexical representations for the four verbs of interest, using the style of representation presented in Rappaport Hovav and Levin (1998) for convenience. I argue for a bieventive, causative representation. The first event consists of an argument acting in a way that is entailed of the agent of the verb. This event causes the second event, which itself consists of an argument acting in such a way as is entailed of the patient of the verb. Importantly, the agent and patient arguments are coidentified. Any other arguments that the verbs require or permit are included. Tentatively, I propose lexical semantic structures in (37) for the verbs in question in their non-causative form.

(37) a. eat: [[ACT$_{\langle manipulate\ food \rangle}$(x)] CAUSE [BECOME$\langle$ *potentially digest* $\rangle$ (x, y)]]

b. wash$_{itr}$: [[ACT$_{\langle manipulate\ water \rangle}$(x)] CAUSE [BECOME $\langle$ *washed* $\rangle$ (x)]]

c. dress$_{itr}$: [[ACT$_{\langle manipulate\ clothes \rangle}$(x)] CAUSE [BECOME $\langle$ *dressed* $\rangle$ (x)]]

d. learn: [[ACT(x)] CAUSE [BECOME $\langle$ *know* $\rangle$ (x, y)]]

These representations reflect the reflexive structure that I propose, wherein reflexivization is over an already causative event structure.

In languages where the direction of derivation is from the intransitive to the transitive, then causativization antireflexivizes the coidentified arguments

such that they no longer need to corefer. The lexical causatives thus have structures as in (38).

(38) a. feed: [[ACT$_{\langle manipulate\ food \rangle}$(x)] CAUSE [BECOME$\langle$ *potentially digest* $\rangle$ (y, z)]]

b. wash$_{tr}$: [[ACT$_{\langle manipulate\ water \rangle}$(x)] CAUSE [BECOME $\langle$ *washed* $\rangle$ (y)]]

c. dress$_{tr}$: [[ACT$_{\langle manipulate\ clothes \rangle}$(x)] CAUSE [BECOME $\langle$ *dressed* $\rangle$ (y)]]

d. teach: [[ACT(x)] CAUSE [BECOME $\langle$ *know* $\rangle$ (y, z)]]

This analysis crucially predicts that, of the entailments that hold of the subject (x) of the simple variant in (37), some will hold of the causer (x) in (38) and some of the causee (y). I argue that this is exactly the pattern that we see when we closely examine the meanings of these four verbs.

4.2.1 "Eat", "Feed", & "Make Eat"

It is difficult to pin down exactly what English *eat* entails. Jackendoff (1990, p. 253) presents a representation for *eat* that translates to, "put something in one's mouth". This meaning was adapted by Amberber (2002), who suggested that *eat* may be somehow reflexive. Indeed, I agree that it is appropriate for the representation to include self-directed action. However, *eat* cannot mean exactly "to put something in one's mouth"; it is possible to put food in one's mouth without eating it. This suggests that *eat* includes more than, or something other than, putting food into one's mouth.

We can draw ideas for some possible lexical entailments from a more thorough account of the meaning of *eat*, such as Croft's (2009) frame semantics analysis. Croft proposes that the process of eating includes three subcomponents, intake (putting something into one's mouth), processing (chewing), and ingestion, and that English *eat* includes all three. If these subcomponents are lexically entailed, we should see that it is not possible to cancel them. I take an in-depth look at each of these proposed subcomponents in turn in order to determine which of them are actually entailed by *eat*. Consider the sentences in (39).

(39) a. #John ate the food, but he didn't put any of it into his mouth.

b. John ate the food, but he didn't chew any of it/ ??didn't swallow any of it.

c. #John ate the food, but he didn't ingest any of it.

At first glance, (39a) sounds infelicitous. The canonical eating situation requires food going into the eater's mouth. Even if we imagine an unusual situation, such as one where John is in the hospital and is attached to a tube providing him with nutrients, the sentence is still not acceptable. It does not seem to matter whether the tube is delivering food to John's mouth or to his stomach or directly into his bloodstream; *eat* is not acceptable in any of those contexts. Importantly, in a hospital context, John is not actively putting any of the food into his own body; it is being done for him.

However, we can imagine a different situation that makes the sentence acceptable. Say an alien species is discovered, and they have different anatomy than a human's; they take food in through the palms of their hands. If John is such an alien, then (39a) becomes fully acceptable. The fact that *eat* is appropriate here indicates that the verb does not entail putting a substance into one's *mouth* per se. Instead, I suggest that the relevant entailment is that the subject of *eat* act agentively by actively participating in an eating process, provided that that process is canonically appropriate to the type of agent.

Next, consider (39b). It is fully acceptable for someone to eat food without chewing it, for example, if the food is gelatin or soup. On the other hand, a variation of (39b), where John ate food without swallowing it, seems highly questionable. Say, for example, John is sitting in a chair with his chin up and mouth open, and a second participant is pouring broth from a spoon down his throat. John does not swallow the soup, but it ends up in his stomach anyway. This situation does not seem to be able to be described with *eat*. Now imagine a variation of that situation, this time with John being more agentive: now John is willingly tilting his head back and holding the spoonful of broth himself, but still not swallowing. Now the situation might be appropriately described with *eat*. The very slight difference between these two scenarios is suggestive of one of the lexical entailments of *eat*: the subject must be actively participating in the processing of the substance eaten.

Sentence (39c) is a little problematic because ingestion is not an easy process to define. The infelicity of the sentence (for me, at least) induces me

to try. Some speakers tell me that *ingest* is a near perfect synonym of *eat*, so it would not be considered a subcomponent of eating at all. Alternatively, we could consider *ingest* to mean something closer to *digest*, where the previously swallowed food is incorporated into the body somehow. One speaker I overheard might agree, producing the sentence shown in (40).

(40) Well, he vomited it all up, so he didn't really *ingest* it, not totally.

Vomiting food prevents it from *di*gesting, but it is unclear whether it prevents it from being *in*gested. Poison Control, for example, does not think vomiting precludes ingesting:

(41) In case of ingestion, induce vomiting.

Croft (2009) finds eating and vomiting compatible, as in his sentence shown in (42). This suggests that vomiting does not necessarily preclude ingestion.

(42) John ate the food, but vomited it up.

It is difficult to define ingestion, and the speakers I consulted differ considerably as to whether they feel that *eat* entails ingestion. Instead, I abandon Croft's notion of ingestion in favor of a similar notion—potential for digestion. Consider sentence (43), where John has swallowed a bag of drugs with the intention of retrieving them, intact, later. In such a situation, we can say that he *swallowed* the drugs, but not that he *ate* them.

(43) John swallowed/#ate the drugs in order to store them in a small plastic bag in his stomach.

In this case, it is clear that there was some kind of processing involved—John actively manipulated the bag of drugs, via swallowing, to get it into his stomach. But there was no potential for digestion that usually occurs when one eats something. The fact that (43) is infelicitous with *eat* suggests that potential for digestion is a necessary subcomponent of the eating process. Based on this example, we can say that the result of *eat* is potential for digestion. To summarize the discussion above, two lexical entailments of *eat* are (a) that the subject is actively involved in a canonical intake process – which, for humans, is putting a substance into one's mouth – and (b) that the subject potentially digest the substance.

Next, we can look at the possible contexts in which *feed* is appropriate. Intuitively, *feed* is most appropriate in a context where a person is manipulating food, placing the food into another person's mouth. A parent feeding a baby, for instance, seems like the most appropriate context. In this situation, the feeder is acting agentively. The feedee, on the other hand, is not necessarily acting with as much agentivity. A baby, for instance, is not necessarily participating in the act of being fed. This is a crucial difference between *feed* and *eat*. If a parent is feeding a young baby, it is not always appropriate to say that the baby ate, particularly if the baby is not participating in the event by, for example, chewing and swallowing. As a child grows older and participates to a higher degree, it becomes more appropriate to say that the child

ate rather than *was fed*.

Consider the sentences in (44), meant to be analogous to (39).

(44) a. John was fed, but no food went into his mouth.

b. John was fed, but he didn't chew or swallow any food.

c. # Mary fed John the drugs in order to store them in his stomach.

If we consider again the situation where a person is in the hospital with a tube attached to them, it becomes appropriate to say that they are being *fed*. Sentences (44a) and (44b) would both be acceptable in such a context. Sentence (44b) would also be appropriate in a context where John was a stubborn baby being fed (or even *force-fed*) by his parents. In (44c) John swallows drugs for later retrieval. If John is not able to potentially digest the drugs, we cannot say that he was *fed* the drugs.

The examples suggest that there is a significant difference in agency between the activities of eating and being fed. An eater must be agentive, but a feedee need not be. Similarly, an eater must be manipulating the food somehow, either with an eating utensil or with his mouth or throat (e.g. by swallowing). However, a feedee is not responsible for manipulating the food in any way; instead, the feeder participant must do so. In this way, the entailment that a participant process the food in some way is required of different participants for the different verbs; it is required of the subject of *eat* (John, in these examples) and of the subject of *feed* (here, Mary).

(45) # Mary fed John without touching any food.

Sentence (45) shows that the canonical feeding situation requires (with one caveat below) that the subject touch food or an eating utensil with food on it. Instead of the eater manipulating the food, the feeder must do so. What is similar about the situations of eating and feeding is that, in both cases, potential to digest something is required of the eater/causee (John in the examples).

Some speakers I consulted find *feed* appropriate in an additional context. Consider a situation in which guests are invited to a host's home for a meal.

