

Workshop on Argument Structure, Lexical Semantics and Morphology  
UNAM, June 24-July 1, 2009  
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Overview

In this workshop, we will review the changes in the generative theory of argument structure over the last couple of decades, moving from the Lexicalist viewpoint of GB to a purely syntactocentric approach, as viewed through a very particular window of research on argument structure alternations in a range of languages. First we will review theta-theory, and then look at an overview of the genesis of the modern complex VP, involving a vP and possibly more projections. We will then consider argument-structure analyses from several distinct languages, including English, Italian and Japanese, and wind up with an overview of the morphosyntax of argument structure in the Uto-Aztecan language Yaqui (Jiaki, Hiaki).

Web page with class readings:

<http://dingo.sbs.arizona.edu/~hharley/courses/MexicoCity2009/HarleyWorkshop.htm>

Topic schedule:

- Day 1: Theta roles, arguments for complex VP syntax
- Day 2: The lexical semantics of verbal decomposition
- Day 3: A case study: Causatives cross-linguistically
- Day 4: Event structure and syntactic structure
- Day 5: Hiaki argument structure

Participant Presentations:

Any participant who wishes to present on their original research is welcome to, time permitting! Discuss it with me after our first class today. If you're interested in presenting I suggest thinking along the lines of a 20 minute session, like a short conference presentation (10-15 minutes) with a question period (5-10 minutes), but we can also go for a more freewheeling format if that is preferred. One or two of these per day would I think be very manageable.

Classroom discussion:

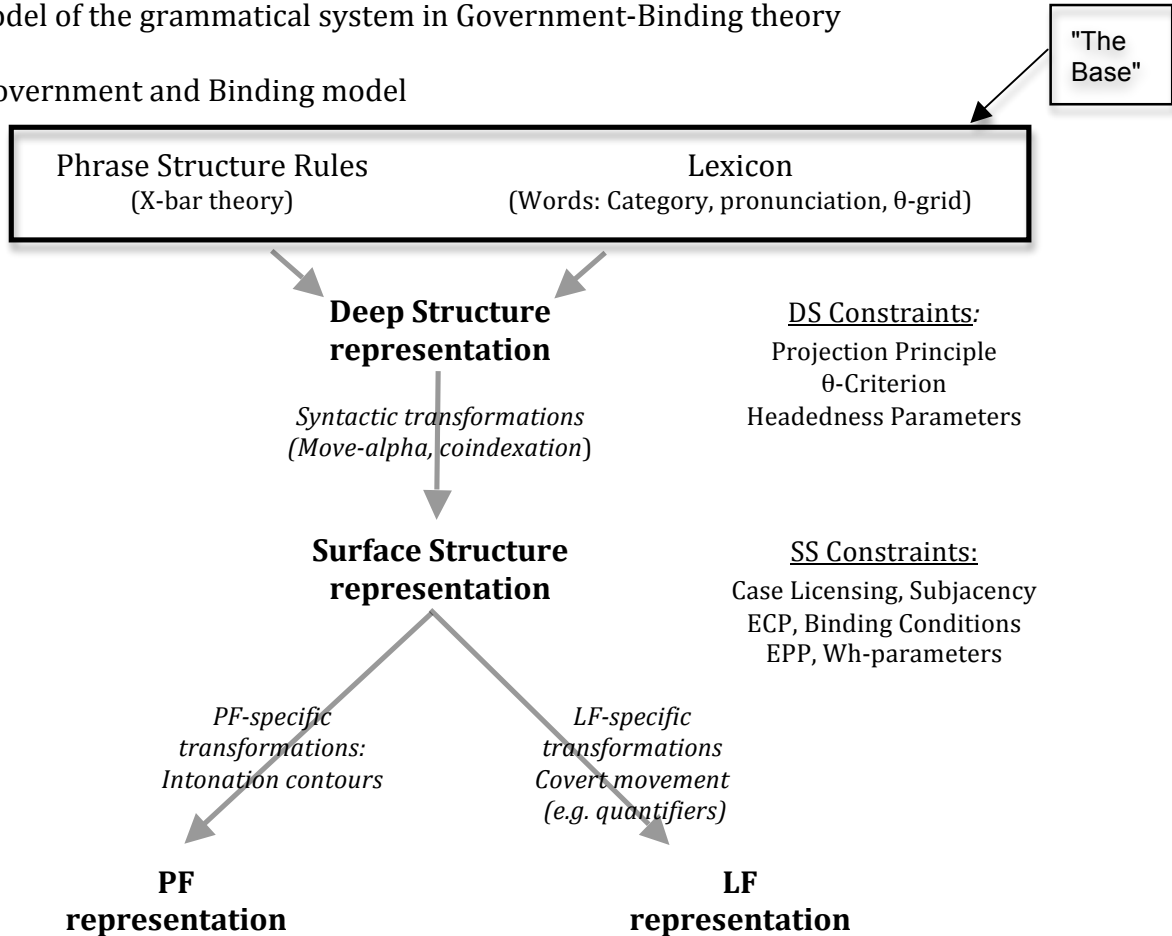
I would very much like to encourage interruptions for questions and discussion at any time! This is intended to be a workshop, not a lecture series, which means participation from all sides is essential – if you would like to request clarification on any point, provide further discussion, suggest a connection to another topic or piece of data, or whatever, please don't hesitate to do so. Although I am afraid my spoken Spanish is utterly minimal, and I will lecture and discuss in English (my apologies!), you should feel free to ask questions and provide comments in Spanish – Esthela and others can provide translations for me, and I can understand a little bit. It is more important to understand and debate the linguistic content.

# 1. Thematic Roles

Reading: Harley, H. (2009) Thematic Roles, In The Cambridge Encyclopedia of the Language Sciences, Patrick Hogan, ed., Cambridge University Press, Cambridge.

→ Model of the grammatical system in Government-Binding theory

(1) Government and Binding model



→ The constraints were conceived of as 'modules' which applied independently of each other to filter out ill-formed representations

→ All the constraints made reference to certain structural relations—either *government* or *binding*, hence the name of the theory.

→ Area of relevance here: What were  $\theta$ -grids? How did the  $\theta$ -criterion apply? And what generalizations remain unaddressed by this approach?

## 1.1 Lexical items in GB

→ A lexical item had a pronunciation, a syntactic category, and a  $\theta$ -grid:

- (2) *A lexical item in GB:*  
PHON: kiss  
SYN: V  
SEM: [Agent, Patient] (or: [1, 2], or [kisser, kisse])  
+ some notion of what 'kiss' means

→ What are  $\theta$ -roles?

Grammaticalized representations of the lexical semantics of the predicate—the encyclopedia/syntax interface, essentially.

→ Basic function: Constrain the number of arguments that appear with a verb

Verbs, as they are predicates, describe situations which necessarily involve one or more entities, i.e. they require arguments

- The *run* situation requires one entity
- The *kiss* situation requires two entities
- The *give* situation requires three entities
- The *trade* situation requires four entities

→ Thematic roles grammaticize the encyclopedic semantics of the verb, and in GB theory, interacted with the Theta Criterion to ensure that the verb will occur in a sentence in which it can be adequately interpreted

→ Could just leave it at "Number of arguments"

→ But would miss generalization that there seem to be *types* of  $\theta$ -roles

## 1.2 Families of $\theta$ -roles

→ Different types of  $\theta$ -roles seem to be relevant for syntactic behavior

→ Hence normal usage categorizes  $\theta$ -roles into broad semantic categories; here are a sample:

### (3) Some thematic roles:

Agent: Initiates and controls the execution of the verbal action

Example: *Maria* in *Maria kissed Pedro*

Theme: Moves or changes state as a result of the verbal action

Example: *The door* in *Guillermo opened the door*

Patient: Like Theme, but need not move or change state—undergoes something as the result of a the verbal action

Example: *Pedro* in *Maria kissed Pedro*

Experiencer: An argument whose mental state is described or affected by the verbal action.

Example: *Mercedes* in *Mercedes likes ice cream*

Goal: An argument expressing the endpoint of some motion described by the verbal action

Example: *The house* in *Anna entered the house*

Incremental theme: An argument consumed or created by the verbal action, or whose physical extent delimits the verbal action

Example: *An apple* in *Fernando ate an apple.*

Beneficiary/Maleficiary: An argument which benefits from or is adversely affected by the verbal action

Example: *Jose* in *Selma baked Jose a cake.*

Source: An argument expressing the origin of some motion described by the verbal action

Example: *The house* in *Anna left the house.*

Measure: An argument which expresses the extent of another verbal argument

Example: *0.5 kg* in *This book weighs 0.5 kg.*

→ The various categories of theta-roles seem to be implicated in several grammatical processes, especially in derivational morphology, but also in syntax

(4) Grammatical processes and theta-roles

a. English *-er* affixation affects Agent-assigning verbs only;  
Produces nominals referring to Agents or Instruments  
*writer, teacher, sniper, driver, seller, buyer, user*  
*filler, chipper, wrapper, dryer, washer, computer*

b. Tagalog *pag-* prefixation appears to add an Agent argument to an agentless verb (Data from Travis 2000, in turn from Maclachlan 1989):

Intransitive		Transitive	
<u>t</u> -um- <u>umba</u>	X fall down	m-pag- <u>tumba</u>	Y knock X down
<u>s</u> -um- <u>abog</u>	X explode	m-pag- <u>sabog</u>	Y scatter X.
<u>l</u> -um- <u>uwas</u>	X go to the city	m-pag- <u>luwas</u>	Y take X to the city
<u>s</u> -um- <u>abit</u>	X hang	m-pag- <u>sabit</u>	Y hang X
<u>s</u> -um- <u>ali</u>	X join	m-pag- <u>sali</u>	Y include X

(Note: *-um-* is an infix that appears after the onset of the first syllable of the stem)

→ A more involved example: Differences in Goal vs. Beneficiary  $\theta$ -roles in Italian: Folli and Harley (2006):

- (5) a. Beneficiary argument  
*I bambini hanno mangiato tutta la torta **alla mamma***  
the children have eaten all the cake **to mother**
- b. Goal argument  
*Gianni ha dato un libro **a Maria***  
John has given a book **to Mary**
- (6) a. Beneficiary dative bad in nominalization:  
*\*il mangiare tutta la torta **alla mamma*** (è stata una buona idea)  
the eating the whole cake **to mom** (is been a good idea)
- b. Goal dative ok in nominalization  
Il donare un libro **a Maria** (è stata una buona idea)  
the donating a book **to Mary** (is been a good idea)
- (7) Beneficiary dative clitic bad with A-movement of object
- a. *Le è stata mangiata tutta la torta.*  
to.her is been made eaten all the cake
- b. *\*Tutta la torta le è stata mangiata (da Marco).*  
all the cake to.her is been eaten (by Marc)
- (8) Goal dative clitic fine with A-movement of object
- a. *Le è stato dato il libro (da Marco).*  
to.her is been given the book (by Marc).
- b. *Il libro le è stato dato (da Marco).*  
the book to.her is been given (by Marc).

### 1.3 $\theta$ -role/syntax mapping

→ In GB theory, since verbs with similar semantics had similar theta-grids, lexical operations like nominalization, could selectively apply to certain classes of verbs to adjust their theta-grids (and simultaneously change their morphology)—the model included a generative lexicon, in which operations could apply to expand the Base prior to syntactic computation. (See, e.g. Chomsky's 1970 *Remarks on nominalization*).

- There are other generalizations concerning thematic roles, however, which needed additional principles/stipulations to capture, particularly to do with the *linking problem*—how to relate thematic roles to syntactic positions
- There is a tight but not perfect correspondence between the thematic role and the grammatical function of an argument
- E.g. if an active verb has an Agent, that argument will be the subject
- If an active verb has a Theme, that argument will be the object, etc.
- The general investigation of the relationship between lexical semantics and syntactic structure is "Linking Theory"
- Specific Linking proposals within GB include Baker's (1986) Uniformity of Theta Assignment Hypothesis (UTAH), itself a reworking of Permuter and Postal's Relational Grammar proposal of a Universal Alignment Hypothesis (UAH).
- The UAH proposed that there is a connection between a hierarchy of theta roles (Agent > Patient > Goal...) and grammatical functions (Subject > Object > Indirect Object) such that the highest theta-role on the hierarchy of a given verb appeared with the highest grammatical function available in the clause; the next highest with the next highest, etc.
- The UTAH made a similar claim, except that instead of assuming that GFs are primitives of the theory, Baker proposed that theta-roles were assigned to syntactic argument positions so that the thematic hierarchy corresponded with the c-command hierarchy of the argument positions.

#### 1.4 Problems with rigid mapping hypotheses

- The most rigid version of the proposals run into two problems:

(9) Problem I: Same theta-role, same verb, but different GFs/syntactic positions

- a. Josefina gave Maria the book.
- b. Josefina gave the book to Maria
  
- c. Marcelo sprayed the wall with paint
- d. Marcelo sprayed paint on the wall.

(10) Problem II: "Mirror-Image" verbs—same situation, same theta roles, but inverse GFs

- a. The cat chased the rat.
- b. The rat fled the cat.

- c. The rat fears the cat.
- d. The cat scares the rat.
  
- f. Marco bought a car from Pancho.
- g. Pancho sold a car to Marco.

→ Two kinds of solutions.

→ Solution 1: Dowty (1991)

- Each argument is evaluated with respect to a set of Proto-Agent criteria (motion, intentionality, animacy, control) and a set of Proto-Patient criteria (affectedness, inanimacy, lack of control)
- Those scoring high on Proto-Agent criteria will map to subject position; those high on Proto-Patient criteria will map to object condition
- When at similar points on the scale, flexibility in mapping will be observed, as in the situations in (9) and (10) above.

→ Solution 2: Do away with thematic roles. The verb is decomposed into sub-predicates, and arguments are introduced by different sub-predicates, each in its own syntactic position in the clause, such as CAUSE, DO, BECOME, BE, GO, or HAVE. The interpretation of the argument depends on which predicate it composes with, and so does its position in the clause. The encyclopedic verbal semantics often end up just functioning as a modifier of the basic lexico-syntactic structure that provides the scaffolding for the clause. Restrictions on co-occurrence with certain numbers of arguments and so on become almost epiphenomena...

→ This class: Introduction to one modern version of Solution 2. Other somewhat different versions available out there: Ramchand, Borer, Travis, Alexiadou, Pyllkanen, Embick, Marantz... mostly share the same core set of assumptions, however.

→ The overall approach also has the theoretical benefit of eliminating a whole class of theoretical devices: Derivational lexical morphological processes, linking rules, theta-roles, the Theta Criterion, UTAH, etc, can all be eliminated as statements of the theory—instead, their effects are deriveable from the basic assumptions of the new theory. Hence it's more Minimalist... our next topic.

## 2. A Minimalist Theta Theory

Reading: Harley, H. (forthcoming). A Minimalist Approach to Argument Structure. In C. Boeckx, (ed.), *The Oxford Handbook of Linguistic Minimalism*. Oxford: OUP Press.

### 2.1 *Devices in pre-Minimalism $\theta$ -theory*

(11) *A Generative Lexicon*: lexical entries are derived from/related to others by redundancy rules, e.g. 'passive', which can have morphological and semantic effects

- a. PHON: kissed  
SYN: V (no accusative case)  
SEM: [Patient] (or: [1], or [kissee])  
+ some notion of what 'kissed' means

- b. Another one: an 'agentive nominalization' rule might produce this:

PHON: kisser  
SYN: N  
SEM: (indexed  $\theta$ -role of the V, say; either  $\left. \begin{array}{l} \text{Agent}_i \\ \text{Instrument}_j \end{array} \right\}$ )

+some notion of what 'kisser' means (notice that there are two possibilities, both available in English; both are possible 'causers' of kissing. Examples like 'transmission' are similar, only with different possibilities for the indexed  $\theta$ -role: Event<sub>i</sub>, Theme<sub>i</sub>, or Instrument<sub>i</sub>.)

→ *Where the action is:*

- Principles like Baker's UTAH or Tenny's Aspectual Mapping Hypothesis or Levin & Rappoport's linking rules ensure that the appropriate participant in the event ends up in the appropriate place in the syntactic tree, accounting for theta-role/syntactic structure regularities.
- The Theta Criterion ensures that no predicate can end up with the wrong number of arguments, and no argument can end up without an interpretation.

→ *(Some) concerns:*

- On a Fregean view of syntacticosemantic composition, as noted by Heim and Kratzer 1998, the Theta-Criterion doesn't do much work; not very Minimalist.



- Cross-linguistically, there is lots of duplication of effort. English causatives are 'syntactic'; their translation equivalents in Japanese and Hiaki are 'morphological', although with respect to many key syntactic properties, the English and Japanese/Hiaki causatives are identical. In Minimalist terms, it's very peculiar to have two separate generative mechanisms—syntax and morphology—each capable of generating much the same phenomena, and competing for coverage both between and within languages (consider English comparative constructions, e.g.).

→ Solution: It's all syntax.

→ Argument one: Morphology/syntax correlations cross-linguistically

## 2.2 Hale and Keyser and the vP hypothesis

→ A question: No syntactic process seems to require reference to more than 6-8 theta roles, mostly in Animate/Inanimate pairs—Agent/Causer, Patient/Theme Benefactee/Goal...

→ An observation: Crosslinguistically, the morphological expression of unergative verbs involves nominals

(12) Jemez: Nouns suffixed with (incorporated into) a verbal morpheme

a.	záae-'a song-do	"sing"
b.	hijil-'a laugh-do	"laugh"
c.	se-'a speech-do	"speak"
d.	tų-'a whistle-do	"whistle"
e.	shil-'a cry-do	"cry"
f.	sae-'a work-do	"work"

(13) Basque: Nouns in syntactic construction with a verb 'do'

a.	lo egin sleep do	"sleep"
b.	barre egin laugh do	"laugh"
c.	lan egin work do	"work"

- d. negar egin "cry"  
cry do
- e. eztul egin "cough"  
cough do
- f. jolas egin "play"  
play do
- g. zurrunga egin "snore"  
snore do

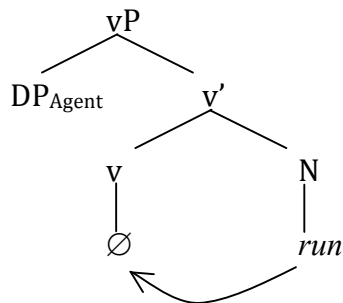
(14) English: A systematic correspondence between unergative verbs and bare event nouns:

to laugh, a laugh; to walk, a walk; to run, a run; to work, work; to swim, a swim; to dance, a dance; to whistle, a whistle; to sneeze, a sneeze; to scream, a scream; to shiver, a shiver...