(46) a. ?The hosts fed us lasagna.

b. The hosts always feed us well.

To my ears, the most natural interpretation of (46a) is that the hosts physically put lasagna into the guests' mouths, which seems pragmatically unlikely. On the intended reading, it sounds a little odd to me (but not to some other speakers). If we instead make the sentence habitual, as in (46b), the sentence becomes fully acceptable. In this situation, *feed* means something more like *provide food for*. This usage is most acceptable when the hosts have cooked an elaborate meal for the purpose of serving the guests. It would be less appropriate (again, with some speaker variation) in a situation where a family cooked a meal for themselves, and when guests unexpectedly dropped by, they

served the meal to the guests. It would be least appropriate in a context where a family is staying at another's house, and the residents left food in their house accidentally. The visiting family could not say that the resident family had *fed* them. These facts suggest that there are two possible meanings of *feed*: the more canonical *feed*, such as when a parent feeds a child, and the *provide food for* meaning, which has a more restricted use. As I view the latter as an extension of the former, here I am concerned primarily with the former, more canonical use.

The syntactic causative of *eat*, *make eat*, differs significantly from *feed*. Not everyone agrees that the meaning differences between *feed* and *make eat* are significant, arguing that the differences are typical of lexicalization (Amberber, 2002). But while *Mary fed John* most naturally describes a situation where Mary had a forkful of food and put it in John's mouth (or, less canonically, that Mary served John) *Mary made John eat* best describes a situation where Mary supervised John, who put a forkful of food in his own mouth. When *make eat* is used, the processing of the food is again required of the eater and not of the feeder. The contexts in which we can say *make eat* are similar to those of *eat*, with the addition of a supervising participant. Consider the sentences in (47), meant to be analogous to (39) and (44).

(47) a. # Mary made John eat the food, but he didn't put any of it into his mouth.

b. Mary made John eat the food, but he didn't chew any of it/ ??didn't swallow any of it.

c. # Mary made John eat the food, but he didn't ingest any of it.

Here again, as in (39), the eater must be acting agentively, manipulating the food somehow. The feeder, Mary, is not required to manipulate the food at all. In fact, it would be felicitous to say that a doctor is making a patient eat only health foods, for example. Sentence (48) illustrates that this use of *make eat* is perfectly acceptable.

(48) Mary made John eat, but she didn't touch any of his food.

Thus the difference between *feed* and *make eat* is not one of directness of causation alone. It seems that, when *eat* is causativized syntactically into *make eat*, a supervising participant is introduced; that is, a new causation relation is introduced. The difference between *eat* and *feed*, however, is more complex. Instead of the eater being required to agentively manipulate food, the feeder is required to do so, and, crucially, *the requirement that the feedee do so is not present*. This suggests that we can represent the meaning of *make eat* as the representation of *eat* plus a causing participant, but that the derivation of *feed* from *eat* will involve some other kind of operation, whereby the eater's causal responsibilities are shifted to the new participant, but not his digestive properties.

If we assume that *eat* is lexically reflexive, we can propose that the causativization process delinks the coidentified arguments. With *eat*, the entailment that a participant agentively manipulate food is required of the eater,

and the entailment that a participant ingest something is required of the eater. When the arguments are coidentified, with *feed*, the first entailment then holds of the feeder and the second of the eater. This representation allows us to elegantly capture the semantic facts.

4.2.2 "Wash", "Wash", & "Make Wash"

The middle verb *wash* similarly (and more uncontroversially) entails reflexive action. When someone washes themselves, they manipulate water and soap – or some such liquid cleanser – on their bodies, with the intention of becoming clean. The sentences in (49) are suggestive of some possible lexical entailments of intransitive *wash*.

(49) a. # John washed without touching any liquid cleanser.

b. # John washed without touching his own body.

c. John washed, but he still wasn't clean afterwards.

The sentences in (49) show that washing oneself entails that the washer use liquid cleanser (like soap and water) and come into contact with his own body, but not necessarily to become clean as a result, though becoming clean is the default expectation and implication. Therefore, intransitive *wash* entails manipulation of liquid cleanser as well as action towards the self.

Transitive *wash* has similar entailments that hold of the washer participant. The sentences in (50) show what is required of the washer.

(50) a. # Mary washed John, but she didn't touch any liquid cleanser.

b. # Mary washed John, but she didn't touch him at all.

c. Mary washed John, but he still wasn't clean afterwards.

While it is not entailed that any participant be clean at the end of a washing event, if any participant *is* expected to be clean, it is John and not Mary. The washer participant is required to manipulate liquid cleanser, and also to touch the washee. Transitive *wash* is appropriate in a context where the washee does not participate in the activity at all; for example, if John were a baby. Note that John does not need to manipulate liquid cleanser or touch his own body at all.

(51) a. Mary washed John, but he didn't handle any liquid cleanser.

b. Mary washed John, but he didn't touch his own body at all.

The sentences in (51) show that the requirements that John manipulate liquid cleanser and that he touch his body no longer hold of him; they have been shifted to the washing participant, Mary.

On the other hand, *make wash* has the same entailments of self-directed action as *wash*. The sentences in (52) parallel (49) and (50).

(52) a. Mary made John wash, but she didn't touch any liquid cleanser.

b. Mary made John wash, but she didn't touch his body at all.

c. Mary made John wash, but he still wasn't clean afterwards.

The sentences in (52) are all acceptable, showing that Mary is not responsible for manipulating liquid cleanser or touching John. It would be appropriate to use *make wash* in a situation where Mary supervised John or required that he wash, without being physically involved in the washing event. John, however, is now required to manipulate liquid cleanser and touch his body.

(53) a. # Mary made John wash, but he didn't handle any liquid cleanser.

b. # Mary made John wash, but he didn't touch his own body at all.

The sentences in (53) show that *make wash* has the same entailments for the washed person as intransitive *wash*: that participant is expected to be clean afterwards, to handle liquid cleanser, and to touch his own body. Transitive *wash*, however, entails that the washer handle liquid cleanser and touch the washee's body, and it is expected of the washee to become clean. Under an analysis where transitive *wash* is simply intransitive *wash* plus a causing participant, these facts would be hard to explain. Under an analysis where these verbs are reflexive, however, we can easily do so. Of course, if the direction of derivation is from a transitive to an intransitive, as in French, then a reflexivization analysis would be appropriate and would explain the facts I have outlined here, since it would mean that the lexical entailments required of the two participants of the transitive variant would be required of the single participant of the reflexivized variant (Reinhart & Siloni, 2005). If, however, the direction of derivation is from an intransitive to a transitive, an antireflexivization analysis would also capture these semantic facts, by splitting

the lexical entailments of one participant into two sets, each associated with a different participant.

4.2.3 "Dress", "Dress", & "Make Dress"

The middle verb *dress* behaves similarly. Intransitive *dress* requires that the subject participant manipulate clothing and act towards himself, and that he end up fully dressed at the end of the event:

(54) a. # John dressed without handling any of the clothes.

b. # John dressed without touching anything to himself.

c. # John dressed, but he's only wearing his socks.

The sentences in (54) show that intransitive *dress* requires that the participant manipulate clothes and that the clothes touch the participant. While it is possible to dress without literally touching one's own body directly (e.g. while wearing gloves), it is not possible to dress without indirectly touching oneself. Finally, (54c) shows that an event of dressing is only completed when one is wearing the entire intended outfit, or at least a good portion of it.

Transitive *dress* is most appropriate in a situation where the dressee is a small child or otherwise helpless person, and the dresser is a parent or helper. Like *wash*, it requires some of the entailments that the intransitive variant requires of its participant to transfer to the added participant. The sentences in (55) are meant to parallel those in (54).

(55) a. # Mary dressed John, but she didn't handle any of the clothes.

b. # Mary dressed John, but she didn't touch anything to him.

c. # Mary dressed John, but he's only wearing his socks.

Sentence (55a) shows that the dresser participant must manipulate clothes in some way. Sentence (55b) shows that the dresser participant must act towards the body of the dressee. Finally, sentence (55c) shows that the dressee must end up fully dressed, at least to the intention of the dresser.

Note that the dressee lacks the obligations with transitive *dress* that he had with the intransitive variant regarding the process.

(56) a. Mary dressed John, but he didn't handle any of the clothes.

b. Mary dressed John, but he didn't touch anything to himself.

The dressee is not required to manipulate the clothing or direct his action toward himself at all; the only requirement is being dressed.

Like *feed*, transitive *dress* can have a less directly causative reading, for some speakers, than the one above. It can be used in a situation where a child's parents do not physically dress the children, but set clothes aside for them to dress themselves in, as in (57a).

(57) a. ?The parents dressed the children in expensive clothes.

b. The parents always dress their children in expensive clothes.

As with the *provide-food-for* meaning of *feed*, this *dress* is more acceptable (to me at least) in habitual contexts; (57a) sounds more acceptable than (57b).

While sentence (57b) has a reading where the parents physically dressed the children, it can also mean that they provided clothes for them. To my ears, this sentence would be most appropriately used when the speaker is indicating that the parents are very involved in the children's choice of clothing; it is not just that the parents bought clothes for the children, but that they put in extra care in choosing them. This *dress* would not be appropriate if, for example, a person accidentally found some clothing and then gave it to another person, or if one person was wearing clothing that another person owned without the owner's knowledge. In this way, it is analogous to the *provide-food-for* reading of *feed*, and is similarly not a prototypical use of the verb; I thus set it aside for now.

The syntactic causative variant, *make dress*, has the same requirements of the dressing participant that the lexical causative variant has of the causing participant.

(58) a. # Mary made John dress, but he didn't handle any of the clothes.

b. # Mary made John dress, but he didn't touch anything to himself.

c. ?? Mary made John dress, but he's only wearing his socks.

The sentences in (58) are analogous to those in (54) and (55). With this usage, John is again the agent, manipulating the clothing himself and directing some action towards himself. Mary might be supervising John or otherwise requiring him to dress, but she is not necessarily in the room.

(59) a. Mary made John dress, but she didn't handle any of the clothes.

b. Mary made John dress, but she didn't touch anything to him.

The sentences in (59) show that Mary is not required to do anything with the clothing or to touch John, unlike with the transitive variant of *dress*. These facts suggest that transitive *dress* is not merely intransitive *dress* with the addition of a causer participant. Instead, some of the entailments of the participant in intransitive *dress* are required of the causer of transitive *dress*, others of the causee/patient.

4.2.4 "Learn", "Teach", & "Make Learn"

The last English verb I examine here, the proposed metaphorical ingestive *learn*, provides the least conclusive evidence of differential lexical versus syntactic causativization by the lexical entailment tests. Because the meaning is so abstract, it is difficult to say exactly what is entailed of the causer participant. However, although the evidence from lexical entailments may be less than convincing, under all other diagnostics, *learn* does behave as expected if it had a bieventive, causative structure, as I show below.

Nonetheless, regarding lexical entailments, *learn* requires that the participant know the thing learned.

(60) # John learned French/the answer, but he still doesn't know it.

Similarly, the lexical causative, *teach* may require that the learner participant know the thing learned.

(61) ?? Mary taught John French/the answer, but he still doesn't know it.

Sentence (61) may be acceptable to some speakers. To my ears, the sentence is acceptable in a context where Mary was the teacher of John's French class for a number of years, but that he never learned French. This seems to me like a slightly different meaning, one where the activity of teaching, rather than the result of John's having learned, is highlighted. Oehrle (1976, p. 75) argues that there are two senses of *teach*, an activity sense and a causal sense. In a sentence like (61), it is ambiguous whether the activity or causal reading is intended. A sentence like (62), however, has only an activity interpretation.

(62) Mary taught French to John, but he still doesn't know it.

I agree that (62) does not entail that John knows French. Neither would (61) on an activity reading. However, I agree with Oehrle that *teach* is ambiguous between the two readings (rather than vague), and that (61) can be interpreted with a causal reading which renders the sentence infelicitous.

Similarly, the syntactic causative *make learn* may entail that the learner know the thing learned.

(63) ?? Mary made John learn French/the answer, but he still doesn't know it.

Another possibility is that, in some languages, *teach* alternates not with *learn*, but with *study*. In Egyptian Arabic, for example, the verb *daras* "study"

causativizes as *darras* "teach" (Zaheed, n.d.). In this case, the simple form would not entail that the participant know the subject being studied.

Because *learn* and *teach* have such abstract meanings, it is difficult to pinpoint exactly what they entail on the part of either participant, besides the resulting state of knowledge at the end of the event. It is, however, possible to show that there is some significant difference between the lexical and syntactic causative. Imagine that John is learning French. If the simple variant is used, John may be learning French any number of ways, whether alone or with a teacher. If the lexical causative is used, the teacher (Mary) must know French; she cannot merely be telling John to attend a course, or giving him a textbook and telling him to study. (The subject can be inanimate or clausal, as in (64b), but if it is capable of knowing the thing being taught, it must be the case that it does.) Alternatively, if the syntactic causative is used, Mary need not know French at all.

(64) a. # Mary taught John French, but she doesn't speak a word.

b. It/listening to the radio taught John French.

c. Mary made John learn French, but she doesn't speak a word.

This shows that there is a significant difference between the lexical and syntactic causative. It is not entirely evident from this analysis why this meaning difference should occur. However, these sentences support the idea that the lexical and syntactic causatives are not behaving in the same way, and this difference is not due to the difference in the directness of causation.

This section has shown that, of the entailments that are required of the single participant of the simple form of all of these verbs, some are entailed of the causer participant and some of the causee participant of the causative variant. In languages where the simple form is unmarked and the causative is derived, these semantic facts can be captured by an analysis under which the simple variant is lexically reflexive, having a bieventive, causative structure, and the causative variant is an antireflexivized version of such. The next section argues for such representations using evidence from various kinds of sublexical modification.

4.3 Event Structural Complexity

If the representations in (37) are accurate, there should be evidence of CAUSE in the intransitive variants. In this section, I argue that three diagnostics, originating from Dowty (1979), suggest that the intransitive forms of middle verbs have a complex internal structure of the same kind as verbs that are assumed to be bieventive. If this is the case, then perhaps these verbs are also bieventive, which, under standard assumptions, means that they have CAUSE in their meaning. This explains why antireflexivizing one of these verbs leads to a causative meaning.

If a verb has complex internal structure, it should show ambiguities with certain modifiers. Verbs like transitive *open* have at least two readings when modified by postverbal *again*. The first reading is one where the result state is reached again, and the second is one where the agent performs the

action again. This test follows Dowty (1979) and Beck and Johnson (2004).

(65) John opened the door again ...

a. ...and it had been open before. (restitutive)

b. ...and this had happened before. (repetitive)

The reading in (65a) can be attained in a context where a house has just been built, and the door was built hanging open from its frame, never having been closed before. Someone closed the door for the first time, and then John returned it to its open position. Alternatively, it would be appropriate to use the sentence, with the same reading, if someone other than John opened the door, it was closed somehow, and John opened it. Importantly, John need not have opened the door twice. The reading in (65b) is more natural to my ears, and can be attained in a context where John opens the door twice.

We can represent the meaning of *open* as in (66), following Dowty (1979). The modifier can scope over all or just part of the verb's structure.

(66) [[ACT(x)] CAUSE [BECOME ⟨ open ⟩(y)]]

a. [[ACT(x)] CAUSE [BECOME ⟨ **again**(open) ⟩(y)]]

b. **again**([ACT(x)] CAUSE [BECOME ⟨ open ⟩(y)]])

One option is that *again* could modify only the internal subevent, meaning that the agent caused the patient to be at the result state again; this is the restitutive reading shown in (66a). Another option is that it could modify the entire event, with the meaning that the agent did the entire action again. This

is one of the repetitive readings, shown in (66b). Some speakers may accept other repetitive readings corresponding to other scope positions; however, all that is necessary for present purposes is that there is at least one repetitive reading in addition to the restitutive reading.

Contrastingly, verbs like *walk* do not show the same kind of ambiguities with postverbal *again* modification. This is because the verbs' lexical structures are not as complex. A verb like *walk* has only a single event in its representation, shown in (67). Modifiers like *again* can only modify the single event, as in (68).

(67) $[\text{ACT}_{\langle walk \rangle}(\text{x})]$

(68) $\textbf{again}([\text{ACT}_{\langle walk \rangle}(\text{x})])$

Sentence (69) can only be understood to mean that John walked twice (the repetitive reading). Because walking does not entail a result state, there is no reading where the result state is restored.

(69) John walked (the trail) again. (repetitive)

The only reading available is that John walked (along the trail) twice. There is no easily available reading where someone else walked along the trail, and then John walked it afterwards.[7]

[7]If we use (69) in a context where a result state is implied, a restitutive reading can be achieved, at least for some speakers. For example, if John's job is to walk the trail, cleaning up litter as he walks, then (69) could be ambiguous between a situation where John walks the trail twice and one where the trail starts out litter-free, becomes littered, and then John

In contrast, middle and ingestive verbs *do* have the same kind of ambiguities with *again* as *open* does. This indicates that they, too, have bieventive structure. As test cases, I again consider *eat, wash, dress,* and *learn*. These four verbs each show ambiguities with *again*.

It is tricky to find a context in which *eat again* is pragmatically acceptable. The same edible object needs to be eaten twice, an event which does not happen in real world contexts. However, if we consider fanciful contexts in which eating something again is possible, both relevant readings can be attained. To get the restitutive reading, it is necessary to find a context where the same edible object is eaten more than once, and by different agents. Imagine someone playing a video game in which one of the tasks for the player is to eat coins. First, the player successfully eats the coins. Later, that player dies and the level has to be re-played. Now, the player gives the controller to another person, who has to complete all the same tasks as the first player. The players have the shared goal of finishing the level.

(70) Your guy ate the coin again ...

a. ...and it had been eaten before.

b. ...and this had happened before.

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cleans the trail as he walks (or, perhaps, where someone other than John cleans the trail as he walks, and then John does). However, this reading seems forced to me, and, importantly, they entail an understood result state that is usually not present in the meaning of *walk*. In the most natural use of (69), there is only a repetitive reading. This indicates that *again* can only modify the single event in the verb's representation.

In this context, it is possible to imagine the first player instructing the second to "eat the coins again," even though the second player had not eaten the coins before. Although the context is contrived, the reading is available. It is even possible for each player to be using a different avatar to eat the coins; that is, a different agent is causing the coins to reach the state of being eaten. The repetitive reading in (70b) is more readily available; just imagine a single player eating the coins once, then having to re-play the level and eating the coins a second time.

Other verbs allow more straightforward evidence of ambiguities. With the middle verb *wash*, *again* allows for restitutive and repetitive readings, although the restitutive reading may be difficult for some speakers.