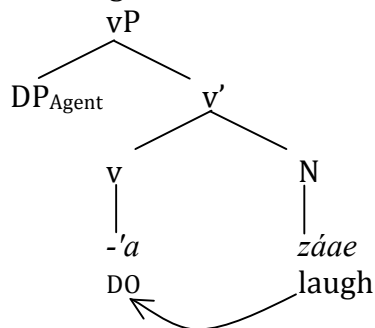
→ Their proposal: Unergative verbs are syntactically complex, cross-linguistically, involving a 'light' verb heading its own projection, and a nominal complement contributing the encyclopedic semantic content

→ The observed cross-linguistic differences result from differences in the morphological realization of the different heads: incorporation (Jemez, English) vs. no incorporation (Basque, Persian); overt morphology (Jemez) vs. no overt morphology (English)

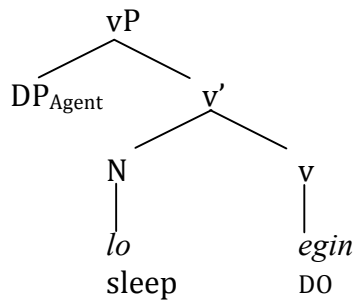
(15) a. Unergative verb derivation in English



b. Unergative verb derivation in Jemez



c. Unergative verb derivation in Basque (right-headed)



→ Only one Agent  $\theta$ -role assigner, namely,  $v_{DO}$

→ (Non-light) verbs are made up of two projections, a  $v^\circ$  and a contentful element which incorporates into it.

→ They proposed a similar approach to the pattern of inchoative-causative alternations<sup>1</sup> cross-linguistically, which also involve  $\emptyset$ -morphology in English but overt morphology in other languages, and even periphrastic counterparts (see our discussion of Persian in a couple of days).

→ Inchoative verbs are often composed of an adjectival predicate and a verbalizing morpheme, cross-linguistically:

(16)	<i>English</i>		<i>Hiaki</i>	
	<u>Verb</u>	<u>Adj</u>	<u>Verb</u>	<u>Adj</u>
	to redden	red	sikisi	siki
	to fatten	fat	awia	awi
	to soften	soft	bwalkote	bwalko
	to sharpen	sharp	bwawite	bwawi
	warm	warm	sukawe	suka
	....			

→ By the same chain of argument as above, we can conclude that they are composed of a  $v^\circ$  plus a contentful adjectival predicate

→ One important difference: Inchoative verbs do not have Agent arguments, but Theme ones...

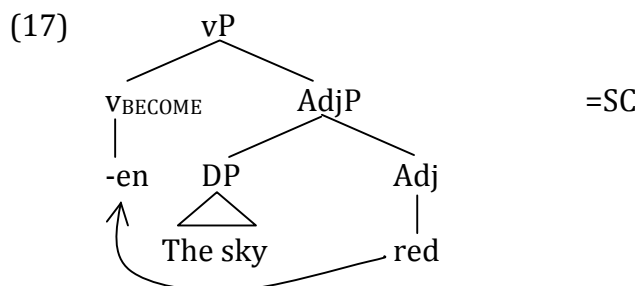
→ Important difference between adjectives and nouns: Adjectives are necessarily predicative, nouns are not

<sup>1</sup> An "inchoative" is the intransitive counterpart to a transitive causative verb, whose subject gets interpreted like the object of the corresponding causative; they nearly always pass unaccusativity diagnostics, and hence we assume their single argument is base-generated in object position

→ Conclusion: The  $v^\circ$  involved in inchoative predicates is a different one from that involved in unergative predicates

→ The argument of an inchoative predicate is selected by the Adjectival root, not by the  $v^\circ$

→ The  $v^\circ$  in question is the equivalent of 'become'; it doesn't select an Agent.

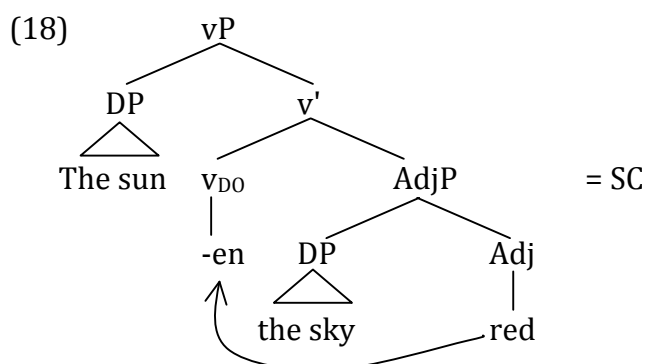


→ So: Generalization maintained—specifier of vP is an Agent

→ Can conclude that sister to lexical predicate position, below vP, is Patient/Theme

→ Difference between inchoatives and their causative alternants is simply the presence of an Agent argument

→ Since we know that a certain variety of vP selects for Agents, we can easily express the mechanism which drives the causative/inchoative alternation: Instead of composing with the  $v_{BECOME}$  head, the AdjP lexical component composes with the agentive  $v^\circ$  head



→ The Agent argument is introduced by the  $v^\circ$ , as with unergatives; the  $v^\circ$  contributes the Agentive semantics

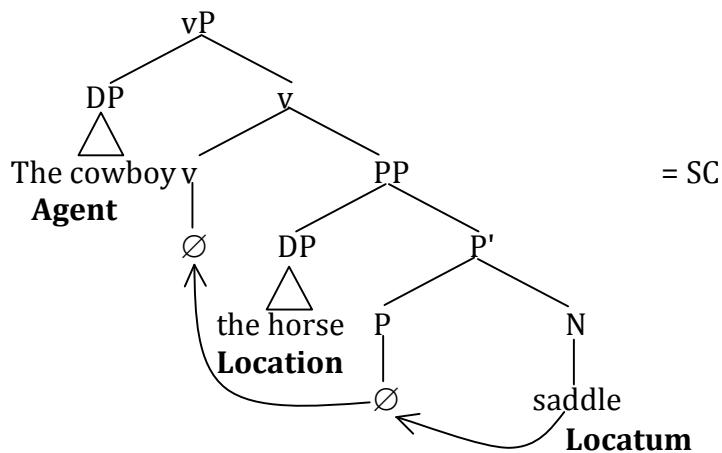
→ Since they're both  $\emptyset$  morphemes in English, we can't see the change, but (as we will see in Japanese in a few days) in many languages, the inchoative/causative alternation is necessarily accompanied by a change in overt verbalizing morphology.

→ We have seen verbs with NP (intransitive) and AdjP (transitive) downstairs phrases;  
 Natural extension: PP downstairs.<sup>2</sup> This ultimately will be the basic account of  
 ditransitive structures, but H&K came to it through another class of denominal  
 incorporated verbs

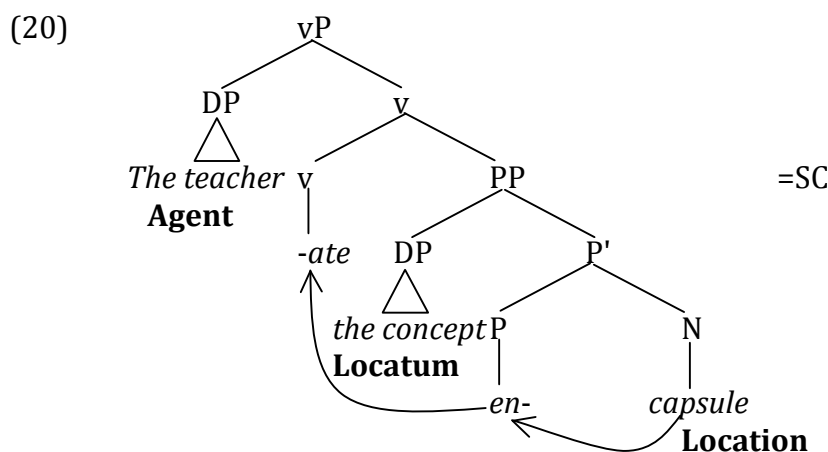
→ Hale and Keyser's treatment of agentive English Location/Locatum verbs

(19) a. bandage, bar, bell, blindfold, bread, butter, clothe, curtain, dress, fund, gas,  
 grease, harness, hook, house, ink, oil, paint, pepper, powder, saddle, salt,  
 seed, shoe, spice, water, word.

b. Structure:            The cowboy saddled the horse = fit the horse with a saddle  
                               The cowboy buttered the bread = smear the bread with butter



→ When P (and v°) are overt:



→ Status of "Location" and "Locatum" roles depends on P° head involved. H&K gloss the P  
 involved in *saddle* as 'with' (*fit the horse with a saddle*), while the P involved in e.g.

<sup>2</sup> See Jaume Mateu's work, from Barcelona, for further discussion of this extension

*box* is more like *in* or *at*: (*put the shoes in a box*). In both cases, the sentential object is the subject of the lower predicate ('with a saddle'/'in a box'), while the lower ('Goal') N is incorporated.

→ So, we begin to see a pattern:

(21)	<u>θ-role</u>		<u>Position of DP</u>
	Agent	≈	Spec-vP
	Theme	≈	Spec-SC ("Inner Subject")
	Goal	≈	Comp-SC

→ A question: With adjectival small clauses, we can combine either the non-Agent-selecting  $v^{\circ}$  or the Agent-selecting one (giving the causative/inchoative alternation). Can we do this with the PP small clauses? or with incorporated Ns?

→ Not very frequently—but it is possible:

(22)	a.	Manuela landed the plane	(=[ <sub>VP</sub> Manuela [ <sub>V'</sub> V <sub>CAUS</sub> [ <sub>PP</sub> the plane [ <sub>P'</sub> Ø land]]]])
	b.	The plane landed	(=[ <sub>VP</sub> V <sub>BECOME</sub> [ <sub>PP</sub> the plane [ <sub>P'</sub> Ø land]]])

→ Also *give/get* alternations are like this as well, without incorporation of the complement of P:

(23)	a.	Manuela gave Anna a book.	(=[ <sub>VP</sub> Manuela [ <sub>V'</sub> V <sub>CAUS</sub> [ <sub>PP</sub> Anna [ <sub>P'</sub> Ø a book]]]])
	b.	Anna got a book	(=[ <sub>VP</sub> V <sub>BECOME</sub> [ <sub>PP</sub> Anna [ <sub>P'</sub> Ø a book]]])

→ Even with incorporated Ns, when the semantics of the construction are right, we see occasional composition with  $v_{BECOME}$ —this, I think, is the structure of English denominal weather verbs with expletive subjects—the nominal incorporates into the  $v^{\circ}$ :

(24)	a.	It rained	(=[ <sub>VP</sub> V <sub>BECOME</sub> [ <sub>N</sub> rain]])
	b.	It snowed	(=[ <sub>VP</sub> V <sub>BECOME</sub> [ <sub>N</sub> snow]])

→ Nonetheless, it is clear that a majority of verbs do not alternate productively: *\*it jumped* (with expletive 'it'), *\*The city destroyed*, *\*The horse saddled*.

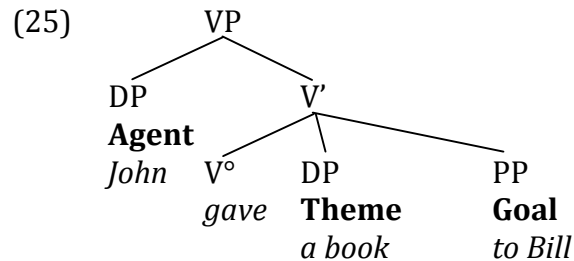
→ In the current framework, this becomes something of a theoretical conundrum. There are two approaches to this problem:

- Associate verb roots with licensing conditions, so that certain verb roots can only appear in the context of one or the other  $v^{\circ}$  (Ramchand 2008, Siddiqi 2006 are examples of this approach)
- Ascribe the restriction to the semantics, not the syntax: The problem with *the horse saddled* is not ungrammaticality, but uninterpretability,

given what we know about saddling. See Marantz 1997, Harley and Noyer 2000, Borer 2005 for variations on this approach.

### 2.3 Syntactic motivations for the split-vP approach: Larson 1988

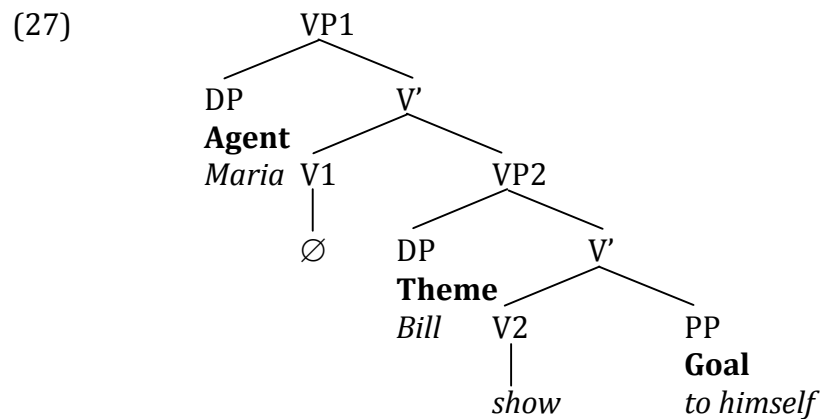
→ Ditransitive verbs are problematic for a binary-branching syntax:



→ First internal argument DP c-commands second one (Barss and Lasnik 1986)

- (26) a. Maria showed Bill himself (in the mirror).  
 a'. \*Maria showed himself Bill.  
 b. Maria showed Bill to himself (in the mirror).  
 b'. \*Maria showed himself to Bill.

→ Larson 1988: Solution is to split the vP into two projections, an upper, semantically empty Agent-assigning one and a lower contentful one selecting the internal arguments of the verb

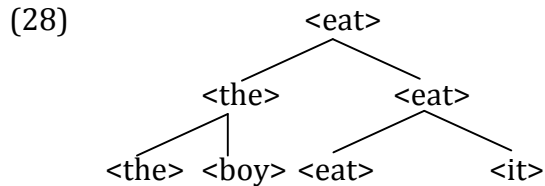


→ If VP1 is really vP, and VP2 is really a variety of PP headed by a stative root  $\sqrt{show}$ , this structure is isomorphic to Hale and Keyser's.

### 2.4 Advantages of the split-vP approach within Minimalism: Distinguishing unaccusative and unergative Vs in Bare Phrase Structure

→ In Minimalism, X-bar theory has been eliminated (Chomsky 1995, Ch. 4)

→ Instead, we have the simple operation Merge, which simply takes two elements and combines them to produce ever more complex binary branching structures:



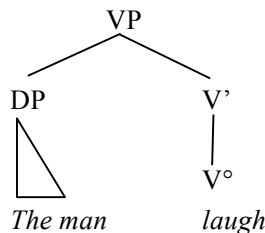
“The boy ate it.” (vP portion only—no TP represented)

→ Crucially, there are no nonbranching projections possible in this system, since every projection is the result of a Merge operation, involving at least two elements!

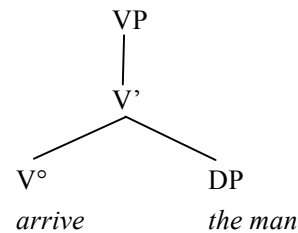
→ However, with the VP-internal subject hypothesis, GB theory relied *crucially* on nonbranching projections to make the specifier/complement distinction that was central to distinguishing unergative and unaccusative verbs.

(29) Before the advent of the vP hypothesis:

Unergative verbs in GB theory

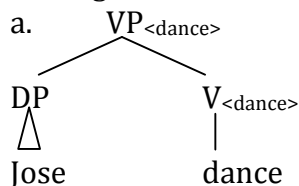


Unaccusative verbs in GB theory

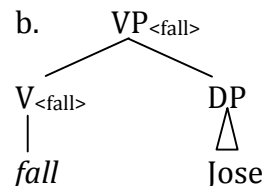


→ Within BPS, the simple merger of a verb and its argument produces identical structures, no matter what linear order you assume:

(30) Unergative

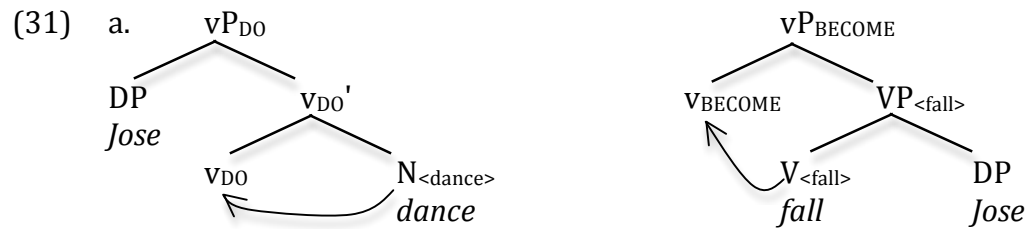


Unaccusative



→ Under the H&K proposal, the differences between the verb types are considerably more profound; unergative verbs generate their external argument in spec-vP, while unaccusative arguments are base-generated in sister to the V/Adj projection, below the unaccusative vP.





→ This provided Chomsky with a solution before he even needed it for his BPS proposal's problem with the unaccusative/unergative distinction.

## 2.5 Wrap-up

→ So: We have seen a proposal for doing without theta-roles; the structural positions in which DPs are merged and the compositional semantics of the primitive lexical-semantic predicates associated with them determine DP interpretation; similar interpretations are seen in similar structural positions.

→ Next: The semantic motivation for decomposing verbs. First: Dealing with Fodor's (1970) arguments against decomposition, then Kratzer's treatment of Marantz's idiom generalization.

### 3. Fodor (1970): Three reasons for not deriving 'kill' from 'cause to die'

Harley, H. (forthcoming). [Lexical decomposition in modern generative grammar](#). In *Handbook of Compositionality*, edited by Wolfram Hinzen, Markus Werning and Edouard Machery. Oxford: OUP.

#### 3.1 Fodor's basic contention

→ Arguing against the Lexical Semantics proposals of the 1970s, Fodor came up with three ways in which the monomorphemic change-of-state verb *kill* differed from its multiclausal paraphrase *cause to die*

(32) *Paraphrase allows independent temporal modification (a); verb does not (b)*  
a. John caused the automatic door to open on Sunday by programming it on Saturday  
b. #John opened the automatic door on Sunday by programming it on Saturday.

(33) *Paraphrase has two possible controllers for adjunct PRO (b); verb does not (c)*  
a. Bill<sub>i</sub> died [by PRO<sub>i</sub> swallowing his tongue].  
b. John<sub>i</sub> caused Bill<sub>j</sub> to die [by PRO<sub>#i/j</sub> swallowing his tongue]  
c. John<sub>i</sub> killed Bill<sub>j</sub> [by PRO<sub>#i/\*j</sub> swallowing his tongue]

(34) *Paraphrase allows two antecedents for VP-ellipsis (a), verb only one (b)*  
a. John caused Mary to die, and it surprised me that she did so [=DIED].  
b. \*John killed Mary, and it surprised me that she did so [=DIED].