(71) John washed again ...

a. ...and he had been clean before.

b. ...and this had happened before.

To my ears, the restitutive reading in (71a) can be attained in a context where John had always been relatively clean and had never needed to bathe, and then suddenly got very dirty. Afterwards, he washed himself and became clean again. Alternatively, John could be a small child who was washed by someone else first, then became dirty and later washed himself. Some speakers find this reading more difficult to get, but it does seem available to others.[8]

[8]Some speakers I have consulted do not get a restitutive reading for *wash* as used in (71). These speakers may have idiosyncratically lexicalized *wash* with an opaque root consisting

The repetitive reading in (71b) is that John washed himself twice.

The middle verb *dress* allows a restitutive and at least one repetitive reading with *again*.

(72) John dressed again ...

a. ...and he had been wearing clothes before.

b. ...and this had happened before.

The restitutive reading in (72b) can be attained in a context where John is a small child who is usually dressed by his parents. After he is undressed, he dresses himself (perhaps for the first time). In this context, it is appropriate to say that he dressed again. Another context that might work for some speakers is to imagine that John is a robot who came straight from the factory wearing clothes. After his owner undressed him, he put his clothes back on. Saying that he dressed again means that he restored himself to the state of begin dressed. The repetitive reading in (72b) is more natural, which is that John dressed himself once before, and then did so a second time.

Finally, the proposed metaphorical ingestive verb *learn* has the same ambiguities when modified by postverbal *again*.

(73) John learned English again ...

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of manner and result packaged together, forming a scopal unit; see Beavers & Koontz-Garboden (in press). However, of the speakers I consulted, all who disprefer a restitutive reading for (71) accept a restitutive reading with a cat subject, e.g. *The cat washed again*, in the context where its owner had just washed it.

a. ...and he had known it before.

b. ...and this had happened before.

The restitutive reading in (73a) can be attained if we say that John had always known English—if, for example, English was his native language. Some might say he never really *learned* English, he merely acquired it. Subsequently, he forgot English, and learned it again later in life. That is, he returned to the state of knowing English. Alternatively, the example *John learned how to breathe again* might give a restitutive reading more clearly. Infants do not learn how to breathe; the process is instinctual. John was in an accident, lost the ability to breathe, and had to be put on a respirator. Then, after much physical therapy, John learned how to breathe again. That is, he returned to the state of knowing how to breathe. The repetitive reading in (73b) is easier to get; John is not a native speaker of English, but he took English language courses in his childhood and could speak English well. After completely forgetting English during his adulthood, he learned it again.

A second test proposed by Dowty (1979) involves prefixation with *re-*. Verbs prefixed by *re-* allow a restitutive reading but never a necessarily repetitive reading (Dowty, 1979; Wechsler, 1989; Marantz, 2007). Recall that English *open* has a bieventive structure whose entire structure or just the result state may be modified.

(74) I re-opened the door ...

a. ...and it had been open before.

b. ...and this had happened before.

The restitutive reading in (74a) is easily available, perhaps again in a context where the door was built open and was closed and opened for the first time by John. Because a repetitive reading entails the restitutive reading, the repetitive reading can be pragmatically derived from the restitutive reading when the entire action has happened before, as in (74b).

Unlike *re-open*, *re-walk* cannot occur with a restitutive reading. An object, *the trail*, is added to (75) because *re-* strongly prefers monotransitive verbs (Dowty, 1979; Wechsler, 1989; Keyser & Roeper, 1992; Marantz, 2007).

(75) John re-walked the trail.

Like *walk the trail again*, *re-walk the trail* can have a restitutive reading only in the specialized context of cleaning the trail as he walks (see footnote 4.3), but not in a more natural context. This is because, with *walk*, there is no result state to restore.

Verbs like *eat, wash, dress,* and *learn* allow a restitutive reading with *re-*, supporting the idea that they have a bieventive structure. Some analyses of *re-* specifically note that *re-eat* is not a possible form (Lieber, 2004, p. 147). However, there are naturally occurring examples of *re-eat*, especially concerning sick pets, as in (76).

(76) a. I feel like a horrible pet-parent for admitting it, but sometimes I let my dogs re-eat their own dinner.

http://www.shibainuforum.org/forum/discussion/6658/is-it-okay-to-let-my-dog-eat-his-regurgitated-meal/p1

b. Your pet may try to re-eat the regurgitated food.
http://www.petmd.com/dog/conditions/digestive/c_multi_vomiting_chronic#.T5HxFtUu6lg

Constructed examples show that *re-eat* allows both a restitutive and a repetitive reading. Imagine again a context where two people are playing a video game, one at a time. Just as before, the player dies and the level has to be played again. In such a context, the player could say sentence (77).

(77) I have to drive the race again, jump the hoops again—I even have to re-eat all the coins!

Sentence (77) is acceptable to me (and four other video-game versed speakers I consulted). It is important to note that (77) could just as easily be said by either video game player. It would be appropriate in a context where a player who had already eaten the coins was going to play the level over again, and it would also be appropriate for the other player, who had not yet eaten any coins, to use that sentence. This shows that *re-* is modifying the result state of *eat*.

Similarly, *wash* may be modified by *re-* to get a restitutive reading. It is interesting that *re-* is allowed with intransitive *wash* at all, as *re-* usually only attaches to monotransitives, as noted above. A naturally occurring example is provided in (78).

(78) Bathing kitty regularly (at least monthly) is recommended. [...] And, of course, kitty won't think you did it right and he/she will immediately "rewash".
`http://www.leclubfur.com/grooming.htm`

On this analysis, intransitive *wash* has a bieventive lexical structure, including a result state that *re-* can modify. This predicts the fact that *re-* can occur with *wash*. In (78), first the cat is washed by its owner, and then it washes itself. This indicates that *re-* is being used restitutively, suggesting that *wash* has a result state.

(79) John re-washed ...
  a. ...and he had been clean before.
  b. ...and this had happened before.

Similarly, *re-wash* in (79) allows both a restitutive and a repetitive reading. The fact that the restitutive reading is available indicates that there is a result state over which *re-* can scope.

Similarly, *dress* can be prefixed by *re-*, leading to the same kind of readings. As with *wash*, we might not expect intransitive *dress* to be able to take *re-* at all, and the fact that it can do so is telling regarding its event structure. The naturally occurring examples in (80) show that it can.

(80) a. After a vigorous scrub in the shower that left his skin red, he redressed in clothes that 'she' hadn't touched.

http://www.fanfiction.net/s/5777900/6/Shattered

b. I tossed Draco's clothes at him, and he redressed.
http://www.quizazz.com/story.php/1460760/Enemies-With-Benefits-A-Dramione-Love-Story/4/

Again, this fact is predicted on an analysis that says that verbs like *wash* and *dress* have bieventive structures. In (81), both a restitutive and repetitive reading are possible, showing that *dress* has a result state over which *re-* can scope.

(81) John re-dressed ...

a. ...and he was wearing clothes before.

b. ...and this had happened before.

The verb *learn* also allows ambiguities with *re-* prefixation. Unlike with *eat, wash,* and *dress*, *re-learn* is not a contested form.

(82) John re-learned English ...

a. ...and he had known it before.

b. ...and this had happened before.

Both the restitutive reading in (82a) and the repetitive reading in (82b) are possible, again showing that *learn* has a bieventive structure, with a result state over which *re-* can scope. Based on this diagnostic, we can assume that *eat, wash, dress* and *learn* have bieventive structures available for modification by *re-*.

A third way to test for a complex internal structure is to use the scope of another modifier. Modification with *almost* should produce ambiguities in the middle verbs that are not present with other kinds of verbs. This test also originates from Dowty (1979). We can see that *almost* produces ambiguities with a verb that we already know is internally complex, such as *kill*. There are at least two very distinct situations in which *almost kill* is appropriate, illustrated in (83).

(83) John almost killed the cat.

a. John almost did something that would have caused the cat to die, but instead he didn't do anything.

b. John did something to the cat which almost killed it, but luckily it survived its injuries.

In (83a), John could have, for example, almost started the car while the cat was hiding in the engine. Instead, John did not start the car at all. In (83b), John could have started the car while the cat was hiding in the engine, but the cat escaped in time to save its life. In (83a), *almost* has wide scope over the whole event, while in (83b), *almost* has scope only over the event of the cat's dying. The verb has a complex internal structure which may be modified in more than one position, allowing for these kinds of ambiguities.

A verb like *cry*, on the other hand, does not have such ambiguities because there is only one position for *almost* to appear in.

(84) John almost cried.

Sentence (84) has only one meaning; John did not do any crying.

Looking at the ingestive and middle verbs, we can see that these verbs do allow ambiguities with *almost*.

(85) John almost ate the pie.

a. He almost started eating the pie, but he ended up eating none of it.

b. He ate part of the pie, but just a tiny pinch of the crust.

The sentence in (85) is ambiguous in at least two ways. It would be appropriate in two very different contexts. It could be used in a situation where John almost started eating the pie, but thought better of it and ate none of it. It would also be appropriate in a situation where John did start eating the pie, but did not eat very much at all. That is, even though John did an action of eating, the pie did not end up in the result state of having been eaten, at least to some conventional degree that constitute "being eaten".

Similarly, the middle verb *wash* allows ambiguities when modified by *almost*.

(86) John almost washed.

a. He almost started to wash himself, but then he didn't.

b. He started to wash himself, but ended up washing only his little finger.

Sentence (86) is appropriate in two different contexts. The first context could be one where John decides he needs a shower, turns on the faucet, and then decides otherwise and turns it back off without having gotten wet at all. In this case, he has not washed any part of his body. The sentence is also appropriate in a context where John *does* wash some part of his body, but not very much of it, after realizing that he would rather remain dirty. In this case, John has done some washing activity, but his body cannot be said to be washed.

The middle verb *dress* behaves similarly.

(87) John almost dressed.

a. He almost started to dress himself, but then he didn't.

b. He started to dress himself, but he just got his socks on.

Here, too, sentence (87) would be appropriate in two very different contexts. The first context might be a situation where John is getting out of the shower, ready to put on his clothes, but then he decides not to. It would also be appropriate in a context where John intends to wear a full ensemble of dress clothes, but instead he puts on only his socks, deciding he would rather stay undressed. In this case, even though he has done some dressing, he is not in the state of being dressed.

Finally, the proposed metaphorical ingestive *learn* also allows ambiguities with *almost*.

(88) John almost learned French.

a. He almost took a course in French, but didn't, and he still doesn't know a word.

b. He learned some French, but he is still not very competent.

Sentence (88) is appropriate in a situation where John does not know any French at all; he almost did something which would have led to his knowing some French, but he did not. It is also appropriate in the very different context where John speaks beginner French. He can use greetings and produce novel sentences, but he speaks haltingly and makes many errors. Clearly, John has learned some French, but he has not learned it well enough to say that he knows French. He has not reached that state yet.

Using the scopal ambiguities of *again*, *re-*, and *almost*, we have seen that the middle and ingestive verbs *eat, wash, dress,* and *learn* behave as though they have event structural complexity, suggesting that they have bieventive, causative structures even in their simple form. The modifiers may scope over different parts of the event structures, producing the ambiguities that we see above. This furthers the argument that the semantic relationship between the simple versus causativized variants is simply one of antireflexivization. The next section provides further evidence of a bieventive structure.

4.4 Negation and the CAUSE Operator

This section presents additional, though tentative, evidence that the four verbs of interest have bieventive, causative structures in their simple

forms. The basic argument laid out in this section originates from Koontz-Garboden's (2009) analysis of the underlying causative structure of Romance unaccusatives. Koontz-Garboden argues that, in some Romance languages, it is possible to deny a clause with the anticausative variant of a verb while asserting a similar clause with the causative variant. This generates a non-contradictory sentence that maintains the outcome of the event, but not the causation. If the anticausative variants did not have CAUSE in their meaning, then the sentences should be contradictory, because a speaker would be denying the result state, which is presumably the only event described by the simple form of the verb, but then asserting that the result state was caused by some participant, which means also asserting that the result still obtained. The fact that this is not contradictory suggests that the verbs have a bieventive, causative structure. In this case the speaker is able to deny that the first event caused the second event, while still asserting that the second event took place, albeit with a different causer.

Horvath and Siloni (2011), while arguing against Koontz-Garboden's analysis of Spanish unaccusatives, nevertheless show that it is possible to deny the simple variant and assert the causative variant for Spanish middle verbs. Both Koontz-Garboden and Horvath and Siloni are careful to show that the negation involved is logical rather than metalinguistic. Following these two accounts, I show that it is possible to deny the simple variant of each of the four English verbs I am using as test cases while asserting their causative variants. This leads to one reading that is not contradictory. Using evidence

from negative polarity items, I show that the negation in question is logical rather than metalinguistic. I argue that the fact that logically negating the simple variant while asserting the causative variant provides tentative evidence that the simple variants already have CAUSE in their meanings.

Koontz-Garboden (2009) provides the Spanish sentence (89) as an example of denying a clause containing the unaccusative variant of a verb while asserting the causative variant.

(89) *No se rompió sino que tú lo rompiste!*
"It [the glass] didn't break; you broke it!"

As evidence that the negation in (89) is logical rather than metalinguistic (as in Horn 1985, see below), he provides sentence (90), a variant of (89) with the addition of the negative polarity item (NPI) *ningún* under the scope of the negation.

(90) *No se rompió ningún vaso; los rompió Andrés*
NEG REFL broke any.NEG glass them broke Andrew
"Any glass didn't break; Andrew broke them."

A speaker of a sentence like (90), Koontz-Garboden argues, is not denying that the glass broke; rather, they are denying that the glass was the cause of its own breaking, which his analysis of anticausatives predicts. The fact that a speaker is able to deny the causation but maintain the result state provides evidence that the causation was already present in the meaning of the verb.

Spanish middles like *lavarse* "wash" may also have a causative structure. Horvath and Siloni (2011) find that some Spanish negated middle verbs show the same pattern, even with NPIs like *en absoluto* and *ningún*, as in (91).

(91) *El niño no se ha lavado; lo ha lavado la nodriza.*
the boy NEG REFL has washed him has washed the nanny
"The boy didn't wash; the nanny washed him."

a. *El niño no se ha lavado en absoluto; lo ha lavado la nodriza.*
the boy NEG REFL has washed at all him has washed the nanny
"The boy didn't wash at all; the nanny washed him."

b. *Ningún niño no se ha lavado; lo ha lavado (a todos) la nodriza.*
no boy NEG REFL has washed them has washed (to all) the nanny
"No boy washed; the nanny washed them (all)."

The fact that the sentence in (91) can take NPIs indicates that the negation present is logical rather than metalinguistic, and the fact that the first clause is negated while the second is asserted indicates that what is being asserted is that the boy was not the cause of his own washing, suggesting that the intransitive variant has a causative event structure.

As with Spanish unaccusatives and middles, it is possible to negate clauses with the simple variants of the English verbs we are interested in while asserting that the outcomes were caused by an outside participant. To begin, we can examine the behavior of the ingestive verb *eat*. It is possible to deny

the simple form while asserting the lexical causative variant, as in (92). To me and at least three other speakers, (92) sounds acceptable.

(92) I didn't eat pie; you fed pie to me!

Different representations of the verb *eat* lead to different predictions about whether sentence (92) should be acceptable. A representation of *eat* as a simple activity predicts that (92) should be contradictory. On the other hand, a bieventive, causative representation predicts that it should be felicitous, at least on one reading. First, assume that the representation of *eat* is simple, with one event and no CAUSE operator, as in (93).

(93) eat: [ACT$_{\langle potentially\ \ digest \rangle}$(x, y)]

Now, imagine that we causativize *eat* by adding a causer argument, a feeder, to the representation, as in (94).

(94) feed: [[ACT(x)] CAUSE [ACT$_{\langle potentially\ \ digest \rangle}$(y, z)]]

If these representations were accurate, a speaker could not say *I didn't eat pie, you fed me pie!*, asserting the complex event but denying one of its subevents. This would necessarily result in a contradiction, as in (95).[9]

[9]The event templates used here are not logical representations, so it is somewhat inappropriate to use the logical negation symbol ¬. However, it is convenient to do so here. Readers can think of the event templates as corresponding to elements of the logical structure of the verb, and assume that the negation symbol negates the lexical entailments introduced by the corresponding structure.

(95) $\neg$[ACT$_{\langle potentially\ digest \rangle}$(I, pie)]
& [[ACT(you)] CAUSE [ACT$_{\langle potentially\ digest \rangle}$(I, pie)]]

That is, *I didn't eat pie, you fed me pie!* would mean something like *#I did not potentially digest pie, you made me potentially digest pie!* There would be no interpretation of the scope of the negation that did not yield a contradiction. Therefore, the representation of *eat* in (93) incorrectly predicts that sentence (92) is infelicitous.

Consider now the more complex representation of *eat* in (96), one that I argue is more accurate.

(96) [[ACT$_{\langle manipulate\ food \rangle}$(x)] CAUSE [BECOME$\langle$ potentially digest $\rangle$ (x, y)]]

Again, imagine that we causativize *eat*. This time, instead of adding a causer argument to the representation, the causer argument of *eat* and the ingester argument are delinked or antireflexivized. Such a representation would look like (97).

(97) [[ACT$_{\langle manipulate\ food \rangle}$(x)] CAUSE [BECOME$\langle$ potentially digest $\rangle$ (y, z)]]

If this representation is accurate, it should be possible to say *I didn't eat pie, you fed me pie!*, because denying the complex event represented by the first clause and asserting the complex event represented by the second clause would not necessarily result in a contradiction. The denial of the first clause indicates the negation of the conjunction of the lexical entailments introduced by the verb. By distributivity, one of those entailments must be false. Therefore,

one interpretation of such a clause is that the causer participant did not cause the result to be reached. This leaves open the possibility that the result was reached some other way. This is one possible non-contradictory interpretation of sentence (98).

(98) (¬[[ACT$_{\langle manipulate\ food \rangle}$(I)] CAUSE [BECOME⟨ potentially digest ⟩ (I, pie)]])
& [[ACT$_{\langle manipulate\ food \rangle}$(you)] CAUSE [BECOME⟨ potentially digest ⟩ (I, pie)]]

The relevant interpretation of (98) could be paraphrased as *I didn't cause myself to potentially digest pie, you caused me to potentially digest pie!*, which is not contradictory. The representation of *eat* in (96) correctly predicts that sentence (92) can be non-contradictory.

One objection that arises here is that perhaps sentences like (92) are using metalinguistic negation. Instead of denying that the sentence with the simple variant of the verb is true, perhaps the speaker is saying that it is inappropriate to use the simple variant when the causative variant is true (see Horn 1985). In that case, the speaker would be saying that the simple variant does not express enough of the relevant information about the event, violating Grice's Maxim of Quantity (Grice, 1975).