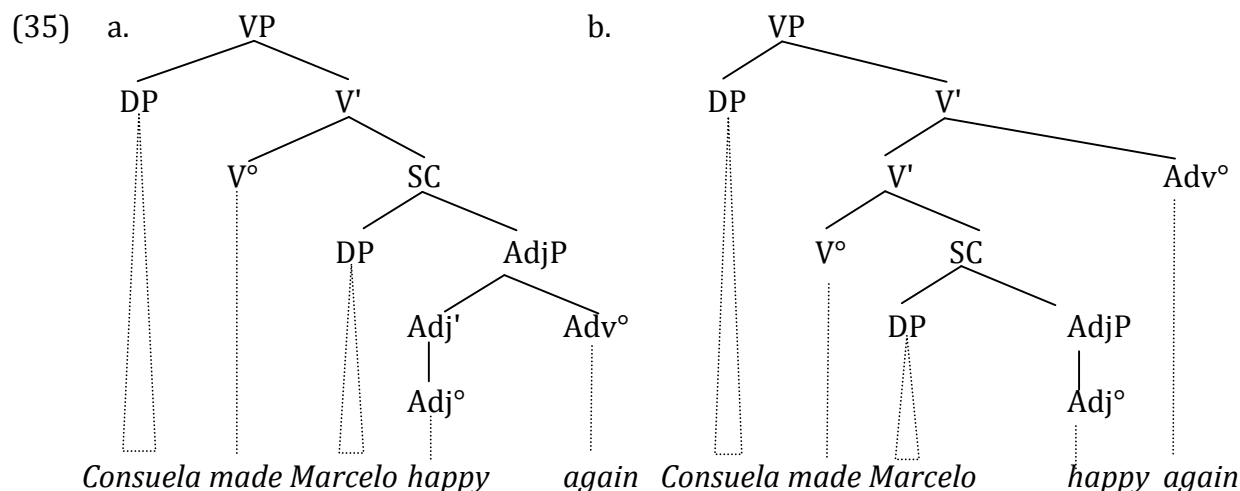
→ Since the syntactic properties of the paraphrase are so different from the properties of the simple verb, Fodor concluded that the simple verb should not be derived by 'collapsing' (incorporating) a biclausal structure—'kill' should not be decomposed into CAUSE to DIE.

#### 3.2 Review: Why decompose at all?

→ We saw previously that there are morphosyntactic arguments for decomposing the verb phrase into a vP and a contentful predicative phrase.

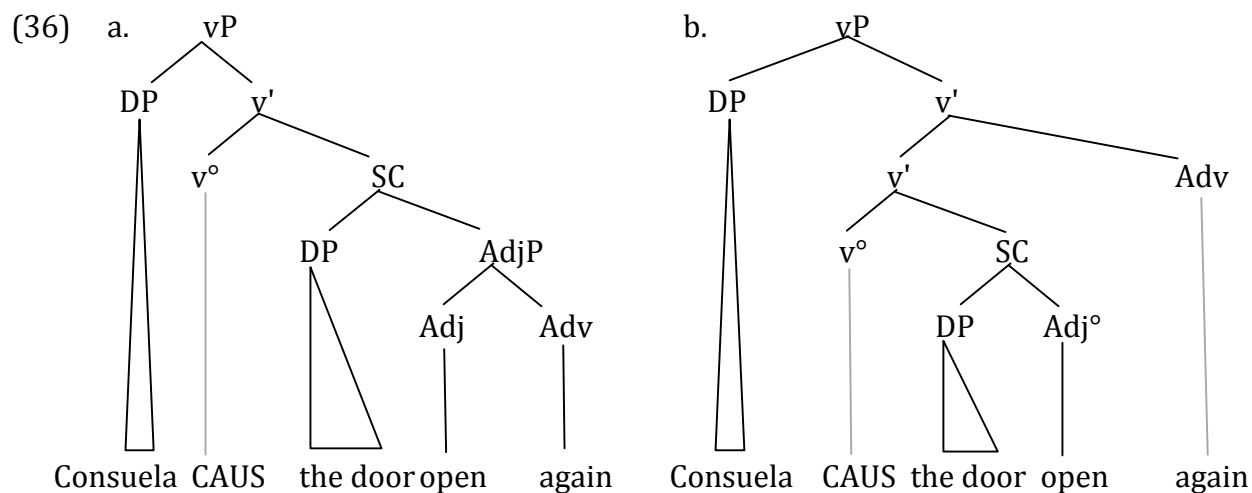
→ There are also semantic reasons; these were the original generative semantic arguments in favor of the proposal

→ Consider the ambiguity present in a string such as *Consuela made Marcelo happy again*. It's a syntax 101 exercise to show how this ambiguity is structural:



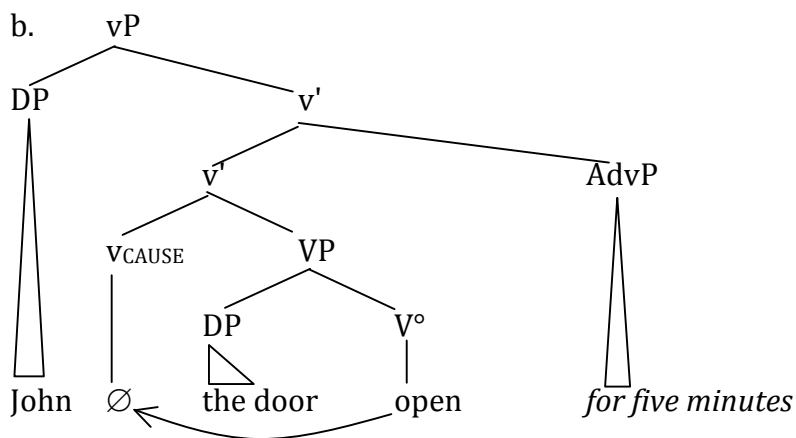
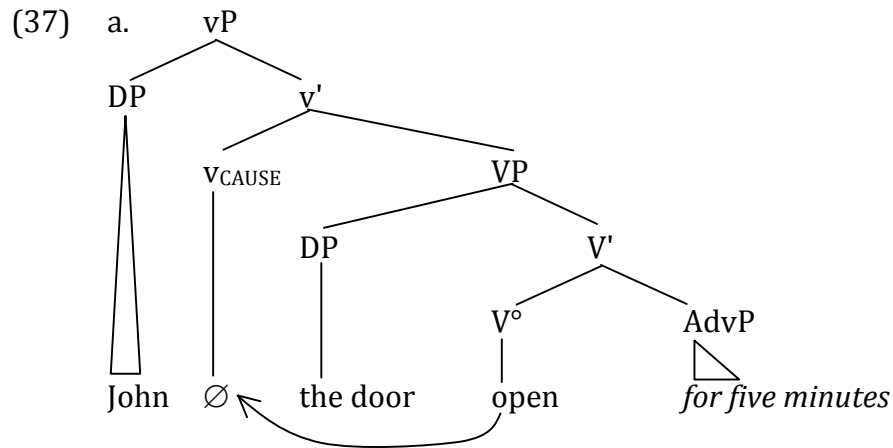
→ The scope of modification of *again* corresponds exactly to its attachment site; because the two attachment sites do not involve a change in linear order, the string is structurally ambiguous.

→ Key thing: The same ambiguity is present with monomorphemic change-of-state verbs like *open*



→ Von Stechow (1995) argued that it would be the height of theoretical profligacy to assume that the ambiguity in (35) is syntactic while that in (36) is lexical; the type-shifting operations needed to derive two scopes for *again* in the purely semantic domain would ascribe an exceptional degree of power to the semantic component when the necessary tools are already present in the syntax.

→ Similar scopal ambiguities are evident with respect to other temporal modifiers such as durative PPs like *for five minutes*:



→ Also: Composition argument of Kratzer's which we're about to consider next.

### 3.3 The right way to analyze 'kill' as 'cause to die'

→ Key to understanding the response to Fodor's objections:

- Fodor's counterexamples involve an embedded infinitive TP, complete with *to*-marker, its own temporal location, and an embedded eventive VP
- The proposed structure for change-of-state verbs involve an embedded stative small clause, not an embedded TP
- A more appropriate periphrastic comparison to the modern proposal for decomposition into CAUSE and stative small clause would be a periphrastic causative headed by *make* and taking a stative small clause complement, like *Mary made [John sick]*.
- In fact, when tested with Fodor's own tests, *Mary made John sick* behaves like the monomorphemic verbs, not like *Mary caused John to get sick*

- Conclusion: The parallel between the appropriate periphrastic construction and the proposed modern decomposition is actually very close
- Fodor's original comparison points are not relevant to the modern proposal.

→ First, a key distinction: *eventive* vs. *stative*

→ Eventive predicates are [+dynamic]—something happens

→ Stative predicates are [-dynamic] — just an expression of the way things are.

→ In English, one good test for stative vs. eventive status of a given predicate is their behavior in the true present tense, as a description of the way things are right at the moment of speech

→ Statives are grammatical in the present tense; eventive predicates require the progressive. One good way to avoid the confound of a habitual interpretation is to preface the example with something like "Look!"

- (38)
- |    |   |                 |
|----|---|-----------------|
| a. | Look! Maria is swimming!/*swims!                | <i>eventive</i> |
| b. | Look! Maria is sick! / *is being sick!          | <i>stative</i>  |
| c. | Look! Maria knows French! / *is knowing French! | <i>stative</i>  |
| d. | Look! Maria talking to John!/*talks to John!    | <i>eventive</i> |

→ Eventive predicates, esp. if agentive, are generally good with imperative mood; Stative predicates are not:

- (39)
- |    |               |
|----|---------------|
| a. | Swim!         |
| b. | #Know French! |
| c. | Learn French! |
| d. | #Be sick!     |
| e. | Get sick!     |
| f. | Die!          |
| g. | #Be dead!     |

→ So when I talk about eventive vs. stative predicates below the small clause, that's what I mean. Fodor's examples *cause X to die* involve a TP with an eventive predicate *die*. My paraphrases *make X sick* involve a small clause with a stative predicate *sick*—but they're still indubitably syntactic.

→ So if the monomorphemic change of state verbs behave like *make X sick* with respect to Fodor's tests, we can conclude that there is no reason not to decompose them, as long as the proposal involves a structural parallel to *make X sick* — which it does, of course.

### 3.3.1 Control test

→ Subjects of stative predicates cannot control PRO in an adjoined *by* phrase

- (40) a. \*Maria<sub>i</sub> was happy by PRO<sub>i</sub> singing.  
b. \*Marcelo was sick by PRO<sub>i</sub> eating too much.

→ Compare these with their eventive inchoative counterparts:

- (41) a. Maria<sub>i</sub> became happy by PRO<sub>i</sub> singing.  
b. Marcelo got sick by PRO<sub>i</sub> eating too much.

→ When *make* takes an eventive verbal complement, the embedded subject can control PRO, as we expect from (41) (the matrix subject can also control PRO, which is expected given that *make* is eventive):

- (42) Jose<sub>j</sub> made Maria<sub>i</sub> die by PRO<sub>i/j</sub> swallowing her<sub>i</sub> tongue

→ However, when the complement to *make* is stative, the embedded subject cannot control PRO, only the subject of *make* can:

- (43) a. Jose<sub>j</sub> made Maria<sub>i</sub> sick by PRO<sub>j/\*i</sub> eating too much  
b. Jose<sub>j</sub> got Maria<sub>i</sub> awake by PRO<sub>j/\*i</sub> setting the alarm clock.

→ Consequently, the fact that a single change-of-state verb behaves like (43) is expected if the complement to CAUSE is a stative small clause, rather than an eventive verb like *die*:

- (44) a. Jose<sub>i</sub> sickened Maria<sub>j</sub> by PRO<sub>i/\*j</sub> eating too much  
b. Jose<sub>i</sub> woke Maria<sub>j</sub> by PRO<sub>i/\*j</sub> setting the alarm clock.

→ The parallel between (43) and (44) suggest that a [CAUSE [Maria sick]<sub>sc</sub>]<sub>v</sub> structure for the verbs in (44) is not too far off here.

### 3.3.2 VP ellipsis test

→ Same remarks apply here: It turns out that stative predicates in general cannot be antecedents for VP-ellipsis in English, while all eventive predicates can.

- (45) a. Maria was sick, \*and Consuela did so too.  
b. Pepe was awake, \*and Marcelo did so too.

- (46) a. Maria got sick, and Consuela did so too.  
b. Pepe woke up, and Marcelo did so too.

→ So this again predicts a contrast between a *make X get sick* (or *cause to die*) periphrasis and a *make sick* periphrasis, with *make sick* behaving the same way as the causative verb *sicken*.

(47) a. Maria made Consuela sick, and Anna did so too. (*do so = make X sick*)  
b. Pepe got someone awake, and Jose did so too. (*do so = get X awake*)

(48) a. Maria sickened Consuela, and Anna did so too. (*do so = sicken X*)  
b. Pepe woke someone up, and Jose did so too. (*do so = wake X up*)

(49) a. Maria made Consuela get sick, and Anna did so too. (*do so = make or get sick*)  
b. Pepe made someone wake up, and Jose did so too. (*do so = make or wake up*).

→ Same conclusion: causative verbs behave the same as periphrastic equivalents with stative embedded clauses with respect to *do so* ellipsis, with the result that the failure of parallelism with eventive embedded clauses is not an argument against decomposing the causative verb into a causative predicate and a stative result.

### 3.3.3 Independent temporal locations

→ Finally, what about the independent temporal location test?

→ Judgments can be a bit fuzzy, but in general, the intuition is that with a single verb, there is only one event, and which can only occupy one temporal location.

→ With two verbs, there are two events, which can occupy two temporal locations without contradiction.

→ With a causative verb and a stative complement, we again get the effect of only one event—the 'becoming' part is coerced by world knowledge, not present in the syntactic structure

(50) a. Consuela caused Maria to get sick on Tuesday by poisoning her on Sunday.  
b. ?Consuela made Maria sick on Tuesday by poisoning her on Sunday.  
c. ?Consuela sickened Maria on Tuesday by poisoning her on Sunday.

→ In fact, the effect is much stronger with *kill*, which is perhaps related to the fact that it is a denominal event-naming verb (*a kill*), rather than a deadjectival change-of-state predicate, properly speaking.

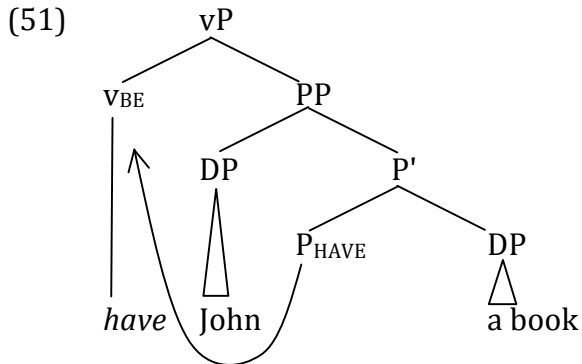
→ In any case, I think there's a contrast between (50a) and (50b,c) that supports the direction of argumentation proposed here.

### 3.4 Case studies in decomposition: *have*, *give*, *get*, *want*

→ We've seen inchoative  $v_{\text{BECOME}}$  and causative  $v_{\text{CAUSE}}$ , both of which form eventive verbs.

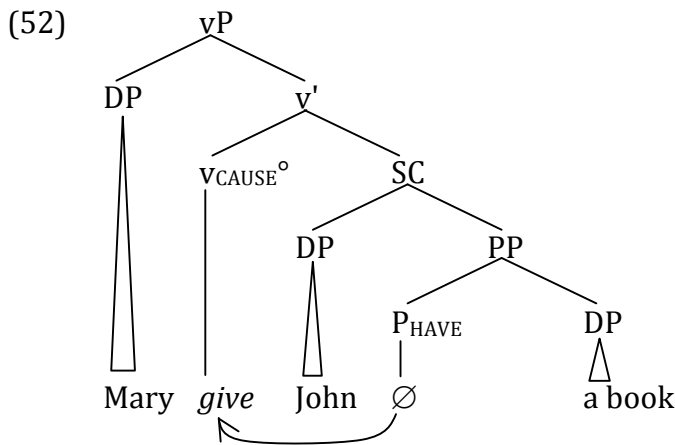
→ We also have stative  $v_{\text{BE}}$  in stative verbs

→ Kayne, Freeze on *have*: composed of *be* plus an incorporated preposition (or in Kayne's case, possessive determiner):



→ Note: *be* has no external argument in this formulation—there's no Agent in the structure. In an approach like Baker's or Bower's, *be* would be a Pred head and its subject would be in its specifier, not in a small clause complement.

→ If we swap  $v^\circ$  relations, changing  $v_{\text{BE}}$  to  $v_{\text{CAUSE}}$ , we have the nucleus of a double-object *give* verb:



→ If *give* and *have* both contain the same subconstituent, a small clause headed by  $P_{\text{HAVE}}$ , they should behave similarly in a number of ways, and they do:

→ Alienability restriction on the subject of *have* and the Goal argument of double-object *give*:

(53) a. John has a book. (alienable possession, animate subject)



- b. John has a big nose. (inalienable possession, animate subject)
- c. \*The bookcase has a book. (alienable possession, inanimate subject)
- d. The bookcase has five shelves (inalienable possession, inanimate subject)

- (54) a. \*Mary gave the bookcase a book.  
 b. Mary gave the bookcase five shelves (e.g. while building or repairing it)

→ If *have* is present in double object *give*, it should have a possession entailment, and it seems to:

- (55) a. Mary taught the students French. (The students know some French)  
 b. Mary taught French to the students. (The students may or may not)

→ What about the failure of possession in these double object structures?

- (56) a. Mary sent John a letter, but he never received it. (#*John had a letter*)  
 b. Mary baked John a cake, but it burned, so he never saw it. (#*John had a cake*).

→ Possession was present—it was John's letter and John's cake, though he never 'had' them— $v_{BE}$  adds durativity requirement not imposed by the simple predication of a possession relation introduced by  $P_{HAVE}$

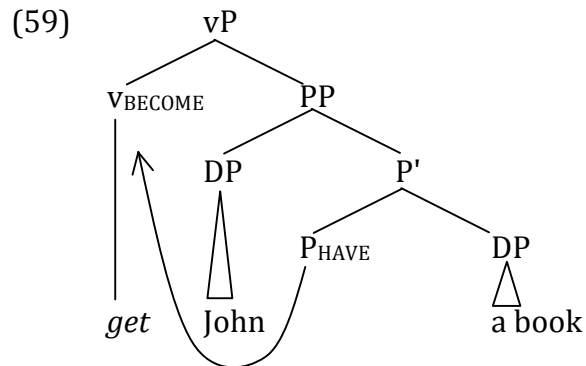
→ Normal adverbial adjunction tests reveal presence of  $P_{HAVE}$  small clause in double object *give*:

- (57) a. Mary gave John the car again  
**Restitutive:** *John had had the car before, and Mary caused him to have it again.*  
**Repetitive:** *Mary had given John the car before, and she did so again*  
 b. Mary gave John the car for a week. => *John had the car for a week*

→ Certain idioms carry over from double object *give* to *have* sentences too (Richards 2001):

- (58) a. Mary gave me the creeps/willies.  
 b. (It's so spooky in here,) I have the creeps/the willies.  
 c. #I possess/own/am experiencing/feel the creeps/the willies.

→ Can also compose  $P_{HAVE}$  with the inchoative  $v^{\circ}$ , giving *get*:



→ All the effects above carry over—animacy effects, temporal modification of result *having* state, idioms:

(60) a. Animacy/alienability effects:

- (i) John got the book.
- (ii) #Philadelphia got the book.<sup>3</sup>
- (iii) Philadelphia got a new freeway.

b. Scope of adverbials only over P<sub>HAVE</sub> state, not over *getting* event:

(i) John got his balance again

**Restitutive** reading: (i) can be true in a case where John never lost his balance before in his life, so he had never gotten his balance before, since he'd never lost it. In such a situation, (i) expresses the notion that what is happening again is the state of John having his balance, not that he is undergoing a second event of getting his balance.

(ii) John got the car for a week

**Low-scope reading:** What lasts a week is the state of John having the car, not the event of him getting it.

c. I got the creeps/willies

### 3.5 Intermediate summary:

→ We have seen three kinds of arguments for decomposition of the VP into vP and a lower contentful predicative phrase:

- Morphological (Basque, Jemez)
- Syntactic (Larson on ditransitive verbs)
- Semantic (scope of *again* and independent modification of result)

<sup>3</sup> The intended context is one in which the book was sent in the mail to Philadelphia, where Philadelphia just refers to the city as a location. Famously, this improves if 'Philadelphia' is understood to refer to some animate/intentional collective entity, like the Philadelphia office of a corporation; the same effect is seen in #John sent Philadelphia the book vs. John sent the book to Philadelphia. Since freeways are inalienable subconstituents of a city, (iii) is fine.

→ The morphological relatedness of causative and inchoative pairs is too pervasive, cross-linguistically, to be a coincidence.

→ Here are more examples of the Jemez/Hiaki type from Japanese change-of-state verbs:

(61) Japanese inchoative/causative alternating morphology

<i>Inchoative variant</i>		<i>Causative variant</i>		
ag- <b>ar</b> -u	'rise'	ag- <b>e</b> -ru	'raise'	ag-
aratam- <b>ar</b> -u	'improve'	aratam- <b>e</b> -ru	'improve'	aratam-
ama- <b>r</b> -u	'remain'	ama- <b>s</b> -u	'remain'	ama-
hita- <b>r</b> -u	'soak'	hita- <b>s</b> -u	'soak'	hita -
arawa- <b>re</b> -ru	'show'	arawa- <b>s</b> -u	'show'	arawa-
hana- <b>re</b> -ru	'separate'	hana- <b>s</b> -u	'separate from'	hana-
ka- <b>ri</b> -ru	'borrow'	ka- <b>s</b> -u	'lend'	ka-
ta- <b>ri</b> -ru	'suffice'	ta- <b>s</b> -u	'supplement'	ta-
bak- <b>e</b> -ru	'turn into'	bak- <b>as</b> -u	'turn into/bewitch'	bak -
bar- <b>e</b> -ru	'come to light'	bar- <b>as</b> -u	'bring to light'	bar-
ak- <b>i</b> -ru	'tire'	ak- <b>as</b> -u	'tire'	ak
dek- <b>i</b> -ru	'come into being'	dek- <b>as</b> -u	'bring into being'	dek-
horob- <b>i</b> -ru	'fall to ruin'	horob- <b>os</b> -u	'ruin'	horob-
ok- <b>i</b> -ru	'get up'	ok- <b>os</b> -u	'get up'	ok-

→ It is important, however, to keep in mind the point from Basque, namely, that we can see these kind of dual-projection effects in syntactically independent words, not just in morphologically fused cases like Jemez or in monomorphemic cases like English.

→ Here are examples of inchoative/causative pairs from Persian, which, like Basque, realizes the  $v^{\circ}$  head and the downstairs predicates as independent words, in a visibly syntactically complex way:

(62) a.	sabok shodan light becoming 'degrade (intr)'	sabok kardan light making 'degrade (tr)'
b.	pahn shodan wide becoming 'spread (intr)'	pahn kardan wide making 'spread (tr)'
c.	kotak xordan beating colliding 'to get beaten'	zadan kotak beating hitting 'to beat'
d.	xar shodan donkey becoming 'to get fooled'	xar kardan donkey doing 'to fool'

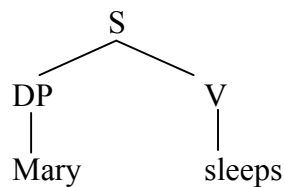
- The advantage of the vP approach is that it allows us to treat the Persian and Basque cases in a uniform way with the English, Jemez, Japanese, and Hiaki cases
- They would otherwise be a peculiar exception to the pattern of morphological verb formation cross-linguistically
- Analyzed this way, however, they are simply a predicted parametric type, driven by incorporation/non-incorporation of the lower element into the higher v<sup>o</sup>.
- Before moving on to other questions about this decompositional scenario, let's just consider one more argument for it: Kratzer's treatment of Marantz's generalization concerning idiomatic interpretations of verbs.

#### 4. Kratzer on Severing the External Argument from its Verb

Reading: Kratzer, Angelika. 1996. Severing the external argument from its verb. In J. Rooryck and L. Zaring eds., *Phrase Structure and the Lexicon*, 109-137. Dordrecht: Kluwer.

##### 4.1 *A quick primer in compositional semantics:*

(63) Mary sleeps.



→ What's the essential meaning of the two elements of the sentence?

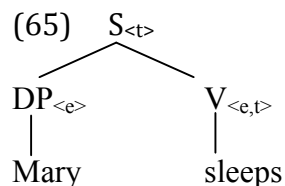
- (64) a. "Mary" = the person named Mary  
b. "sleeps" = a function which takes an individual as an argument and returns the value "true" if the individual is sleeping.

→ Individuals are entities in the real world: we can call them things of type  $\langle e \rangle$ .

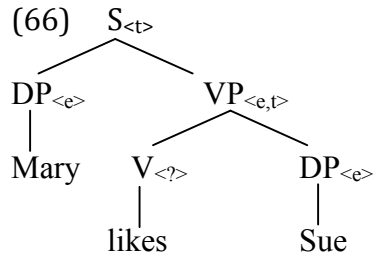
→ Sentences are statements about situations in the real world, which are either true or false: they are of type  $\langle t \rangle$ .

→ Verbs are functions. Intransitive verbs take an entity as an argument and return a truth value which depends on what conditions are like in the real world.

→ They are of type  $\langle e, t \rangle$ , where the leftmost member of the pair is the input to the function, and the rightmost member is the output. We can now label our nodes, above, with their types:



→ What about transitive verbs?



→ Well, looking at the nodes in the tree, we can see that a transitive verb has to be something that takes an entity as input and gives back **another function**, equivalent to an intransitive verb, that takes an entity as input and gives a truth value. So, a transitive verb is of type  $\langle e, \langle e, t \rangle \rangle$ .

→ The lexical entry for an intransitive verb will be something like this:

(67) **sleep**(x) = true iff x is asleep

→ The lexical entry for a transitive verb will be something like this:

(68) **like**(y)(x) = true iff x likes y.

→ Then, the way you interpret a sentence is you just put the arguments together with the verb, one at a time, and see what the truth value is at the end. So, to interpret "Mary likes Sue":

- (69)
- a. put "Sue" together with "likes"
  - b. get a function that take an entity x and gives "true" iff x likes Sue.
  - c. Put "Mary" together with that function ("likes Sue") and get "true" iff Mary likes Sue.

#### 4.2 Davidsonian event semantics:

(70) "We bought your slippers in Marrakesh  
 $\exists e$  [buy (your slippers)(we)(e) & in Marrakesh(e)]  
 ="There was an event of us buying your slippers and that event was in Marrakesh"

→ Syntactic arguments (subjects and objects) are direct arguments of the verb—compose directly with the verb. Adjuncts are not.

(71) Neo-Davidsonian  
 "We bought your slippers in Marrakesh  
 $\exists e$  [buy (e) & Agent (we) (e) & Theme (your slippers) (e) & in Marrakesh(e)]  
 = "There was an event of buying and the agent of the event was us and the patient of the event was your slippers and the event was in Marrakesh."

→ Nothing (except the event argument) is an argument of the verb. Each argument is introduced by its own separate predicate.

→ Either approach could be captured in a theory of LCS with a rule about 'ordered argument association' in the syntax:

- (72) a. BUY  
 PHON: 'buy'  
 SYN: V  
 SEM:  $\lambda x \lambda y \lambda e [\text{buy}(x)(y)(e)]$
- b. BUY  
 PHON: 'buy'  
 SYN: V  
 SEM:  $\lambda x \lambda y \lambda e [\text{buy}(e) \ \& \ \text{Agent}(y)(e) \ \& \ \text{Patient}(x)(e)]$

→ either lexical entry gives the same result

*buy* is a 3-place function ( $\lambda x \lambda y \lambda e$ )

*buy* combines first with its Patient ( $\lambda x$ ), then its Agent ( $\lambda y$ ), then its event arg ( $\lambda e$ )

→ Kratzer: going to argue that some of this decomposition actually happens in the syntax.

→ in fact, going to argue that *buy* (and all transitive verbs with external arguments) are not three-place predicates (Agent, Patient & Event), but two-place preds (Patient and Event)

→ Agents are added by a separate predicate, with its own lexical entry, which projects its own phrase in the syntax (a vP!)

#### 4.3 External arguments are special

- (73) Williams: *buy* (1, 2)  
 Rappaport & Levin: *buy* (<Agent>, Theme)  
 Grimshaw: Thematic Aspectual  
 (Agent, Theme) & (Initiator, Delimiter)
- 

Marantz: *buy* (Theme)

→ Kratzer's question: how do you implement this intuition in a compositional semantics?

→ If verbs & their arguments combine by function application, and if the lexical entry for *buy* looked like this:

(74)            *buy*             $\lambda x \lambda e [\text{buy}(x)(e)]$

then you'd have a proposition as soon as you combined *buy* with its patient and its event argument. How does the agent get in there?

→ could just add it by brute force, with special semantic interpretation rule for VPs  
→ ick!

→ But: A clue comes from Marantz's 'idioms': many case where you get a lot of meaning variation depending on the type of object a verb takes

(75)            kill a bug                    =            cause the bug to die  
                  kill a conversation       =            cause the conversation to end  
                  kill an evening               =            while away the time span of the evening  
                  kill a bottle                   =            empty the bottle  
                  kill an audience            =            entertain the audience to an extreme degree

throw a baseball  
throw support behind a candidate  
throw a boxing match  
throw a party  
throw a fit

take a book from the shelf  
take a bus to New York  
take an aspirin  
take a nap  
take a letter in shorthand

(76) Important! these aren't exactly 'idioms' — they're not fixed:

*kill the bottle / the peanuts / the casserole / the wine*  
*kill an hour / a few minutes / time*

→ Even more important: you see this kind of variation conditioned by objects -- *not subjects!*

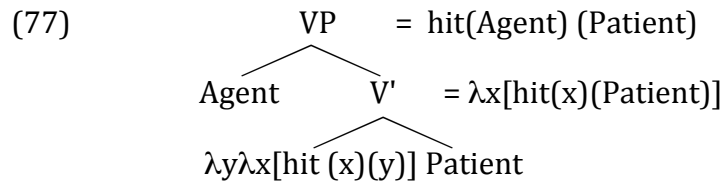
→ Bresnan's and Grimshaw's suggestion: the external argument is still an argument of the *verb*, it's just a special argument, in that it combines *last*. So you can have special meaning with the verb and the object without the subject, but not vice versa.

(Their prediction: no idioms of e.g. verbs+adjuncts excluding the object.)

→ Kratzer's argument that B&G's reply is inadequate:



- a) Semantic interpretation of a node results from combining the two daughter nodes.  
 b) Verbs are functions. Traditionally, *hit*, e.g., is a two-place function:  $\text{hit}(x)(y)$ , in the system we saw above:



"Hit" is a function that takes an argument  $x$  and turns out a function that takes another argument  $y$  and turns out truth value = TRUE iff  $y$  **hits**  $x$ .

so truth value of tree above = 1 iff Agent hits Patient

→ How do Marantz's special interpretations work in a system like this?

→ Could do it like this, positing a zillion homophonous verbs *kill* with different truth conditions:

(78) **kill**<sub>1</sub> is a function that takes an argument  $x$  and turns out a function that takes another argument  $y$  and turns out: truth value = TRUE iff  $x$  is an animate being and  $y$  **kills**  $x$ .

**kill**<sub>2</sub> is a function that takes an argument  $x$  and turns out a function that takes another argument  $y$  and turns out: truth value = TRUE iff  $x$  is comestible and  $y$  **consumes the last of**  $x$ .

**kill**<sub>3</sub> is a function that takes an argument  $x$  and turns out a function that takes another argument  $y$  and turns out: truth value = TRUE iff  $x$  is a time period and  $y$  **wastes**  $x$ .

→ Or like this, with one verb *kill* with several if-then statements about truth conditions

(79) **kill** is a function that takes an argument  $x$  and turns out a function that takes another argument  $y$  and turns out:  
 truth value = TRUE iff  $x$  is an animate being and  $y$  **kills**  $x$ .  
 truth value = TRUE iff  $x$  is comestible and  $y$  **consumes the last of**  $x$ .  
 truth value = TRUE iff  $x$  is a time period and  $y$  **wastes**  $x$ .

→ But what's to prevent you from doing the same trick with the "y" argument? Neither approach predicts that it should be impossible:

(80) **blick** is a function that takes an argument  $x$  and turns out a function that takes another argument  $y$  and turns out:

truth value = TRUE iff y is an animate being and y **blicks** x.  
 truth value = TRUE iff y is a time period and x **exists during** y.  
 truth value = TRUE iff y is a food item and x **is made sick by** y.

→ so "X blicked Y" has whatever meaning 'blick' has in the context of X  
 "Today blicked the mayfly" says something like "The mayfly existed today."  
 "The sausage blicked Mary" says something like "The sausage made Mary sick"

→ This is possible in the usual system, but if Marantz's generalization is correct, simply does not occur!

→ How to rule it out?

→ Kratzer says that the only way she can see to capture Marantz's generalization is if external arguments are not arguments of their verbs after all, but arguments of some other verb — a light verb — that selects them, and then combines with the main verb by coordination to give the whole meaning:

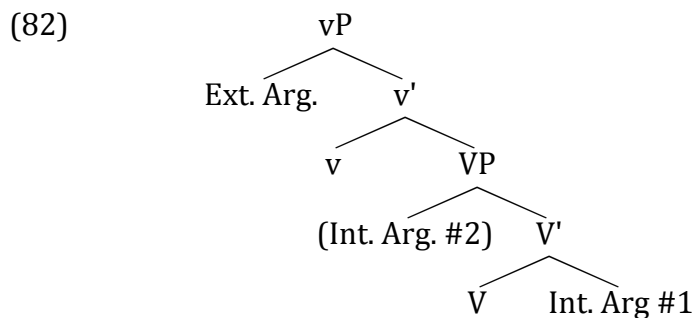
#### 4.4 External arguments are arguments of a separate head, Voice

→ "Suppose quite generally that arguments are introduced by heads"

→ Aha! Hung (1988) reports that Malagasy has exactly such a head, represented by visible morphology

(81) Morphological evidence: Malagasy 'active' prefix *-an-*  
 M+an+sasa ny lamba (amin ny savony) Raso  
 T+v+wash the clothes with the soap Raso  
 "Raso washes the clothes with the soap."

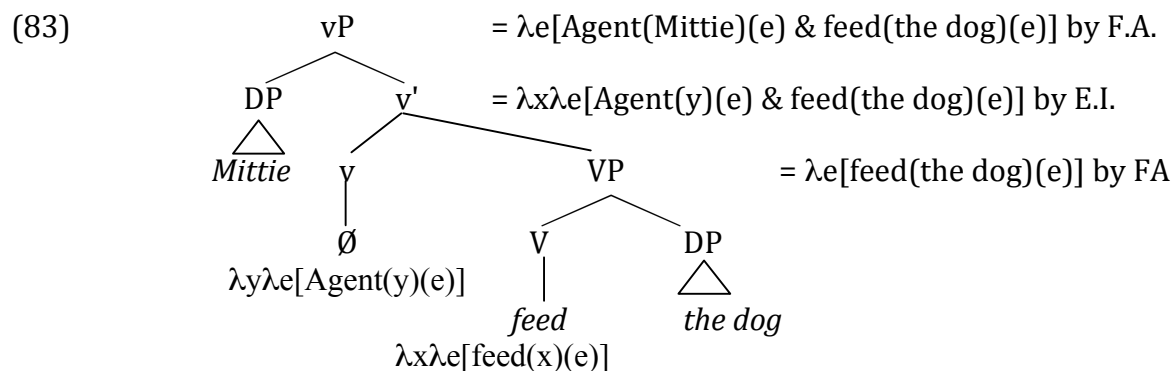
→ Claim: All verbs with external arguments have a separate little "v" (Kratzer's "Voice") that selects the external argument:



→ Then long waffle about whether the external-argument-introducing head is lexical or functional

→ (though I concur that splitting the vP “allows us to harvest many of the pleasant syntactic consequences of [previous] proposals” along these lines)

→ How do the denotations of VP & vP get combined? “Event Identification”



→ “Event Identification is one of several admissible conjunction operations” with the stipulation that the events that are being identified have to be compatible. (Then confusing excursus about how to add an external argument to a stative verb)

→ Where does event argument come from to satisfy the open argument slot? It doesn't; it gets existentially quantified (bound) by an appropriate quantificational functional head higher up (e.g. Tense)

→ Back to how this helps us with variable interpretation verbs: *John killed Bill*:

- There's a "causing" and a "killing"; John is the agent of the causing, Bill is the **patient** of the **killing**, and the causing and the killing were the same event -- so John caused the killing of Bill.

→ *John killed the wine*

- There's a causing and a killing; John is the agent of the causing, *the wine* is the **patient** of the **killing**, and when *kill*'s patient is comestible, *kill* means 'finish', and the causing and the killing are the same event -- so John caused the finishing of the wine.

→ But—since *John* is the argument of the Causing event, not of the killing event, no special truth conditions specified for the killing event can take his identity into account!

→ Hence, no special meanings for verbs in the context of their external arguments.

→ She finishes with an excursus about accusative case, Burzio's generalization, and *of*-ing vs. acc-inc & poss-ing gerunds—one of the first statements of the "high/low attachment hypothesis", of which more anon.

- (84)
- a) Mary's reading **of** *Pride and Prejudice*
  - b) Mary reading *Pride and Prejudice*

## 5. Applications I: Special interpretations and the High/Low attachment hypothesis

Readings: Harley, H. (2008) [On the causative construction](#), *Handbook of Japanese Linguistics*, edited by Shigeru Miyagawa and Mamoru Saito. pp. 20-53, Oxford: OUP

### 5.1 Affixal causatives and architectures for linguistic theories

#### 5.1.1 The Empirical Base:

→ Three kinds of V-*sase* combination:

- (85) (A subset of) Lexical causatives Miyagawa 1980, 1984  
Taroo-ga zisyoku-o niow-ase-ta Jacobsen 1981, 1992  
Taro-N resignation-A smell-*ase*-PST Matsumoto 2000  
“Taro hinted at resignation.” (Lit: “Taro made resignation smell.”)