In order to test whether sentences like (92) are examples of logical negation or metalinguistic negation, we can try inserting NPIs under the scope of the negation. Metalinguistic negation does not license NPIs like *any* and

at all (Horn, 1985). If a sentence uses only metalinguistic negation, then a sentence with *any* should be infelicitous. Consider sentence (99). In a situation where John solved all of the problems, it would be inappropriate to say that John solved some of the problems. Because a speaker would be assumed to be following Grice's Maxim of Quantity, a scalar implicature, lexically triggered by *some*, would be generated that John did not solve all of the problems. Sentence (99) generates such an implicature. If a speaker wants to deny the implicature that is generated, he might utter sentence (99a). In that case, the speaker is using metalinguistic negation to deny the implicature. Because metalinguistic negation does not license NPIs, inserting the NPI *any* under the scope of negation in (99b) yields an infelicitous sentence. Thus denying scalar implicatures about quantity does not license the NPI *any*.

(99) John solved some of the problems.

a. John didn't solve some of the problems; he solved them all!

b. #John didn't solve any problems; he solved them all!

Contrastingly, using an NPI with logical negation is felicitous, as sentence (100) shows.

(100) John didn't solve some of the problems; in fact, he didn't solve any of them.

Sentence (100) involves logical negation, and *any* is under the scope of the negation. Logical negation licenses NPIs, so sentence (100) is felicitous.

Similarly, *at all* is an NPI that renders a sentence with metalinguistic negation infelicitous. However, we must be careful that *at all* falls under the scope of the negation. Consider sentence (101).

(101) John didn't solve *some* problems at all, he solved them all!

As mentioned before, the relevant scalar implicature is lexically triggered by *some*. When sentence (101) is uttered with focus intonation on the trigger, the scope of negation is just *some*. This means that *at all* is not under the scope of the negation. It is, however, still c-commanded by *not*, and so it is licensed in this sentence. This could cause a problem for diagnosing metalinguistic negation. To avoid it, I use example sentences in which the implicatures are not lexically triggered, but instead triggered by the verb phrase as a whole.

A cooperative speaker uttering sentence (102) would implicate, by following the Maxim of Quantity, that he did not drive anywhere besides the drug store.

(102) I drove your car to the drug store while you were out of town last weekend, hope you don't mind.

a. I didn't drive your car to the drug store while you were out of town last weekend; I drove your car to the drug store, the grocery store, and to visit some friends way out in the Hill Country!

b. # I didn't drive your car to the drug store while you were out of town last weekend at all; I drove your car to the drug store, the grocery store, and to visit some friends way out in the Hill Country!

Sentence (102a) uses metalinguistic negation. When *at all* is added to the negated clause, under the scope of negation, as in (102b), the sentence becomes infelicitous.

Like *any*, if *at all* occurs in a clause with logical negation, the sentence should be felicitous.

(103) I didn't drive your car to the drug store while you were out of town last weekend at all; in fact, I didn't drive your car anywhere.

A third NPI is useful as well. Negative polarity *ever* can only occur with logical negation.

(104) # I didn't ever drive your car to the drug store while you were out of town last weekend; I drove your car to the drug store, the grocery store, and to visit some friends way out in the Hill Country!

Sentence (104) shows that when the only negation present is metalinguistic, then the NPI *ever* is not licensed. However, it is licensed with logical negation.

(105) I didn't ever drive your car to the drug store while you were out of town last weekend; in fact I didn't drive your car anywhere.

Logical negation licenses the NPI *ever* in (105).

With the three NPIs at our disposal, we can now diagnose the type of negation present in the types of sentences we are interested in. Sentences like (92), repeated as (106), deny the simple variant of the verb and assert the

causative variant. I use *any*, *at all*, and *ever* under the scope of the negation. If the resulting sentences sound relatively acceptable in the contexts we are interested in, then we know that the first clauses are being logically negated.

(106) I didn't eat pie, you fed pie to me!

a. ? I didn't eat any pie; you fed pie to me!

b. I didn't eat pie at all; you fed pie to me!

c. I don't ever eat pie; you always feed pie to me!

Sentence (106a) may sound a little odd, but (106b) and (106c) are fully acceptable to my ears, supporting the idea that these are examples involving logical negation and the scope of negation is narrow over the cause.

The middle verb *wash* also accepts an NPI in the relevant contexts. Intransitive *wash* has nothing other than the verb c-commanded by *not*, and no object over which *any* can quantify, so we cannot use *any* here. However, the other NPIs are acceptable in the negated clauses.

(107) I didn't wash; you washed me!

a. I didn't wash at all; you washed me!

b. I don't ever wash; you always wash me!

The plain negated form in (107), the negated form with *at all* in (107a), and the negated form with *ever* in (102) all sound acceptable, indicating that the initial clause is being logically negated narrowly over the cause.

The middle verb *dress* fares similarly.

(108) I didn't dress; you dressed me!

a. I didn't dress at all; you dressed me!

b. I don't ever dress; you (always) dress me!

Here, too, the plain negated form, negated form with *at all*, and the negated form with *ever* are all acceptable, supporting the idea that the first clause is actually being negated.

The proposed ingestive verb, *learn*, is able to take all three NPIs.

(109) I didn't learn French; you taught French to me!

a. I didn't learn any French; you taught French to me!

b. I didn't learn French at all; you taught French to me!

c. I don't ever learn (anything); you always teach things to me!

The plain negated form in (109), the negated form with *any* in (109a), the negated form with *at all* in (109b), and the negated form with *ever* in (109c) are all acceptable. Note, too, that (109c) sounds natural with the NPI *anything* as the object of the first clause. These facts suggest that the first clause is being negated via logical rather than metalinguistic negation, which suggests that it is possible to deny that the subject was the cause of his own learning.

The four test cases above show that a clause with the simple form of the verb can be denied while the causative variant is asserted. This indicates that a simple representation of the simple form is inappropriate. If the way

a causative is formed is by adding a causer participant to the simple representation of the simple form, then assertion of the causative and denial of the simple form should yield a contradiction. While the judgments are not always perfectly clear, they do suggest that it is possible to attain a reading that is not contradictory. An analysis which posits a complex representation for both the simple and causative form, related by a causativization process based on antireflexivization, correctly predicts that there should be a reading with no such contradiction, again supporting my analysis.

4.5 "By Itself"

Chierchia (2004) proposes that the Italian modifier *da sé* "by itself" in the sense of "without outside help" is licensed when there is cause in the meaning of the verb. It is therefore allowed with some agentive verbs and reflexives, which have causation in their meanings. It is disallowed with statives because there is no causation involved. It is also disallowed with passives, because passives indicate that an outside causing participant exists, and so is incompatible with a meaning in which there was no outside help other than the subject. Koontz-Garboden (2009) claims that Spanish *por sí solo* similarly picks out verbs denoting causation.

(110) a. *Gianni mi picchiato da sé.*
Gianni me has hit by self
"Gianni hit me by himself."

b. *Roberto si è lavato da sé.*
Roberto REFL is washed by self

"Roberto washed by himself."

c. ∗ *La porta è stata aperta da sé.*
the door is been opened by self

Both *da sé*, shown in the Italian examples in (111), and *por sí solo*, shown in the Spanish examples in (112), may occur with unaccusatives.

(111) a. *La porta si è aperta da sé.*
the door SE is opened by self
"The door opened by itself."

b. *La barca è affondata da sé.*
the boat is sunk by itself
"The boat sank by itself." (Chierchia, 2004)

(112) a. *La puerta se abrió por sí sola.*
the door REFL open by self only
"The door opened by itself."

b. *El barco se hundió por sí solo.*
the boat REFL sank by self only
"The boat sank by itself." (Koontz-Garboden, 2009)

If English *by itself* behaves similarly, it should appear with verbs that have causation in the meaning, such as some agentive verbs and possibly unaccusatives. It should not occur with statives or passives. To my ears, *all by itself* is more suggestive of the sense of "without outside help" than is simply *by itself*, which easily allows both the sense of "without outside help" and the alternate sense of "alone". In (113), we see that *by itself* may appear with the verbs with which it is expected.

(113) a. The girl hit me all by herself.

b. The door opened all by itself.

c. ∗ The door was open all by itself.

d. ∗ The door was opened all by itself.

e. ∗ The girl laughed all by herself.

In (113), verbs with cause in their meanings license *by itself*, such as *hit* and unaccusative *open*. Stative *be open* and passive *be opened*, as well as *laugh* do not license it, with one caveat. It is possible to get (113e) on a "repair" reading, where causation is implicit due to highly particularized context. It would be used in a situation where the girl is injured and has spent many months in recovery, unable to laugh without being helped. It would be appropriate to say (113e). Short of such a reading, however, the sentence is unacceptable.

Next, we can see if the four verbs we are interested in license *all by itself* with the "without outside help" reading, making sure that we are not also getting a "repair" reading.

(114) a. The girl ate her food all by herself.

b. The girl washed all by herself.

c. The girl dressed all by herself.

d. The girl learned to walk all by herself.

The sentences in (114) do license the "without outside help" reading of *by itself*. Importantly, no "repair" reading is necessary—the girl does not have to

be recovering from an injury for any of the sentences to work.