→ Special properties:

- monoclausal by all tests (see below)
- can have idiomatic interpretations
- exhibit allomorphy with other lexical causative affixes
- strong speaker sense of ‘listedness’, non-productivity
- may feed (non-productive) nominalization

(86) Productive causatives

- a. Make-causatives Kuroda 1965, Kuno 1973  
Hanako-wa Yoshi-o ik-ase-ta  
Hanako-T Yoshi-A go-*ase*-past  
“Hanako made Yoshi go.”
- b. *Let-causatives*  
Hanako-wa Yoshi-ni ik-ase-ta  
Hanako-T Yoshi-D go-*ase*-past  
“Hanako allowed Yoshi to go/Hanako had Yoshi go.”

→ Special properties:

- Biclausal by tests involving scope, adverbial control, binding, disjunction
- Monoclausal by tests involving negative polarity
- Make-causative monoclausal by tests involving case.
- Causee must be animate/Agentive
- Productive

→ In *make-causatives*, the Case on the Causee alternates between accusative and dative depending on transitivity of embedded verb. When it is dative *-ni*, it is Case *-ni*, not P *-ni* (Sadakane & Koizumi 1995). In *let-causatives*, it seems to be P *-ni*

→ Properties of all *-sase-* causatives (many from Manning, Sag & Iida 1999)

- (87) a. V+sase = phonological word for stress, other word-size processes  
Kitagawa 1986
- b. V+sase subject to phonological allomorphy depending on coda of V  
(if it's a vowel, then *-sase-*, if it's a consonant, then *-ase*)
- c. V+sase may feed (productive) nominalization with *-kata*, 'way of'
- d. *-sase-* by itself may not behave as a lexical verb (stem):<sup>4</sup>
- i. may not reduplicated by itself to express repetition
  - ii. may not bear focus intonation by itself
  - iii. may not be inflected for subject honorification by itself.
  - v. may not stand alone as an answer to a yes-no question

→ An interesting acquisition difference between lexical and syntactic *-sase-*: lexical *-sase-* occurs first—but not as early as lexical causative uses of verbs show up (Murasugi 2003)

→ For a useful summary of most of these properties, see Kitagawa 1994, Manning, Sag and Iida 1999. For surveys of many previous analyses, see Cipollone 2001, Kuroda 2002. For useful discussion of the 'make/let' distinction, see Dubinsky 1994 and citations therein.

### 5.1.2 Theoretical approaches

→ This constellation of properties really make one face one's theoretical priorities. Some architectural issues posed just by the productive 'make' *-sases*:

- (88) a. Syntactically monoclausal in terms of case, tense, and negative polarity licensing.
- b. Syntactically biclausal in terms of binding, scope, disjunction, control
- c. Morphologically and phonologically a single word, in terms of affixation possibilities and prosody.

→ Resolving these issues usually involves radical replumbing of grammatical architectures: the influence of Japanese causatives on linguistic theory couldn't be bigger.

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<sup>4</sup> Kuroda 1981, 1990 (as cited in Kuroda 2002) presents some examples from negation and intervening particles to suggest that *-sase-* does have an independent existence as a verbal morpheme; Miyagawa 1989:115f, and Kitagawa 1994:184f, followed by Manning, Sag and Iida 1999:47, argues that in fact these are examples of the *-ase-* allomorph suffixed to light verb *s-*, 'do'. Kuroda (2002 n. 14) disagrees, ascribing Kitagawa's position to grammaticality judgment differences.

→ The lexicalist's priorities:

- (89) a. Because all terminal nodes in the syntax must correspond to morphophonological words, then causatives must be monoclausal: one verb, one clause.
- b. Multiclausal properties of causatives must arise from the (productive) operation affixing the causative morpheme in the lexicon, producing a complex syntactic and semantic word.
- c. Conclusion: binding, scope, adjunction and adverbial interpretation and control are relations that depend on lexical operations, not syntactic structure.

→ (Actual proposal of Manning, Sag and Iida 1999; the replumbing part is the inclusion of adjunction and quantifier scope as (separate) lexical operations.)

→ Biggest Problem: Disjunction (Kuroda 2002)<sup>5</sup>

- (90) a. Hanako-ga [[Masao-ni uti-o soozisuru]-ka [heya-dai-o haraw]]-aseru koto ni sita  
Hanako-N [[Masao-D house-A clean]-OR [room-rent-A pay]]-sase that to do  
'Hanako decided to make Masao clean the house or pay room rent'.  
Interpretation: *sase* scopes over OR; Masao has a choice.
- b. Hanako-ga [[Masao-ni uti-o soozis-aseru]-ka [heya-dai-o haraw-aseru]] koto ni sita  
H.-Nom M.-Dat house-A clean-*sase*-OR room-rent-A pay-*sase* that to do  
"Hanako decided to make Masao clean the house or she decided to make him  
pay room rent"  
Interpretation: OR scopes over *sase*; Masao won't have a choice.

→ Also: Problems with capturing syntactic adjunct/argument asymmetries (Cipollone 2001)

→ P&P's LF-as-syntax priorities

- (91) a. If all scope and coindexation relations (and disjunction, of course) must be syntactically represented, then the causative morpheme must head (and be interpreted in) a separate syntactic projection than the verb stem to which it is affixed
- b. Syntactically monoclausal properties of causatives must arise from (deficient) properties of the embedded clausal structure.
- c. Morphological and phonological words are not in a one-to-one relationship with syntactic terminal nodes.

→ Biggest Problems: Where are words made, before or after syntax, or both? What is the constituent structure of the embedded phrase?

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<sup>5</sup> Watanabe (pc) says that the same problem arises in the true 'light verb' constructions with *suru*.

→ Many proposals within broadly P&P lines:

- (92) a. Predicate Raising (e.g. Kuno 1973): Biclausal D-structure collapses to monoclausal S-structure; Syntax feeds word-formation.  
b. Parallel monoclausal and biclausal trees. Word-formation feeds syntax (e.g. Miyagawa 1984).  
c. LF-excorporation and projection. Word-formation feeds syntax (Kitagawa 1986, 1994) (Proposal could be understood as a variant of Chomsky's 1993 lexicalist checking-theory.)  
d. Incorporation (Baker 1988). Syntax manipulates morphemes, feeds word-formation.

→ Necessary ingredients to make an Incorporation account work:

- (93) a. The VP-internal subject hypothesis (so that an embedded subject argument can be introduced in VP, without Tense or whatever the NPI & Case functional boundary is.)  
b. A theory of abstract Case checking in which a clausal Case domain is bounded by a TP projection, to allow the transitivity of the embedded VP to affect the case assigned in the whole clause; similarly for NPI licensing (a 'Dependent Case' account, of the Marantz 1991 type; see, e.g. Miyagawa 1999).  
c. A theory of scope that allows quantifiers to scope at the VP level as well as the CP level.  
d. A rejection of the Lexicalist Hypothesis at least for productive derivational morphology; i.e. have to allow syntax to manipulate morphemes. (Note: have to allow syntax to derive *-kata* 'way of' nominals, too.)

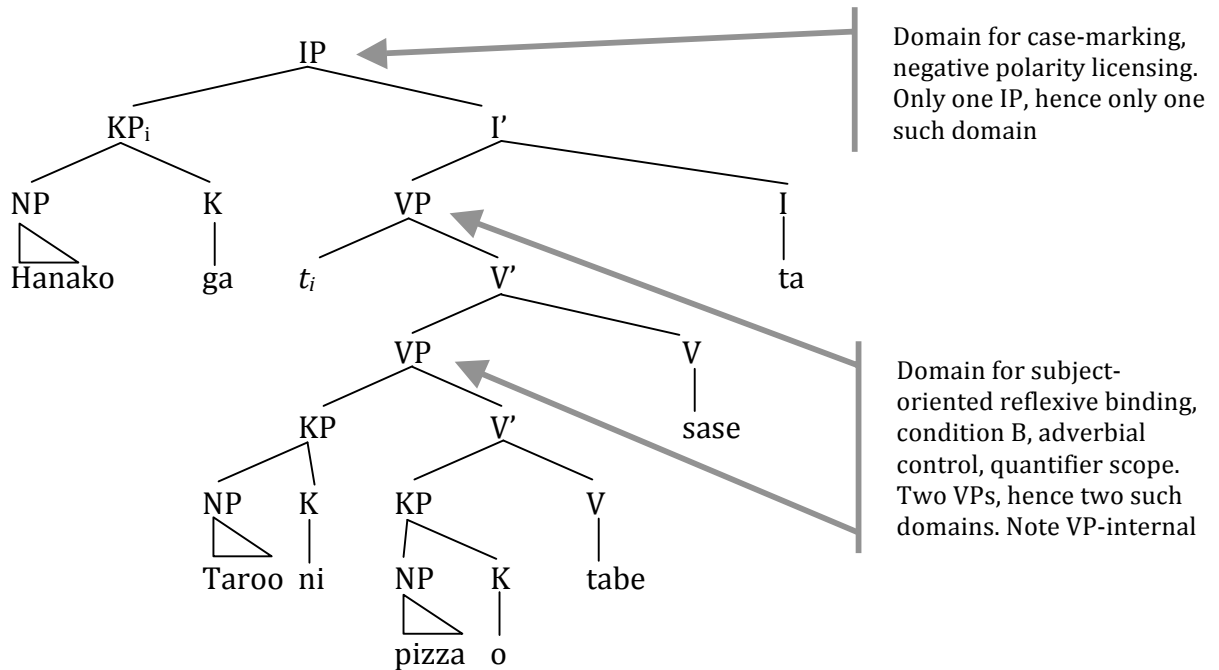
→ In the Incorporation approach, the Numeration is assumed to contain actual morphemes, i.e. Vs identified with phonological material. Productive inflectional and derivational affixes can be considered to be input to the syntax, as well as regular words.

→ Derivation of Hanako-ga Taroo-ni pizza-o tabe-sase-ta in such a theory:<sup>6</sup>

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<sup>6</sup> (Note: since I have said that such an approach should treat all productive morphology (esp. inflectional morphology) as syntactically attached, I have adopted a 'KaseP' hypothesis for Japanese case particles in this tree. For discussion of how these case morphemes can be licensed against case-marking heads, see Miyagawa 1999.)

(94) Numeration: {Hanako<sub>N</sub>, Taroo<sub>N</sub>, pizza<sub>N</sub>, -ga<sub>K</sub>, -ni<sub>K</sub>, -o<sub>K</sub>, tabe<sub>V</sub>, -sase<sub>V</sub>, -ta<sub>I</sub>}



→ Nonproductive affixes, however, are not input to the syntax in this approach; they come pre-attached to their stems in a presyntactic morphological component. This explains a) their nonproductivity, since syntax is supposed to be the domain of productivity, and b) the monoclausal behavior of lexical causatives; one V in the numeration, one VP in the derivation.

→ End result: a type of hybrid account, where productive causatives are combined with their verbs in the syntax, but lexical causatives are treated in a separate, pre-syntactic part of the grammar.<sup>7</sup>

→ Below: What's wrong with this picture, and what the implications for linguistic theory are.

## 5.2 Lexical causatives

→ As in many languages, Japanese derives many semantically related inchoative/causative pairs of verbs with overt morphology attached to a common root. (Even English does this, for some pairs). These pairs have been extensively documented by Jacobsen 1992; the first two examples of each class of pairs he identifies are given below:

<sup>7</sup> This basic picture once established, many questions remain to be solved, concerning the *make/let* distinction, the role of unergativity, unaccusativity and agentivity, psych-predicate causatives, restructuring effects, and more. For some discussion of relevant questions, see, among many many others, Dubinsky 1994, Terada 1992.



(95)	Class/#	√	Intr	Tr	Rough √ gloss
	<b>I: e/∅</b>	hag	hag-e-ru	hag-∅-u	'peel off'
	30 pairs	hirak	hirak-e-ru	hirak-∅-u	'open'
	<b>II: ∅/e</b>	ak	ak-∅-u	ak-e-ru	'open'
	44 pairs	hikkom	hikkom-∅-u	hikkom-e-ru	'draw back'
	<b>III: ar/e</b>	ag	ag-ar-u	ag-e-ru	'rise'
	71 pairs	aratam	aratam-ar-u	aratam-e-ru	'improve'
	<b>IV: ar/∅</b>	hasam	hasam-ar-u	hasam-u	'catch between'
	8 pairs	<i>husag</i>	<i>husag-ar-u</i>	<i>husag-u</i>	'obstruct (clog, jam?)'
	<b>V: r/s</b>	ama	ama-r-u	ama-s-u	'remain'
	27 pairs	hita	hita-r-u	hita-s-u	'soak'
	<b>VI: re/s</b>	arawa	arawa-re-ru	arawa-s-u	'show (up)'
	18 pairs	hana	hana-re-ru	hana-s-u	'separate from'
	<b>VII: ri/s</b>	ka	ka-ri-ru	ka-s-u	'borrow/(lend)'
	2 pairs	ta	ta-ri-ru	ta-s-u	'suffice/(supplement)'
	<b>VIII: ∅/as</b>	hekom	hekom-∅-u	hekom-as-u	'dent'
	38 pairs	her	her-∅-u	her-as-u	'decrease'
	<b>IX: e/as</b>	bak	bak-e-ru	bak-as-u	'turn into/bewitch'
	45 pairs	bar	bar-e-ru	bar-as-u	'come/bring to light'
	<b>X: i/as</b>	ak	ak-i-ru	ak-as-u	'tire'
	8 pairs	dek	dek-i-ru	dek-as-u	'come/bring into existence'
	<b>XI: i/os</b>	horob	horob-i-ru	horob-os-u	'(fall to) ruin'
	6 pairs	ok	ok-i-ru	ok-os-u	'get up'
	<b>XII: ∅/se</b>	abi	abi-ru	abi-se-ru	'pour over (self/other)'
	6 pairs	ki	ki-ru	kise-ru	'put on (self/other)'
	<b>XIII: e/akas</b>	obi	obi-e-ru	obi-(y)akas-u	'(take) fright(en)'
	4 pairs	hagur	hagur-e-ru	hagur-akas-u	'stray/evade'
	<b>XIV: or/e</b>	kom	kom-or-u	kom-e-ru	'be fully present/fill'
	2 pairs	nukum	nukum-or-u	nukum-e-ru	'warm'
	<b>XV: are/e</b>	sut	sut-are-ru	sut-e-ru	'fall into disuse/discard'
	3 pairs	wak	wak-are-ru	wak-e-ru	'divide'
	<b>XVI: Misc</b>	nigiwa	nigiwa-∅-u	nigiwa-s-u	'(make) prosper'
	25 pairs	nob	nob-i-ru	nob-e-ru	'extend'

### 5.2.1 Syntactic and semantic properties of lexical causatives

→ The causative member of such pairs has one more argument than its intransitive counterpart, and bears a roughly causative reading with respect to it (sometimes

one or the other member of the pair having undergone some semantic drift), but shows no obvious symptoms of a multiclausal syntactic structure, as noted above.

→ Compare, e.g., the available controllers for a *-te-* phrase in a syntactic vs. lexical causative (Dubinsky 1994):

(96) Basic intransitive verb and its syntactic causative:

a. Taroo-wa arui-te it-ta  
 Taro-T walk-*te* go-PST  
 "Taro, walking, went."

b. Taroo-wa arui-te Hanako-o ik-ase-ta  
 Taroo-T walk-*te* Hanako-A walk-*sase*-PST  
 "Taro made Hanako go, walking"  
 "Taro, walking, made Hanako go"

(97) Inchoative intransitive and its lexical causative:

a. Hanako-wa nure-te hi-e-ta  
 Hanako-T wet-*te* cool-*inch*-PST  
 "Hanako ('s body), getting wet, cooled."

b. Taroo-wa nure-te Hanako-o hi-(y)as-ita  
 Taro-T wet-*te* Hanako-A cool-*caus*-PST  
 "Taro, getting wet, cooled Hanako."  
 Impossible: "Taro cooled Hanako, (Hanako) getting wet."

→ As shown by Miyagawa (1980, 1984, 1989, 1994, 1998), Zenno (1985), lexical causatives share another property with underived transitive verbs: they may appear as part of an idiom. Sometimes their inchoative counterpart also participates (i.e. the idiom alternates), sometimes not. (Examples below are from Miyagawa 1989:126-127)

(98) Lexical causatives in idioms by themselves:

a. kama-o kake- (intr. *kak-ar* not in this idiom)  
 sickle-A splash on  
 'trick into confessing'

b. zibara-o kir- (intr. *kire* not in this idiom)  
 my.stomach-A cut  
 'pay out of one's own pocket'

c. tenoura-o kaes- (intr. *kaer* not in this idiom)  
 palm-A return  
 'do all at once'

(99) Lexical causatives in alternating idioms:

- |    |                     |                       |                   |                     |
|----|---------------------|-----------------------|-------------------|---------------------|
| a. | te-ga               | kuwawar-              | te-o              | kuwae-              |
|    | hand-N              | join                  | hand-A            | add                 |
|    | 'be altered'        |                       | 'alter'           |                     |
| b. | hone-ga             | ore-                  | hone-o            | or-                 |
|    | bone-N              | break <sub>intr</sub> | bone-A            | break <sub>tr</sub> |
|    | 'require hard work' |                       | 'exert oneself'   |                     |
| c. | mune-ga             | itam-                 | mune-o            | itame-              |
|    | heart-N             | ache                  | heart-A           | hurt                |
|    | 'be worried'        |                       | 'worry (oneself)' |                     |

→ Oerhle and Nishio (1981) show that lexical causatives can participate in 'adversity' readings, like simple transitive verbs (examples taken from Miyagawa 1989:130).

(100) a. Simple transitive with 'adversity' reading:

Taroo-ga ie-o yai-ta.  
Taro-N house-A burn-PST

'Taro burned his house.'

'Taro's house burned, and he was adversely affected (he didn't cause it.)'

b. Lexical causative with adversity reading:

Boku-wa kodomo-o gake kara ot-os-ita  
I-T child-A cliff from drop-caus-PST

"I dropped the child from the cliff."

"The child dropped from the cliff, and I was adversely affected."

### 5.2.2 V+sase: The same properties as lexical causatives? or not?

→ Some V+sase pairs behave like the lexical causatives above. They participate in idioms, sometimes with and sometimes without their intransitive counterpart:

(101) Lexical V+sase causatives in idioms:

a. tikara-o aw-ase-  
power together-sase-  
'pull together'

b. mimi-o sum-ase-  
ear-A clear-sase  
'listen carefully'

c.	hana-ga	saku-	hana-o	sak-ase-
	flower-N	bloom	flower-A	bloom-sase
	'be done heatedly'		'engage in heatedly'	



b.	hakusya-ga	kakar-	*hakusya-o	kakar-ase-
	spur-N	splash.on	spur-A	splash.on.sase
	'spur on <sub>intr</sub> '		'spur on <sub>tr</sub> '	

### 5.3 The blocking effect and paradigmatic structure

→ Miyagawa (1980 et seq) and Zenno (1985) show that there is a simple way to predict when a V+sase combination can behave like other lexical causatives and when it may only behave as an analytic causative, with no noncompositional interpretation and no adversity causative: *Only intransitive roots with no other transitive form can behave lexically with -sase.*

→ That is, lexical interpretations of -sase are possible only if the root to which it is attached does not have a transitive form derived in another way.