The modifier *by itself* may be a reliable diagnostic for determining the presence of a CAUSE operator, as evidenced by the fact that it does not occur with verbs we know do not have causation in the meaning. It can occur with the four verbs in question, suggesting that these verbs, too, may have causative structures.

I have shown that some middle and ingestive verbs may have a reflexive, bieventive, causative structure in their simple form. The only difference between this and the non-simple form is the reflexive nature of the reading. The semantic facts can be explained under either a reflexivization analysis, under which the simple forms are derived from causative forms, or under an antireflexivization analysis, under which the causative forms are derived from the simple forms. While some languages, such as Spanish, seem to favor the former direction of derivation, other languages, such as the many mentioned in Section 2, favor the latter direction of derivation. For these languages, then, the antireflexivization analysis is the more appropriate of the two. Thus this data explains why ingestives and middles pattern together in such languages, predicting the fact that they share a tier on the causativization hierarchy in (22) in Section 2. I turn next to a language where the morphology is more transparently causative.

Section 5

Evidence from Marathi

While the English data above shows that the lexical and syntactic causatives have different entailments, perhaps suggesting that the lexical causative can be formed via antireflexivization, some may object that some of the verb pairs presented from English are suppletive forms and others are labiles—there is not a clear derivational relationship between the two forms. In partial satisfaction of such an objection, data from Marathi which supports the same claim is presented in this section. A description of the ways Marathi causativizes events from Shibatani and Pardeshi (2002) lays out the basic facts. I have confirmed their examples with a native speaker informant, who generously provided me with more examples analogous to the English sentences and with descriptions of the contexts in which each sentence might be appropriately used. I have used the descriptions to consider tentative lexical entailments of each verb.

Marathi has a rich system of causative expressions. There are two types of causatives in Marathi—morphological or lexical, and analytic or syntactic. Shibatani and Pardeshi (2002) divide the morphological causatives into the following six types.

(a) Labiles

ughaD-Ne “to open” (intr.)/ *ughaD-Ne* “to open” (tr.)

moD-Ne “to break” (intr.)/ *moD-Ne* “to break” (tr.)

(b) Suppletives

khaa-Ne “to eat”/ *khaa-u ghaal-Ne* “to feed”

ye-Ne “to come”/ *aaNa-Ne* “to bring”

(c) Internal consonant change

phaaT-Ne “to tear” (intr.) / *phaaD-Ne* “to tear” (tr.)

(d) Internal vowel change

mar-Ne “to die”/ *maar-Ne* “to kill”

dzaL-Ne “to burn” (intr.)/ *dzaaL-Ne* “to burn” (tr.)

(e) Internal vowel and consonant change

tuT-Ne “to break” (intr.)/ *toD-Ne* “to break” (tr.)

suT-Ne “to get untied/solved”/ *soD-Ne* “to untie/solve”

(f) Suffixation

waaL-Ne “to become dry”/ *waaL-aw-Ne* “to dry” (tr.)

bas-Ne “to sit”/ *bas-aw-Ne* “to seat”

Of these forms, the suffixation type is the most common. It is not predictable which verb has one of the first five types listed above; these verbs must be listed in the lexicon. However, if an intransitive verb does not have one of the first five forms, it is able to take the suffix *-aw*. Verbs that do have one of the first five forms are blocked from occurring with the suffix. Thus, verbs like *∗ughaD-aw-Ne* "to open", *∗khaa-aw-Ne* "to feed", *∗mar-aw-Ne* "to kill" are not possible.[10] The *-aw* suffix also does not freely occur with regular transitive verbs.

Shibatani and Pardeshi (2002) describe the kinds of analytic or syntactic causatives available. These causatives may appear with one of four auxiliary verbs, which differ on the basis of types or strength of causation.

(a) *laww-Ne* (lit.) "apply, attach" – Coercive indirect causation

(115) *raam-ne shaam-laa patra lih-aaylaa laaw-l-a*
Ram-ERG Sham-DAT letter.N write-PTCP make-PERF-N
"Ram made Sham write a letter."

(b) *bhaag paaD-Ne* (lit.) "make fall in one's destiny" – Coercive causation

(116) *raam-ne shaam-laa bas-aaylaa bhaag paaD-l-a*
Ram-ERG Sham-DAT sit-PTCP make-PERF-N
"Ram left Sham with no choice but to sit."

(c) *de-Ne* (lit.) "give" – Permissive causation

[10]My informant confirmed that these are not possible.

(117) *mi raam-laa bas-u di-l-a*
I ram-DAT sit-PTPC give-PERF-N
"I let Ram sit."

(d) *ghe-Ne* (lit.) "take" – Benefactive causation

(118) *mi raam-kaDun kholi saaph kar-un ghet-l-i*
I Ram-by room.F clean do-CONJ take-PERF-F
"I had the room cleaned by Ram."

The main distinction between the lexical and analytic causatives is that the lexical causatives are usually used with unaccusative verbs, and the synthetic variants are used with unergatives and transitives. The situations expressed with the lexical causatives involve direct causation.

The causatives formed periphrastically with *laaw-Ne* "attach" cannot be used with inactive intransitives.[11]

(119) a. *kapDe waL-l-e*
clothes.N dry-PERF-N
"The clothes dried."

b. *raam-ne kapDe waal-aw-l-a*
Ram-ERG clothes.N dry-CAUS-PERF-N
"Ram dried the clothes."

c. ∗ *raam-ne kapDeyaan-naa waaL-aaylaa laaw-l-a*
Ram-ERG clothes-ACC dry-PTCP make-PERF-N
"Ram made the clothes dry."

[11]My informant confirmed that (119c) and (120c) "sound nonsensical".

(120) a. *shaam buD-l-aa*
Sham drown-PERF-M
"Sham drowned."

b. *raam-ne shaam-laa buD-aw-l-a*
Ram-ERG Sham-DAT drown-CAUS-PERF-N
"Ram drowned Sham."

c. ∗ *raam-ne shaam-laa buD-aaylaa laaw-l-a*
Ram-ERG Sham-DAT drown-PTCP make-PERF-N
"Ram made Sham drown."

Permissive causatives with *de-Ne* "give" can be based on both active and inactive intransitives as well as transitives.

(121) a. *mi kapDe waaL-u di-l-e*
I clothes.N dry-PTCP give-PERF-N
"I let the clothes dry."

b. *mi shaam-laa buD-u di-la*
I Sham-DAT drown-PTCP give-PERF-N
"I let Sham drown."

c. *mi shaam-laa paL-u di-l-a*
I Sham-DAT run-PTCP give-PERF-N
"I let Sham run."

d. *mi shaam-laa patra lih-u di-l-a*
I Sham-DAT letter.N write-PTCP give-PERF-N
"I let Sham write a letter."

Benefactive causatives with *ghe-Ne* "take" express a situation where the causer "gets something done with a tangible beneficial effect". They require either an

object or an effect that is literally or metaphorically transferable to the causer. This means that intransitive verbs are usually be excluded from forming benefactive causatives because they do not involve an object. With transitive verbs, if the object is not construable as something transferred to the causer, that verb may also be excluded from occurring with the benefactive causative.

(122) a. *mi raam-kaDun patra lih-un ghet-l-a*
I Ram-by letter.N write.CONJ take-PERF-N
"I had the letter written by Ram."

b. *mi raam-kaDun kholi saaph kar-un ghet-l-i*
I Ram-by room.F clean do-CONJ take-PERF-F
"I had the room cleaned by Ram."

c. *mi raam-kaDun khombDi maar-un ghet-l-i*
I Ram-by chicken.F kill-CONJ take-PERF-F
"I had the chicken killed by Ram."

d. ∗*? mi raam-kaDun zuraL maar-un ghet-l-a*
I Ram-by cockroach-N kill-CONJ take-PERF-N
"I had the cockroach killed by Ram."

e. ∗ *mi raam-kaDun bas-un ghet-l-a*
I Ram-by sit-CONJ take-PERF-N
"I benefited from Ram's sitting."

f. ∗ *mi raam-kaDun buD-un ghet-l-a*
I Ram-by drown-CONJ take-PERF-N
"I benefited from Ram's drowning."

Ingestive verbs allow a permissive causative, but they do not allow a benefactive causative, because the object cannot come into the causer's possession for obvious pragmatic reasons.

(123) a. *raam-ne tyaa-laa bhaat khaa-u di-l-aa*
Ram-ERG he-DAT rice.M eat-PTCP give-PERF-M
"Ram let him eat the rice."

b. ∗ *raam-ne tyaacyaa-kaDun bhaat khaa-un ghet-l-aa*
Ram-ERG he-by rice.M eat-CONJ take-PERF-M
"Ram benefited through his eating rice."

Crucially, ingestive verbs differ from the usual pattern of causativization by unexpectedly allowing both a lexical and syntactic causative form. The following examples, from Shibatani and Pardeshi (2002), illustrate the possibilities.

(124) a. *tyaa-ne bhaat khaa-ll-aa*
he-ERG rice.M eat-PERF-M
"He ate rice."

b. *raam-ne tyaa-laa bhaat bharaw-l-aa*
Ram-ERG he-DAT rice.M feed-PERF-M
"Ram fed him rice."

c. *raam-ne tyaa-laa bhaat khaa-ylaa laaw-l-aa*
Ram-ERG he-DAT rice.M eat-PTCP make-PERF-M
"Ram made him eat rice."

My informant provided descriptions of the contexts in which the sentences in (124) could be spoken. Sentence (124a) describes a typical situation of eating rice, where the eater has control of the spoon or eating utensil.