→ This is a classic example of morphological *blocking*, seen in both derivational and inflectional morphology cross-linguistically. A simple case is the English past tense. Some verbs do not have a past tense formed with -ed: *\*runned, \*writed, \*feeled, \*hitted*. The reason is that they have an independently formed, irregular past tense, which blocks the regular form: *ran, wrote, felt, hit*.

→ Similarly, in derivational morphology, the same phenomenon is argued to occur. Many English adjectives have a negative form in *un-*, but some do not: *\*unpossible, \*unconsiderate, \*uncoherent*. These are blocked by the independent irregular negative forms, *impossible, inconsiderate, incoherent*.

→ The grammatical mechanism that is responsible for blocking effects, in many theories of morphology (for instance, Paradigm-Function Morphology, most recently discussed in Stump 2001), is that *n*-dimensional grammatical space: a paradigm. The idea would be that every English verbal form is understood to be attached to a paradigm space, defined by the inflectional features of English verbs: past, present participle, 1, 2, 3, sg, pl. Some verbs come with their paradigm space partially filled in— for instance, the past tense space for *write*, the form *wrote* is already entered—but empty slots, such as for the progressive participle, are filled in by a default affix for that slot: *write+ing*.

(105) Paradigm in the lexicon for write

V: WRITE	<i>write</i>
infinitive	
present ppl	
past ppl	<i>written</i>

→ Before lexical items to the syntax, empty paradigm spaces are filled in by default morphology (underlined in the tables below).

(106) Paradigm in the lexicon for write

V: WRITE	<i>write</i>
infinitive	<u><i>write</i></u>
present ppl	<u><i>writing</i></u>
past ppl	<i>written</i>

→ To apply such an analysis to derivational morphology, one has to have the notion of a multidimensional grammatical space for certain derivational features, such as *negative*, for the *impossible*/*\*unpossible* pairs. Words with special negative forms will have already filled in their relevant paradigm slots, blocking the insertion of the default form *un-*.

(107)

A: POSSIBLE	<i>possible</i>
negative	<i>impossible</i>
nominal	<i>possibility</i>

(108)

A: LIKELY	<i>likely</i>
negative	<u><i>unlikely</i></u>
nominal	<i>likelihood</i>

(109)

A: HAPPY	<i>happy</i>
negative	<u><i>unhappy</i></u>
nominal	<u><i>happiness</i></u>

→ Miyagawa (1980, 1984, 1989) argued that the blocking effect in Japanese causatives showed that a paradigmatic level of structure was necessary; without it, the blocking effect couldn't be captured. In its essential position and function in the grammar, Miyagawa's Paradigmatic Structure is the same level of structure that paradigm-function morphologists work with, (although it seems Miyagawa came up with it independently).

→ He defined a paradigm space made up of intransitive, transitive, and ditransitive verbs. For many verb stems, an irregular form already occupied the 'transitive' or 'ditransitive' slot in the paradigm; only if one did not could a default *-sase-* form fill up the gap.

(110)

V: AG	<i>agar</i> 'rise'
Intr	<i>agar-</i>
Tr	<i>age-</i>
Ditr	

(111)

V: AG	<i>sak-</i> 'bloom'
Intr	<i>sak-</i>
Tr	<u><i>sak-ase</i></u>
Ditr	

- This is all very well, except the extra level of pre-syntactic lexical structure seemed perhaps excessive.
- Not only that, Miyagawa saw it *can not be* a coincidence that these *V-sase* combinations are morphophonologically indistinguishable from syntactic causatives. That is, surely, the reason that syntactic causatives are spelled out as *-sase-* is just because *-sase-* is the elsewhere, default form for a causative meaning. If lexical causatives had nothing to do with syntactic causatives, there would be no reason for the same morpheme to be involved in spelling out both.
- Consequently, he was led to the conclusion that syntactic causatives had to be created in the lexicon as well. But then all the problems with the lexicalist analyses of syntactic causatives came up all over again, leading to his proposal that causatives are associated with parallel monoclausal and biclausal structures. The theory became ever more complex.
- Possible theoretical choices:
- A: Treat the lexical and syntactic causatives completely separately. Relegate the *V+sase* lexical causatives to the lexicon with the rest of them. Ignore the morphological identity between the default lexical causative morpheme and the syntactic causative morpheme. That is: Jacobsen just missed class XVI:  $\emptyset$ /*-sase*.
  - B: Unify the lexical and syntactic causatives by treating them both in the lexicon. Something other than 'in the lexicon' has to distinguish the syntactic and lexical causatives. Parallel structures *may* do it, but it's not clear (how does one allow the projection of a parallel structure for most ditransitive *V+sase* combinations but not for a lexical-causative transitive one, e.g.?)
  - C: Unify the lexical and syntactic causatives by treating them both in the syntax. Needed: a theory of post-syntactic morphology. Again something other than 'in the syntax' has to distinguish the two types.

→ Enter Distributed Morphology, Hale&Keyser  $v^{\circ}$ , and Minimalism.

#### 5.4 *Late Insertion, the Elsewhere condition, vPs and phases*

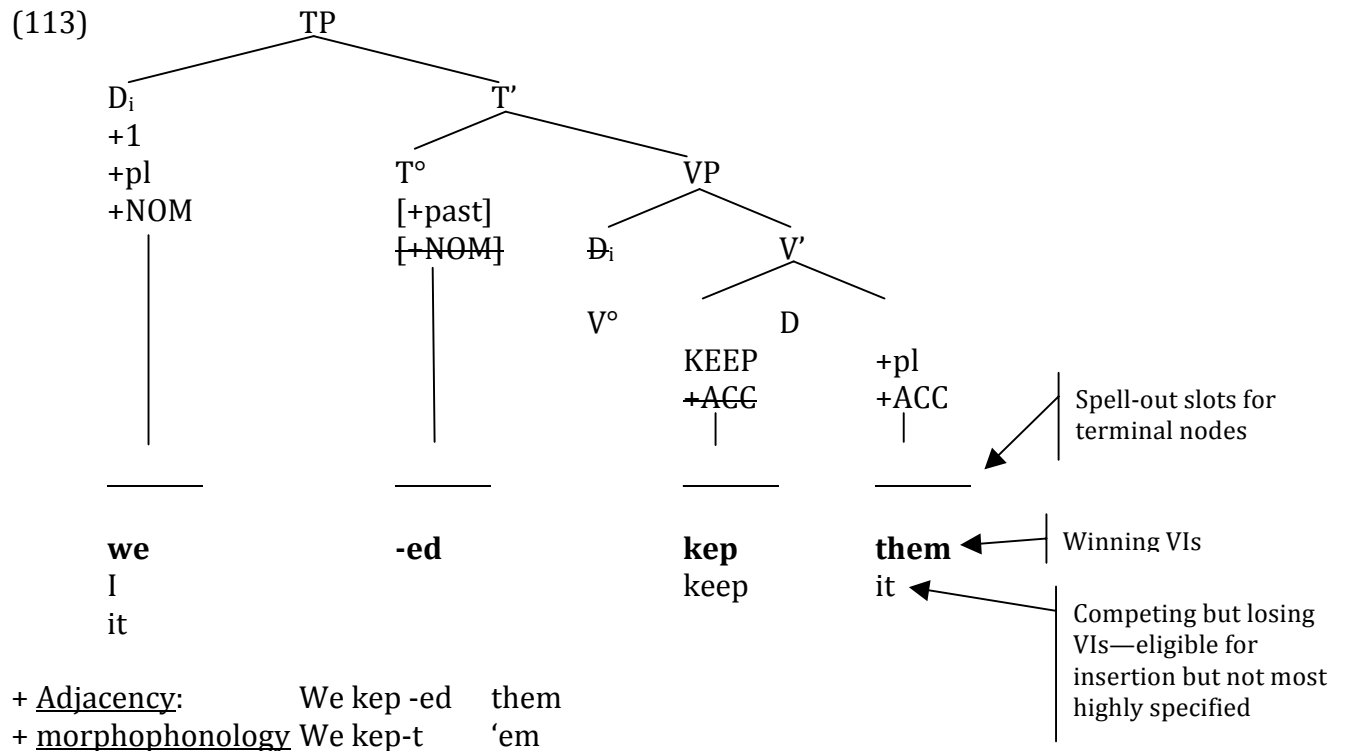
→ (Most of the following is a mildly revised version of Miyagawa's 1994, 1998 analysis, which appeared in my thesis in 1995.)

### 5.4.1 Distributed Morphology and Late Insertion

- In Distributed Morphology, the syntax manipulates abstract feature bundles, selected by the grammar of the language from an inventory provided by UG, on the basis of positive influence.
- These feature bundles are the terminal nodes of a syntactic derivation.
- After the syntax has merged, copied, remerged, probed, Agreed, etc., and Spell-Out is reached, the bundles are sent off to PF/LF for interpretation.
- An early step on the PF-side is Lexical Insertion. Vocabulary Items (VIs), specified for certain features, race to realize the terminal nodes that the syntactic derivation has made available.
- The one with the most compatible features, and no incompatible ones, for a given terminal node, realizes that node.
- For example, imagine a Numeration something like the following (imagine theta-features on the appropriate items if you like):

(112) { [D+1,+pl, +NOM], [T+past, +NOM], [D+pl, +ACC], [VKEEP, +ACC] }

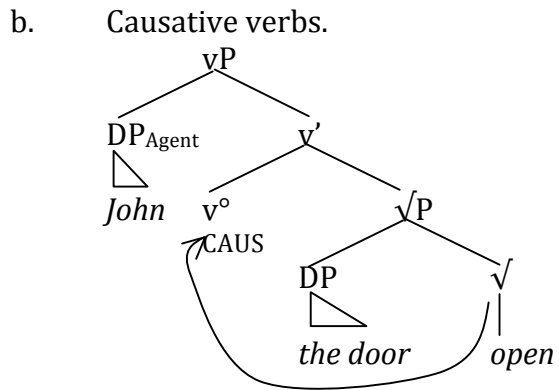
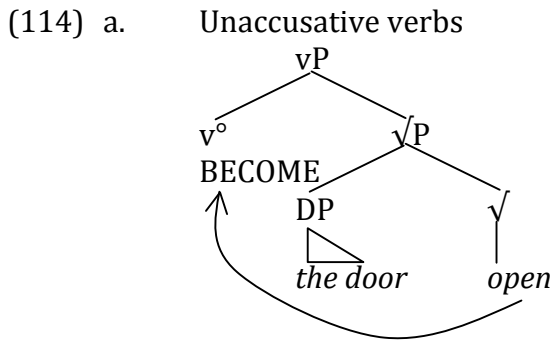
- After the (simplified) syntax is done with it, the following tree is handed off to Spell-Out



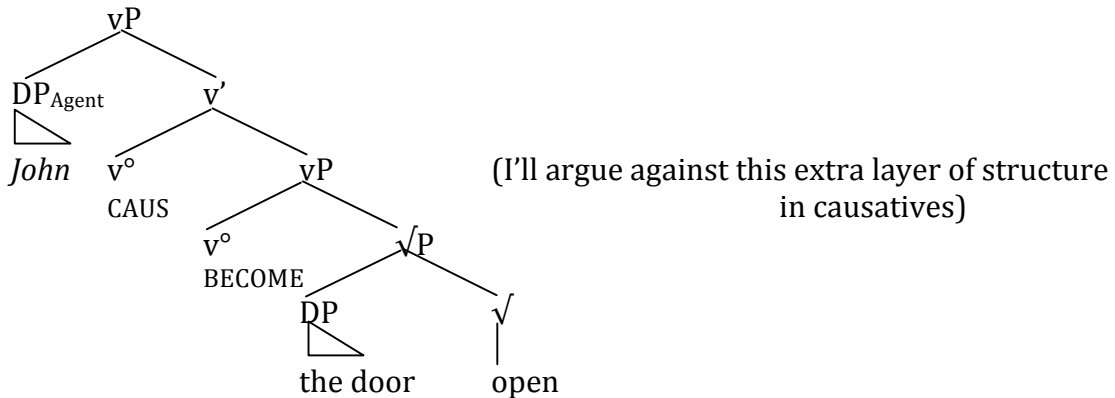


→ Benefits: Mirror principle effects, comprehensible relationship between syntax and morphology, **single generative engine** (no generative lexicon: no paradigmatic structure, no word-formation rules, no rules of referral...)

5.4.2 (Modified) Hale and Keyser (1993, 2002)-type vPs for causative/inchoative alternations



c. Another possibility for causative verbs: Inchoative contained within them? (Miyagawa 1994, 1998)



(115) Hypotheses:

- a. External arguments are always introduced by separate v° head (H&K 1993, Kratzer 1996)
- b. Different varieties of v°: minimum unaccusative v° and agentive/causative v°.
- c. In languages which show causativizing/inchoativizing morphology, like Japanese, that morphology is a realization of a v° head.

5.4.3 Late insertion and lexical causatives

Morphemes competing to realize vCAUS in Japanese

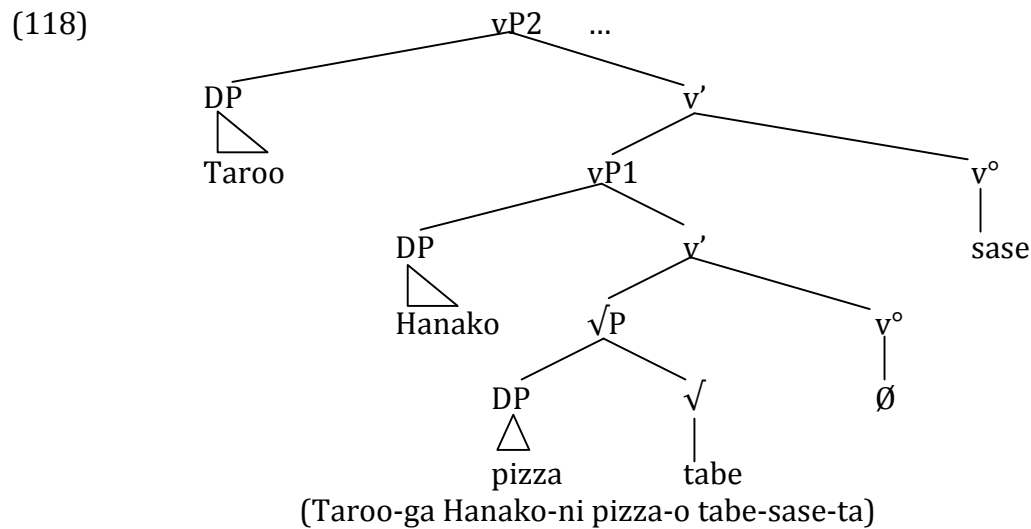
(116)	-∅-	↔	CAUS	/ [ √ <sub>I+IV</sub> ___ <sub>v</sub> ]	(38 Jacobsen roots on the list for -∅-)
	-e-	↔	CAUS	/ [ √ <sub>II+III+XIV+XV</sub> ___ <sub>v</sub> ]	(120 roots on list)
	-s-	↔	CAUS	/ [ √ <sub>v+VI+VII</sub> ___ <sub>v</sub> ]	(47 roots on list)
	-as-	↔	CAUS	/ [ √ <sub>VII+IX+X</sub> ___ <sub>v</sub> ]	(91 roots on list)
	-os-	↔	CAUS	/ [ √ <sub>XI</sub> ___ <sub>v</sub> ]	(6 roots on list)
	-se-	↔	CAUS	/ [ √ <sub>XII</sub> ___ <sub>v</sub> ]	(6 roots on list)
	-akas-	↔	CAUS	/ [ √ <sub>XIII</sub> ___ <sub>v</sub> ]	(4 roots on list)
	-sase-	↔	CAUS	/ Elsewhere	(no roots on list) <b>Blocking effect!</b>

(117) Morphemes competing to realize  $v_{\text{BECOME}}$  in Japanese:

-e-	↔	BECOME	/ [ √ <sub>I+IX+XII</sub> ___ <sub>v</sub> ]	(79 Jacobsen roots on the list)
-ar-	↔	BECOME	/ [ √ <sub>III+IV</sub> ___ <sub>v</sub> ]	(79 roots on list)
-r-	↔	BECOME	/ [ √ <sub>v</sub> ___ <sub>v</sub> ]	(27 roots on list)
-re-	↔	BECOME	/ [ √ <sub>VI</sub> ___ <sub>v</sub> ]	(18 roots on list)
-ri-	↔	BECOME	/ [ √ <sub>VII</sub> ___ <sub>v</sub> ]	(2 roots on list)
-i-	↔	BECOME	/ [ √ <sub>X+XI</sub> ___ <sub>v</sub> ]	(14 roots on list)
-or-	↔	BECOME	/ [ √ <sub>XIV</sub> ___ <sub>v</sub> ]	(2 roots on list)
-are-	↔	BECOME	/ [ √ <sub>XV</sub> ___ <sub>v</sub> ]	(3 roots on list) Elsewhere (similar to -sase?)
-∅-	↔	BECOME	/ [ √ <sub>II+VII+XII</sub> ___ <sub>v</sub> ]	(88 roots on list) Elsewhere?

#### 5.4.4 Implications for syntactic causatives

→ If *-sase-* is simply an Elsewhere form of the Agent-introducing  $v_{\text{CAUS}}$ , and if all syntactic causatives are realized with *-sase-*, then syntactic causatives are the Agent-introducing  $v_{\text{CAUS}}$ , added onto a phrase bigger than a root—added on, in fact, to another vP shell:



→ With a syntactic causative, head-to-head movement of the root up through its own  $v^\circ$  and into the matrix *-sase-*  $v^\circ$  will create a complex structure in which the matrix CAUS

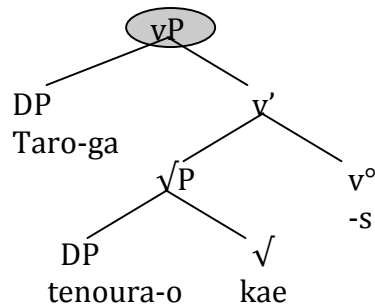
$v^{\circ}$  will not meet the structural description for any special root-conditioned allomorphs of CAUS: The matrix CAUS will be insulated from the root by one layer of bracketing, the embedded  $v^{\circ}$ . (If there's no HM, but it's just adjacency in Japanese, the same remarks obtain: a 'syntactic' CAUS  $v^{\circ}$  will never be adjacent to a root.)

(119) (matrix  $v^{\circ}$  after head-to-head movement): [ [  $\sqrt{\text{TABE}}$  \_\_\_v ] \_\_\_v ]

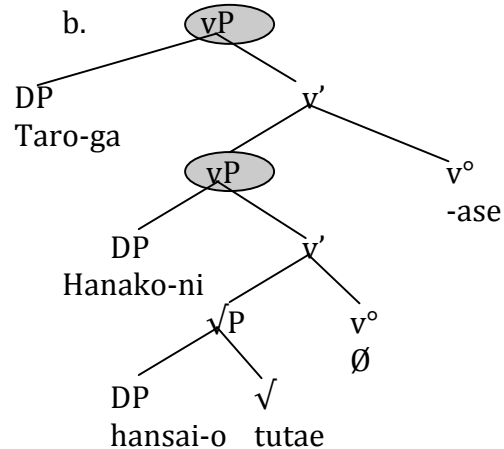
- Definition of 'lexical' causative: a CAUS  $v^{\circ}$  that is adjacent to a root.
- Definition of a 'syntactic' causative: a CAUS  $v^{\circ}$  that is not adjacent to a root (embeds a vP).

→ Compare the lexical and syntactic causative structures below:

(120) a.



b.



(121) a. Taro-ga tenoura-o kae-s...  
Taro-N palm-A return-CAUS  
"Taro did it all at once" (?)

b. Taro-wa Hanako-ni hanasi-o tutae-sase-ta  
Taro-T Hanako-D story-A convey-CAUS-PST  
"Taro made Hanako convey a story"

→ In the lexical causative, there's 1 vP, 1 phase, one domain for Q-scope, adverbial control, binding, and the rest.

→ In the syntactic causative, there's 2 vPs, hence 2 domains for scope, binding, adverbial control...

→ Note that even in the syntactic causative there will still only be one TP, so one case domain, one NPI domain

#### 5.4.5 Why not $v_{\text{BECOME}}$ layer in lexical causatives (114c above)?

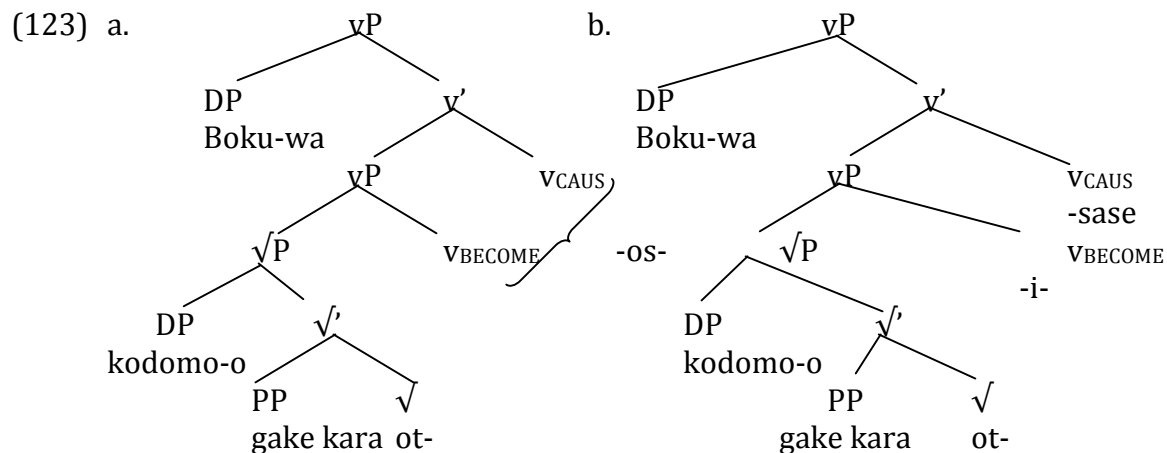
→ Because it would make it impossible to distinguish between lexical causatives and syntactic causatives of inchoatives. Compare the structures, under the inchoative-inside-lexical-causatives hypothesis, for the following two sentences, from Miyagawa 1989:130, ex. 43a/b:

- (122) a. Boku-wa kodomo-o gake kara ot-os-ita  
 I-Top child-A cliff-from drop-CAUS-PST  
 "I dropped the child from the cliff."  
 "The child dropped from the cliff, and I was adversely affected."

**Lexical**

- b. Boku-wa kodomo-o gake-kara ot-i-sase-ta  
 I-Top child-A cliff from drop-BECOME-CAUS-PST  
 "I caused the child to drop from the cliff."  
 # "The child dropped from the cliff, and I was adversely affected"

**Syntactic**



→ If the lexical causative *ot-os* includes a  $v_{BECOME}$  in its structure, then the only difference between the lexical causative and the syntactic causative is whether or not Fusion (a post-syntactic operation) has applied to the  $v_{BECOME}$  and  $v_{CAUS}$  roots to ensure that they are spelled out by the single *-os-* morpheme. The lexical/syntactic distinction should be more categorical than a mere morphological diacritic, since it has such strong consequences for meaning.

→ Better if the lexical causative has the structure without the intervening  $vP_{BECOME}$ .

- (124) Observations:  
 (Agentive)  $vP$  domain for special meaning (Kratzer 1996, Marantz 1997) **LF**  
 Immediate context of  $\checkmark$  is the domain for root-conditioned allomorphy **PF**  
 (see also Arad 2002 for similar claims in Hebrew)

→ Even unaccusative  $v_{BECOME}$  looks like a phase edge...

(Problem: *-gar-* morpheme in lexical causatives like *iya-gar-ase*, 'bother-BECOME??-CAUS'  
 (Problem: lexical causative  $v^{\circ}$  morphemes inside idiomatic nominalizations? see Volpe 2005)

(Problem: why does *-sase-* always alternate with  $\emptyset$ ? in principle, a root could be on a special list for an unaccusative morpheme like *-r-* or *-e-*, but not for a causative morpheme, and hence alternate with *-sase-*; see Miyagawa 1998 for a proposal.)

#### 5.4.6 The beginning of the High/Low Attachment Analysis

→ This was one of the first high/low attachment analyses. Attachment of a morpheme to a higher functional projection results in regular morphology and compositional meaning, while attachment of the same morpheme to a lower projection (often the  $\sqrt{\quad}$ ), results in some allomorphy and potential meaning drift.

→ Other early examples of such an analysis is the approach to English *of*-ing and *acc*-ing gerunds presented in Kratzer 1996, and the approach to Chichewa statives and passives sketched in Marantz 1997.

→ Since, such approaches have been extremely fruitful in looking at all kinds of morphology on the derivational/inflectional, unproductive/productive cusp, in all kinds of languages:

(125) High/low analyses from various languages

Travis 2000 on Malagasy lexical and syntactic causatives.

Embick 2004 on stative, resultative, and passive participles in English

Fortin 2004 on Minnangkabu causatives

Jackson 2005 on statives and resultatives in Pima

Alexiadou and Anagnostopoulou 2005 on adjectival participles in Greek

Svenonius 2005 on causatives in several languages

#### 5.5 Conclusions

→ Japanese causatives—even omitting the lexical ones—either force one to do more syntax in the lexicon (Manning, Sag & Iida), or more morphology in the syntax (Baker).

→ A careful examination of lexical causatives forces one to figure out a way to unify traditional idiosyncratic, irregular word-formation with regular, compositional syntax, and yet maintain a principled distinction between the two.

→ A post-syntactic morphology—the late insertion approach—with recursive vPs, allows a simple, unified treatment of all three types of lexical causatives, with a principled understanding of the nature of the distinction between lexical and syntactic causatives.

→ Additional evidence for the phasal status of vP, and successive-cyclic QR through vP.

Next: Italian causatives and the vP hypothesis!

## 6. Applications II: Capturing the *faire par/faire infinitif causative distinction*

Readings: Folli, R. and H. Harley (2007) [Causation, obligation and argument structure: On the nature of little v](#), *Linguistic Inquiry* 38.2, 197-238

### 6.1 Background: The FI/FP distinction (Kayne 1975)

→ In French causatives, there are two possible case-markers for the embedded Causee in a causative of a transitive verb: the preposition *par* 'by' (FP), or the preposition *à*, 'to' (FI)

- (126) a. Marie a fait nettoyer la robe à Jean  
Marie has made clean the dress to Jean.  
"Marie made Jean clean the dress."
- b. Marie a fait nettoyer la robe par Jean le nettoyeur.  
Marie has made clean the dress by Jean the cleaner.  
"Marie got the dress cleaned by Jean the cleaner."

→ Nonpassivizable idioms are not compatible under the FP construction

- (127) a. Sa famille a cassé la croûte.  
His family has broken the crust  
'His family had a snack.'
- b. #La croûte a été cassé par sa famille  
The crust has been broken by his family
- (128) Il a fait casser la croûte à sa famille  
He had made break the crust to his family  
'He had his family have a snack.'
- (129) #Il a fait casser la croûte par sa famille.  
He had made break the crust by his family  
'He had his family have a snack.'

→ French inalienable possession between the Causee and the embedded object is ok in FI but not FP:

- (130) a. Elle fera lever la main à Jean.  
She will.make raise the hand to Jean  
'She will have Jean raise his hand.'
- b. # Elle fera lever la main par Jean.  
She will.make raise the hand by Jean  
'She will have his hand raised by Jean.'

→ Binding into the embedded object is possible from the FI *à*-Causee, but not from the FP *par*-Causee (Burzio, in Italian):

- (131) a. Gianni<sub>j</sub> ha fatto temperare la sua<sub>i/j</sub> matita a ogni ragazzo<sub>i</sub>.  
 Gianni has made sharpen the his pencil to every boy.  
 'Gianni<sub>j</sub> had every boy<sub>i</sub> sharpen his<sub>i/j</sub> pencil.'
- b. Gianni<sub>i</sub> ha fatto temperare la sua<sub>\*i/j</sub> matita da ogni ragazzo<sub>i</sub>.  
 Gianni has made sharpen the his pencil by every boy  
 'Gianni<sub>j</sub> had his<sub>\*i/j</sub> pencil sharpened by every boy<sub>i</sub>.'

→ In the FP, the *da*-phrase is optional. Burzio and Guasti argue that in the FI, the *à*-Causee is not optional. Here is an idiom in Italian that is not compatible with the FP:

- (132) Marco non ha fatto fare un tubo a Maria/ \*da Maria  
 Marc not has made make a tube to Maria/ by Maria  
 'Marc didn't let Maria achieve anything.' (Lit: '..didn't make Maria make a tube.')

→ If you omit the Causee, the idiomatic interpretation is not possible:

- (133) Marco non ha fatto fare un tubo.  
 Marc not has made make a tube  
 'Marc didn't have a tube made.'  
 '#Marc didn't let Maria achieve anything.'

→ If the embedded clause contains no Causee, then, it must be a case of FP.

→ Lastly, the FI has a much more 'direct' causative feel than the FP:

- (134) Marie fera boire cette eau par son chien /à son chien.  
 Marie will.make drink this water by her dog / to her dog  
 'Marie will have this water drunk by her dog / her dog drink this water.'

→ This is especially obvious if the Causee is someone who normally does the caused job— it's very odd to use the FI in that case, since you wouldn't normally have to force them to do it:

- (135) a. Gianni ha fatto riparare la macchina a Mario / da Mario.  
 Gianni has made repair the car to Mario / by Mario  
 'Gianni got Mario to repair the car.' / 'Gianni got the car repaired by Mario.'
- b. ??Gianni ha fatto riparare la macchina al meccanico di via Fiume.  
 Gianni has made repair the car to.the mechanic of street Fiume  
 'Gianni had the mechanic in Fiume St. repair the car.'
- c. Gianni ha fatto riparare la macchina dal meccanico di via Fiume.  
 Gianni has made repair the car by.the mechanic of street Fiume  
 Gianni had the car repaired by the mechanic in Fiume St.'

→ Summary of key differences between FI and FP:

- (136) A. The Causee of a transitive embedded verb is marked with dative case in the FI, and by a preposition *da* in FP (in Italian).  
 B. Non-passivizable idioms are available in the FI but not in the FP.  
 C. The *a*-phrase in the FI can bind the embedded object, while the FP *da*-phrase cannot.  
 D. The Causee may be omitted in the FP but not the FI.  
 E. Non-passivizable verbs are acceptable in the FI but not the FP.  
 F. There is a sense of obligation on the Causee in the FI but not in the FP.

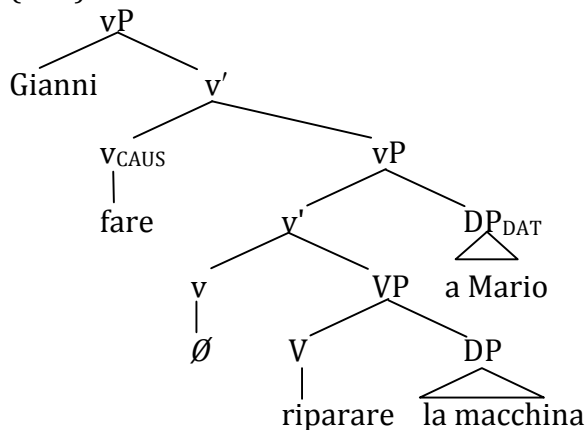
→ General idea of all approaches to this phenomenon: The full argument structure of the caused predicate is present in the FI, including the external argument; in the FP, there is some reduction in the argument structure such that the external argument is not present.

→ Previous approaches had to appeal to a lexical arity-reduction operation to generate the external-argumentless infinitive in the FP

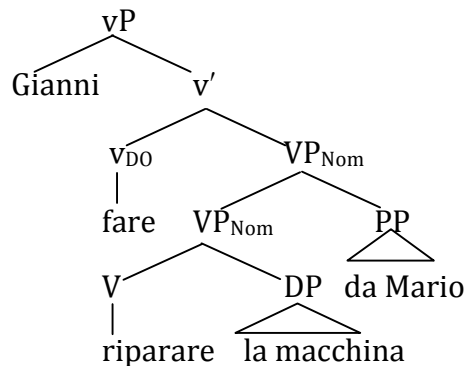
→ The advantage of the vP approach: The difference between the FI and the FP can just follow from a different size of embedded clause in the two: the FI embeds a vP and hence an external argument; the FP embeds a vP-less projection, and hence lacks an external argument. The external argument can then optionally be specified by a *by*-phrase, as it can in other external-argumentless constructions like the passive.

## 6.2 The vP-based analysis (building on Ippolito 2002)

(137) a. FI



b. FP



→ Note rightward specifiers of vP in the embedded clause. Note that *fare* is in this treatment a light verb, a v<sup>o</sup> itself, just like Japanese *-sase*, but not affixal.

→ Why assume the infinitive in the FP is a nominalization?

→ First, infinitives can be nominal in character in Italian:



- (138) a. [Questo continuo **parlare** dell'-aviaria]<sub>DP</sub> infastidisce Marco.  
 [This continuous talking of.the-bird.flu]<sub>DP</sub> bothers Marco  
 b. [Tutto quel **leggere** Dostojevsky]<sub>DP</sub> ha rovinato Marco.  
 [All that reading Dostojevsky]<sub>DP</sub> has wrecked Marco

→ Second, we have independent evidence that only certain kinds of  $v^\circ$  allow nominal complements; if we can show that FP *fare* is that kind of  $v^\circ$ , then that will corroborate the notion that the FP infinitive is nominal in character. To establish this, though, we need some background.

### 6.3 The selectional properties of different $v^\circ$ flavors: Folli and Harley (2005)

→ Hale and Keyser: Unergative verbs are made up of light verb  $v_{DO}$  and a nominal complement

→ Change-of-state verbs like *redden* seem like the light verb must mean 'cause' —  $v_{CAUSE}$ , and a predicative SC complement.

→ Are there other differences between  $v_{DO}$  and  $v_{CAUSE}$  that we can detect?

→ Consider the following effect of animacy:

- (139) a. John ate the apple (up).  
 b. The sea ate the beach \*(away).  
 c. Gianni ha / si=é mangiato una mela.  
 G. has / REFL=is eaten an apple.  
 'Gianni has eaten /has eaten up an apple.'  
 d. Il mare \*ha / si=è mangiatola spiaggia.  
 The sea has / REFL=is eaten the beach.  
 'The sea ate the beach.'

→ Inanimate subjects of consumption verbs require a predicative SC complement (133b, d), where there is a clear result state specified.

→ Animate subjects can have one or the other—a nominal complement (*the apple*) or a predicative one (*[the apple up]*).

→ This is because inanimate subjects can only be CAUSERS, not agents of  $v_{DO}$ —only truly intentional entities (or 'teleologically capable' entities) can be subjects of  $v_{DO}$ .

→  $v_{DO}$ , then requires an animate external argument and can take a nominal complement

→  $v_{CAUSE}$  can have an inanimate external argument and requires a predicative complement clause.

(140)

Flavor of $v^0$	Specifier	Complement
$v_{DO}$	Agent	Nominal or Small Clause
$v_{CAUSE}$	Causer or Agent	Small Clause

→ Prediction, then: If FP takes a nominalized infinitive as its complement, it should require an animate subject of *fare*, while since FI takes a subject+predicate vP complement, it should be ok with an inanimate subject.

→ Seems to be true:

(141) a. La rabbia fece rompere il tavolo a / \*da Gianni.  
The rage made break the table to / by Gianni  
'Rage made Gianni break the table.'

b. La generosità fece donare la casa a / \*da Gianni  
The generosity made give the house to / by Gianni  
'Generosity made Gianni donate the house.'

(142) La fame a fait manger des rats aux / \*par les habitants de la ville.  
The famine has made eat of.the rats to.the/ by the inhabitants of the city.  
'The famine made the inhabitants of the city eat rats.'

→ So much for the analysis of *fare* itself—in the FI it's  $v_{CAUSE}$  and in the FP it's  $v_{DO}$

→ What about the embedded vP in the FI? Is there anything special about it, that could help us explain the 'obligation effect'?

→ Hypothesis: If the vP embedded under *fare* in the FI is headed by  $v_{DO}$ , that will mean that its subject (the  $\dot{a}$ -Causee) must be an animate Agent.

→ The obligation effect, then, could arise because the only way to get an Agent to do something is to oblige him to—you can't physically force someone to do a truly agentive action; if you're physically forcing them, they're not an Agent at all.

→ If the FI *fare* embeds a  $v_{DO}$ , the selectional properties of  $v_{DO}$  predict that it should be impossible to make a FI with an inanimate Causee, since the embedded  $v_{DO}$  will always select for an animate Causee...

→ This seems to be correct as well:

(143) a. Maria / Il ramo ha rotto la finestra.  
Maria / The branch has broken the window.

- b. Gianni ha fatto rompere la finestra a Maria / \*al ramo.  
Gianni has made break the window to Maria / to.the branch  
'Gianni made Maria/\*the branch break the window.'
- c. Il tecnico /Il programma ha disinfettato il computer.  
The technician / The program has disinfected the computer.
- d. Gianni ha fatto disinfettare il computer al tecnico / \*al programma.  
Gianni has made disinfect the computer to.the technician / to.the program  
'Gianni made the technician/\*the program disinfect the computer.'