Sentence (124b) best describes a situation where Ram is feeding a boy as one would feed a baby or a child. Ram is holding a spoon, physically moving rice towards the child and putting the spoon in his mouth. It is possible to use

the verb form in (124b) to describe a situation where a person is in a hospital, in a coma, being "fed" from a tube. However, it would not be acceptable in a context where a host was providing food to a guest. That is, it is compatible with a situation where the causee has no control over the event of eating, and it resists an interpretation where the causee does have control. Much like the English lexical entailment pattern, Marathi *khaa* requires that the eater be agentively manipulating food, while with *bharaw* that responsibility is the feeder's.

Sentence (124c) best describes a situation where the man has a spoon in his hand, and Ram does not. Ram might be requiring or ordering the man to eat rice against his will, but the physical manipulation of the spoon is the man's. This verb form is inconsistent with a situation where the man is in a coma being fed from a tube. At first, my informant felt that the sentence was not acceptable in that situation because the man could not object to being fed via tube. Even if the situation was changed such that the man had signed a living will specifically objecting to being fed from a tube, my informant said the sentence was still unacceptable, perhaps because the man would not be actively eating. The syntactic causative form is acceptable in a context where a host is providing food to the man. Thus, the main difference in lexical entailments between the lexical causative and the syntactic causative is that the causee in (124b) cannot be agentively manipulating food, and in (124c) the causee must be doing so.

Shibatani and Pardeshi (2002) point out that reflexive or middle verbs,

including intransitive *sit, stand up, ascend, come down* as well as transitive reflexive *dress oneself, shave oneself, comb one's hair, braid one's hair* pattern similarly to the ingestive verbs in allowing both the lexical and syntactic causatives.

(125) a. *tyaa-ne kapDe ghaat-le*
he-ERG clothes.N wear-PERF-N
"He wore the clothes."

b. *raam-ne tyaa-laa kapDe ghaat-l-e*
Ram-ERG he-DAT clothes.M dress-PERF-N
"Ram dressed him."

c. *raam-ne tyaa-laa kapDe ghaal-aaylaa laaw-l-e*
Ram-ERG he-DAT clothes.N wear-PTCP make-PERF-N
"Ram made him wear the clothes."

My informant describes the situations involved in these sentences similarly to those in (124). Sentence (125a) describes a typical situation of someone wearing clothes. Sentence (125b) best describes a situation where Ram is dressing a child or someone who otherwise might need help dressing. Ram must be physically manipulating the clothing (for example, Ram is buttoning the child's shirt, and the child is not doing so). This sentence, like its *feed* counterpart in (124b), prefers a literal reading, opposed to a reading where, for example, a child's parents have provided him with clothes. Sentence (125c) is most appropriate in a context where Ram is allowing or requiring someone (not necessarily a child or helpless person) to wear clothes. In this situation, Ram has authority over the man, but it is the man who is physically manipulating

the clothing (for example, the man is buttoning his own shirt). Again, like the English lexical entailment pattern, the Marathi lexical causative requires that the causer manipulate clothing, while the syntactic causative requires that the causee do so.

(126) a. *raam bas-l-aa*
Ram sit-PERF-M
"Ram sat."

b. *mi raam-laa bas-aw-l-a*
I Ram-DAT sit-CAUS-PERF-N
"I sat/seated Ram."

c. *mi raam kholi-t bas-aaylaa laaw-l-a*
I Ram-DAT room-in sit-PTCP make-PERF-N
"I made Ram sit in the room."

My informant tells me that sentence (126a) describes a typical situation of sitting, (126b) is appropriate in a situation where a host with some authority over Ram tells him to sit, and is compatible with a situation where Ram is physically forced to sit. Sentence (126c), on the other hand, is appropriate in a situation where a host suggested or gave permission to Ram to sit. No physical manipulation is implied, and it is less appropriate in a context where physical force is used.

The following sentences were generated by my informant and are intended to parallel the English examples in the previous section.

(127) a. *sanjay-ne dhut-l-aa*
Sanjay-ERG wash-PERF-M

"Sanjay washed."

b. *raam-ne sanjay-laa dhut-l-aa*
Ram-ERG Sanjay-DAT wash-PERF-M
"Ram washed Sanjay."

c. *raam-ne sanjay-laa dhuwaaylaa laawlaa*
Ram-ERG Sanjay-DAT wash make
"Ram made Sanjay wash."

In sentence (127a), Sanjay is washing himself in a shower or bath. Sentence (127b) describes a situation where Ram is washing Sanjay, who is a child or an otherwise helpless person. Ram is holding the soap in this situation. In (127c), however, Sanjay (who is not necessarily a child) is holding and manipulating the soap. In Marathi as in English, the lexical causative requires manipulation of a cleanser by the causer, and the syntactic causative requires manipulation of a cleanser by the causee.

Finally, the sentences in (128), also generated by my informant, describe situations of learning and teaching.

(128) a. *raam-ne marathi shikdle*
Ram-ERG Marathi learned
"Ram learned Marathi."

b. *sanjay-ne mala marathi shikundele*
Sanjay-ERG me Marathi teach
"Sanjay taught me Marathi."

c. *sanjay-ne mala marathi shikala laawle*
Sanjay-ERG me Marathi learn make
"Sanjay had me learn Marathi."

Sentence (128a) describes a situation where Ram learns Marathi, and is unspecified as to how he learns it. Sentence (128b) best describes a situation where Sanjay is involved in teaching the speaker Marathi. In this situation, Sanjay almost certainly knows Marathi. Sentence (128c), on the other hand, does not have any such requirement. Sanjay has some authority over the speaker in requiring her to learn Marathi, but he does not have to know the language himself.

From these examples, a pattern emerges. The syntactic causative, shown in the (c) examples, describes situations where a causer participant is added to the event denoted in the simple form of the verb, shown in the (a) examples. The lexical causative, however, shown in the (b) examples, describes a different kind of situation. In those sentences, the causer participant must be performing some action *which was the responsibility of the other participant in the simple form*. The entailment that the causer argument manipulate, for example, an eating utensil, clothing, or soap and water shows that the causer participant is taking on some of the entailments that would otherwise apply to the other participant. This pattern parallels the lexical entailment pattern for the lexical and syntactic causatives in English.

While the English pairs of verbs show no obvious derivational relationship, making it difficult to say whether a reflexivization or antireflexivization analysis would be best, Marathi is a canonically causativizing language. Though some of the pairs of verbs used here are labiles or suppletive forms, Marathi more generally is a causativizing rather than an anticausativizing lan-

guage. This means that an antireflexivization analysis fits both the direction of derivation and the semantic facts presented above.

Section 6

Conclusions

This paper proposes an antireflexivization analysis of the causativization of ingestive and middle verbs. I started with the observation that transitive ingestives often causativize as though they were intransitive, then showed that they fit into a larger typological pattern, wherein unaccusatives are the most likely to be causativized, followed by middles and ingestives, followed by unergatives, followed by transitives. Three previously proposed analyses were considered but ultimately rejected because they are incompatible with the typological pattern. An original analysis was proposed that ingestives and middles both have lexically reflexive structures.

Semantic evidence was presented from English that shows that two arguments of the simple form are coidentified, and the simple forms have bieventive, causative structure. Either a reflexivization analysis or an antireflexivization analysis would explain these semantic effects, and a reflexivization analysis is more appropriate for languages that anticausativize. However, for those languages that are primarily causativizing, such as those presented in Section 2, the direction of derivation points to an antireflexivization analysis. Data from Marathi, a language with more transparent causative morphology than

English, shows that an antireflexivization analysis of causativization works to explain the semantic facts that hold of the different types of causatives in that language. Thus the data and analysis I have presented here explain (a) why middles and ingestives would pattern together according to the causativization hierarchy in (22) in Section 2 and (b) how "causativization" can relate a reflexive and non-reflexive event structure without introducing a new causer, but instead antireflexivizing. The observation of Kemmer (1993) that sometimes in languages with middle systems the causative is marked rather than the simple form is thus semantically motivated, and furthermore subsumes ingestives.

The final piece of the puzzle left from Section 2 is how this relates to unaccusatives. Why would ingestive and middles pattern with unaccusatives? Say we accept an analysis of anticausativization as reflexivization, as per Koontz-Garboden (2009). This would mean that, in languages that overtly derive an anticausative verb from a causative verb via a reflexive morpheme, both the causative and anticausative verbs in question have a complex event structure with a causation relation, as argued at length by Koontz-Garboden. Say that we also assume that, in languages that derive the causative from the non-causative variant, causativization is not antireflexivization, but is rather causer addition. This would lead us to the inelegant conclusion that a non-causative verb in one language has very different lexical semantics than a non-causative verb in another. However, if we instead extend an antireflexivization analysis of causativization to unaccusatives – whereby the inchoative is lexi-

cally reflexive and the causative is derived by delinking the causer and patient – then both types of languages, whether causativizing or anticausativizing, have similar lexical semantics for similar kinds of verbs. Thus we can assume that causativizing unaccusatives and causativizing middles and ingestive is the same operation. This provides a natural explanation for the typological pattern presented in Section 2, filling in the last piece of the puzzle.

While this paper cannot make the strong claim that the antireflexivization operation is available for all languages that causativize middles, this analysis does explain semantic facts in English and Marathi that are difficult to explain otherwise, and it is consistent with the typological pattern of causativization that holds crosslinguistically.

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