→ Certain verbs which are purely causative can never occur under a FI—object-experiencer psych verbs, for example:

- (144) a. La discussione / Gianni ha assorbito Maria.  
The discussion / Gianni has absorbed Maria.
- b. \*La lezione / \*La maestra ha fatto assorbire Maria alla discussione / a Gianni.  
The lesson / The teacher has made absorb Maria to.the discussion / to Gianni  
'The lesson / The teacher has made the discussion / Gianni absorb Maria.'
- c. La guerra / Gianni ha disturbato Maria.  
The war / Gianni has disturbed Maria.
- d. \*Il programma televisivo / \*Marco ha fatto disturbare Maria alla guerra/ a Gianni.  
The program televised / Marco has made disturb Maria to.the war/ to Gianni  
'The television program / Marco has made the war / Gianni disturb Maria.'

→ So, we conclude the following:

- FI embeds a vP
- FP embeds a nominalized VP
- Embedded  $v^\circ$  in FI is  $v_{DO}$ , which is why Causee must be animate, and why embedded causative verbs are bad in the FI.
- Matrix  $v^\circ$  in FP is  $v_{DO}$ , which is why Causer must be animate
- *da*-phrase is optional adjunct to nominal complement in FP, just as it is in a passive.

→ There's a section on case assignment to deal with the dative/accusative alternation which we can discuss if you like—the facts are interestingly similar in Japanese and Italian, with one key difference to do with the passive. That difference led to a discovery concerning the Italian passives of causatives, which I will briefly outline:

#### 6.4 Interaction of passive with *fare* causative

→ Basic case assumptions: FI constructions are ECM structures, where matrix  $v^\circ$  *fare* is checking case on the Causee, and the embedded  $v^\circ$  of the verb is checking case on the embedded object (if any).

→ FP constructions are complex predicates, with matrix  $v^\circ$  *fare* checking case on the embedded object.

→ Prediction: If *fare* loses its external argument and cannot assign internal case to its Causee, because *fare* has been passivized, then the Causee should become the new derived subject, and check Nominative case.

→ In fact, this is what happens in Japanese:

- (145) a. Hanako-ga Tanako-ni piza-o tabe-sase-ta  
 Hanako-NOM Tanako-DAT pizza-ACC eat-CAUS-  
 "Hanako made Tanako eat pizza."  
 b. Tanako-ga piza-o tabe-sase-rare-ta  
 Tanako-NOM pizza-ACC eat-CAUS-PASS-PAST  
 "Tanako was made to eat pizza"

→ ...but it does not happen in Italian; passive which promotes the dative Causee to nominative case is completely impossible; the only type of passive possible promotes the accusative embedded object to nominative position:

- (146) a. embedded accusative objects of transitive verbs passivize:  
 Il libro fu fatto leggere a Mario (da Gianni).  
 The book was made read to Mario (by Gianni)  
 'Mario was made to read the book (by Gianni).'
- b. embedded accusative subjects of intransitive verbs passivize:  
 Il pacchetto fu fatto arrivare (da Gianni).  
 The packet was made arrive (by Gianni).  
 'The packet was made to arrive (by Gianni).'
- c. embedded dative subjects of transitives do not passive:  
 \* Maria fu fatta mandare un pacchetto (da Gianni).  
 Maria was made send a packet (by Gianni).  
 'Maria was made to send a packet (by Gianni).'

→ But! There are interesting conditions on the passivization of causatives in Italian, which any account focussing purely on 'accusative' vs 'dative' case cannot explain!

→ Causatives of intransitive verbs assign accusative case to their Causee, no matter whether the verb is unergative or unaccusative:

- (147) a. Gianni ha fatto telefonare Marco.  
 Gianni has made telephone Marco  
 "Gianni made Marco telephone."  
 b. Gianni ha fatto partire Marco.  
 Gianni has made leave Marco.  
 "Gianni has made Marco leave."

→ But the only causatives of intransitive verbs which can be passivized are causatives of unaccusatives—causatives of unergatives cannot passivize!

- (148) a. \*Marco è stato fatto telefonare (da Gianni)  
 Marco is been made telephone (by Gianni)  
 b. \*Marco è stato fatto ridere (da Gianni).  
 Marco is been made laugh (by Gianni)  
 c. ??Marco è stato fatto piangere (da Gianni).  
 Marco is been made cry (by Gianni)

- (149) a. Marco è stato fatto partire.  
 Marco is been made leave  
 'Marco was gotten to leave.'  
 b. Marco è stato fatto cadere (da Gianni).  
 Marco is been made fall (by Gianni)  
 'Marco was gotten to fall (by Gianni).'  
 c. Il pacchetto fu fatto arrivare (da Gianni).  
 The package was made arrive (by Gianni)  
 'The package was gotten to arrive (by Gianni).' (English ??)

→ Alternating unergative/unaccusative verbs like *saltare* are particularly revealing; while the active causative is good with both interpretations, the passive causative only allows the unaccusative reading:

- (150) a. Gianni ha fatto saltare il ponte Vecchio.  
 Gianni has made explode the bridge Vecchio  
 "Gianni made the Vecchio bridge explode."  
 b. Gianni ha fatto saltare Marco.  
 Gianni has made jump Marco.  
 "Gianni made Marco jump."

- (151) a. Il ponte Vecchio fu fatto saltare.  
 The bridge Vecchio was made explode.  
 b. ??Marco fu fatto saltare.  
 Marco was made jump.

→ Our explanation is that the Italian passive, which is formed differently than the Japanese passive, requires a main verb to operate on, and only FP *fare* can be a main verb—FI *fare* is only a  $v^{\circ}$ . We claim there are no passives of FI *fare*.

→ This provides an explanation for the facts in (143-146) in the following way:

→ FP *fare* embeds a nominalized VP without a  $vP$  attached.

→ Unergative verbs' agents are introduced by the  $vP$ , while unaccusative verbs' single arguments are introduced by the main verb, the  $V$ .

→ Since FP *fare* does not embed a vP, we conclude that it cannot embed an unergative verb with its agent argument. All cases of *fare+unergativeV* must be FI *fare*.

→ Passives of *fare* are incompatible with embedded unergative V

→ Therefore, passives of *fare* are passives of FP *fare*, not FI *fare* (if they were FI *fare*, we would expect to see them with embedded unergative V).

→ Three questions: a) Why does Italian passive need a main verb to operate on? b) What about all those passives of transitive verbs with an *a*-Causee, as in in (141a) above? If they're not passives of FI, where is the *a*-Causee coming from? c) How can we justify saying that FP *fare* is a 'main verb'?

→ Answer to a): Because it involves altering  $v^{\circ}$  to eliminate the external argument and leaving a participle behind. (Illustrate).

→ Answer to b): Italian allows dative applicative arguments to be introduced quite freely into transitive structures; these are applicatives of FP structures.

→ In support of claim that passives of *fare* are FP, not FI—recall we discovered a restriction on the subjects of FP *fare* to the effect that they must be animate? That restriction carries over to the *by*-phrases in passives of causatives:

(152) È stato fatto rompere      il tavolo      (a Marco)      da Maria / \*dalla rabbia.  
Is been made break      the table      (to Marco)      by Maria / by.the rage.  
'A table was made to break (on Marco) by Maria/by rage.'

→ This restriction really comes from the *fare* here, not from the *by*-phrase; inanimate Causers are perfectly good *by*-phrases in passives like *Gianni fu portato al suicidio dalla rabbia*, 'Gianni was driven to suicide by rage', corresponding to the active *La rabbia ha portato Gianni a suicidio*, 'Rage drove Gianni to suicide.'

→ Answer to c): Well, on its 'main verb' interpretation, 'create', *fare* takes a nominal complement (*make a cake*, etc.); the only real difference between FP *fare* and 'main verb' *fare* is just that the nominal complement denotes an event, rather than a thing.

## 6.5 Summary

→ So we have seen the following here:

- The vP gives us a new insight into the FP/FI distinction in terms of selection or omission of Causee arguments
- There are different types of external-argument-selecting  $v^{\circ}$ , which have their own selectional effects on their specifier and complement

→ Next: Event structure and the vP

## 7. Event structure and root type in English denominal verbs

Reading: Harley, H. (2005) [How do verbs get their names? Denominal verbs, Manner Incorporation and the ontology of verb roots in English](#), in Nomi Erteschik-Shir and Tova Rapoport, eds., *The Syntax of Aspect*, 42-64. Oxford: Oxford University Press.

### 7.1 Introduction: A different subdivision of aspectual classes

- (153) Discussions of aktionsart and verb class generally divide eventive verbs into three kinds:
- A incremental theme verbs (verbs of creation and consumption, or making and unmaking)
  - B change-of-state verbs (both transitive and unaccusative)
  - C other unergative and transitive verbs, of all types: activities, semelfactives, and some accomplishments

→ In most of the literature, A and B have been treated as a natural class. Both A and B verbs are usually Accomplishments, and both may have themes that Measure-Out, in the sense of Tenny 1992. They have usually been treated together in discussions of the robust connection between object boundedness, object case and measuring-out (e.g. Tenny 2000; Van Hout 2000).

→ Claim: a different typology of verb classes is needed

→ We can account for the aktionsart properties of more predicates if we understand the ways in which groups A and C form a natural class, distinct from B.

→ *Hard-to-swallow distinction*: We must distinguish between verbs whose names are derived via incorporation of a Root from within the argument structure and verbs whose names are derived some other way, let's say by a mysterious, parametrically varying, magical process which I'll call *Manner Incorporation*

### 7.2 Background

- (154) Objects and measuring-out
- |    |  |                          |
|----|--|--------------------------|
| a. | Sue drank/wrote                        | for hours/#in 5 minutes. |
| b. | Sue drank a pint of beer/wrote a story | #for hours/in 5 minutes  |
| c. | Sue drank beer/wrote stories           | for hours/#in 5 minutes. |
| d. | Sue wrote at a story                   | for hours/#in 5 minutes  |

→ Much recent work on telicity has turned on the important connection between the direct object position and the telicity of the VP, shown in Tenny 1992 and also Dowty 1991. The central observation is that in many VPs, the boundedness of the direct object determines the telicity of the event denoted by the whole VP complex. A proposal that

has gained substantial currency is that there is a functional projection which checks the features of the direct object to provide an aspectual interpretation, e.g. Borer 1993; Borer 1996; van Hout and Roeper 1998, among many others. This projection is sometimes conflated with the accusative case-checking projection, sometimes independent of it.

→ Other authors have called the importance of the direct object as a determiner of telicity into question, notably Jackendoff 1991; Jackendoff 1996 and also Levin 2000. There are verbs which take an overt, bounded, definite direct object and are yet inherently atelic (5a, c); they become telic when a goal argument is provided (5b, d).

(155) Objects without measuring-out:

- |    |                                   |                           |
|----|-----------------------------------|---------------------------|
| a. | Sue pushed the cart               | for an hour/#in an hour.  |
| b. | Sue pushed the cart to the field  | #for an hour/in an hour.  |
| c. | Sue kicked the ball               | for an hour/#in an hour   |
| d. | Sue kicked the ball to the center | #for a second/in a second |

→ There is a similar set of unergative verbs of motion: they are essentially atelic, as is expected since they don't have a direct object, *but*, they may become telic with the addition of a goal PP (still without a direct object) illustrated in (2).

(156) Measuring-out without objects

- |    |                             |                                    |
|----|-----------------------------|------------------------------------|
| a. | Sue danced                  | for an hour/#in an hour.           |
| b. | Sue danced across the stage | #for five minutes/in five minutes. |
| c. | Sue hopped                  | for an hour/#in an hour            |
| d. | Sue hopped across the stage | #for five minute/in five minutes   |

→ An essentially similar class of verbs of motion may be transitive as well as intransitive, but do not become telic until a goal PP is added:

(157) Objects without measuring-out and measuring-out without objects:

- |    |                                  |                              |
|----|----------------------------------|------------------------------|
| a. | Sue walked                       | for an hour/#in an hour.     |
| b. | Sue walked the dog               | for an hour/#in an hour.     |
| c. | Sue walked (the dog) to the park | #for 5 minutes/in 5 minutes. |

→ With respect to these verbs of motion, when motion appears to be spontaneous or internally caused, there is a well-known connection between tests for unaccusativity and the presence of a goal PP:

(158) Buy goal PP, get object for free:

- |    |   |
|----|---|
| a. | <i>There</i> -insertion:<br>The bullet whistled as it passed my ear.<br>*There whistled a bullet (as it passed my ear).<br>There whistled a bullet past my ear. |
| b. | Auxiliary selection in Dutch Borer 1996   |



Jan **heeft**/\***is** gesprongen  
*Jan has jumped.*  
 Jan **is** in de sloot gesprongen  
*Jan is in(to) the ditch jumped.*  
 Jan **heeft** in de sloot gesprongen  
*Jan has in the ditch jumped*

→ A third class of atelic activity/semelfactive verbs with objects become telic only with the addition of a result phrase Rappaport Hovav and Levin 1998:

(159) Buy resultative phrase, get measuring-out for free

- a. Sue hammered the metal for 5 minutes/#in 5 minutes.
- b. Sue hammered the metal flat #for 5 minutes/in 5 minutes.
- c. #This metal hammers easily.
- d. This metal hammers flat easily.

→ Why are these verbs different?

→ from Van Hout 2000: "Following Dowty, Tenny Krifka and Verkuyl, I take it that it is a lexical property of verbs that distinguishes the *push*-class from verbs like *drink* and *write*."

### 7.3 A purely syntactic approach

→ Syntactic vs. semantic bootstrapping

→ In this paper, I propose to identify what that lexical property is. I claim that it is an intersection of various independent properties of the verb root: its structural position, its ontological class and its inherent (un)boundedness.

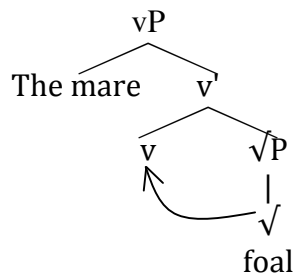
→ We need a way to motivate the sudden acquisition of measuring-out ability in cases 5-9, and explain the absence of measuring-out ability where it's absent. The dominant type of explanation for these phenomena has been that a semantic alteration to the LCS of these verbs (e.g. via the addition of a Path argument or a resultative state), has the effect that the mapping rules produce different results in the syntax. I'll call this a semantic bootstrapping approach. I wish to argue, with Mateu Fontanals 2000, that in fact, the addition of PP or resultative state material in 5-9 directly forces a *syntactic* change which gives the correct results. If it's necessary at all, the LCS-type information can be read off the syntax. I'll call this a syntactic bootstrapping approach.

#### 7.3.1 An overlooked class of telic verbs

→ To begin to make the argument for such an approach, let's first consider a class of unergative verbs that (unusually!) denote Accomplishments, Hale and Keyser's denominal unergative verbs.

- (160) Hale and Keyser's denominal unergatives with Thing roots
- |    |                 |                          |
|----|-----------------|--------------------------|
| a. | The mare foaled | #for 2 hours/in 2 hours  |
| b. | The dog whelped | #for 2 hours/in 2 hours  |
| c. | The cow calved  | #for 2 hours/in 2 hours. |

(161) An adaptation of H&K's proposal for verbs of birthing:

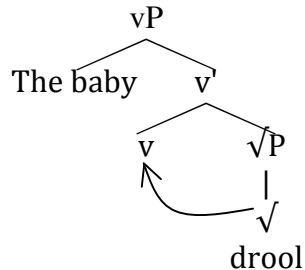


→ Hale and Keyser propose that unergative verbs (in general) are essentially transitive, derived by incorporating a noun root in object position into the transitive verb that selects it; that is, by conflating a transitive structure.

- (162) Telicity of both unergative and transitive paraphrase
- |    |                     |                         |
|----|---------------------|-------------------------|
| a. | The mare foaled     | #for 2 hours/in 2 hours |
| b. | The mare had a foal | #for 2 hours/in 2 hours |

→ The aktionsart properties of these verbs correspond to the aktionsart properties of their transitive paraphrases. In both cases, it should be obvious that the baby animal(s) that are contained in the mother's womb (hence necessarily finite in number) are the incremental theme that determines the telicity of the predicate.

- (163) The difference between babies and other bodily emissions
- |    |                     |                             |
|----|---------------------|-----------------------------|
| a. | The baby drooled    | for 2 hours/#in 2 hours     |
| b. | The athlete sweated | for 2 hours/#in 2 minutes   |
| c. | The wound bled      | for 2 minutes/#in 2 minutes |
| d. |                     |                             |



→ Notice that all these unergative verbs of bodily emission are atelic, unbounded.

(164) Atelic paraphrases with incremental themes

- a. The baby made drool for 2 hours/#in 2 hours.
- b. The athlete made sweat for 2 hours/#in 2 hours.
- c. The wound oozed/made blood for 2 minutes/#in 2 minutes.

→ **Conclusion #1:** in the paraphrases in (13b) and (15) we attribute telicity or lack of it to the mass vs. count properties of the incremental theme in complement position. In the corresponding unergative verbs, the verbs are derived via incorporation of a nominal root from complement position — the incremental theme — which has inherent mass or count properties. The parallel telicity properties of the unergative verbs and their transitive paraphrases should be attributed to the *same mechanism*. A lexical syntactic account allows us to do that.

→ **Consequence #1:** in at least these cases, the boundedness cannot be checked in Spec-AgrOP or similar functional projection as a case feature or telic event feature (c.f. Van Hout 2000). Conceivably it *could* be the case that feature checking in these unergative verbs is accomplished via incorporation rather than spec-head agreement, if we wish to maintain a feature-checking account.

(165) Some bodily emission verbs that need extra explanation

- a. The boy peed for 5 minutes/in 5 minutes
- b. John spit #for 5 minutes/#in 5 minutes

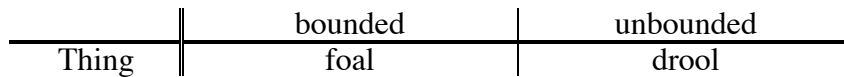
→ The *pee* case: *pee* is a mass noun, like *sweat* or *blood*, but in addition to the unbounded reading, there is a bounded reading available. This can be explained if the Universal Packager has applied (that allows one to order "a coffee"); not unreasonable in light of the fact that it is particularly salient that pee comes in discrete quantities, limited by the size of the container. It does, however, entail that the Packager can be a purely interpretive/pragmatic mechanism, not requiring a syntactic reflex, as intervening structure or abstract material would presumably block incorporation of the root.

→ The *spit* case: *spit* is an apparent problem. In its nominal form, it is definitely a mass noun. However, the verb seems to be a semelfactive unergative in its behavior (see below). I will consider it to be naming an event (the act of spitting) rather than a thing, and treat its "thing" meaning as secondary.

### 7.3.2 Denominal unergatives with Event roots

→ So far, we have investigated two types of  $\sqrt{s}$ :  $\sqrt{s}$  that denote Things that are either bounded or unbounded. The bounded  $\sqrt{s}$  in complement position give us telic predicates, measured out by the bounded  $\sqrt{\quad}$ , while unbounded  $\sqrt{s}$  in complement position give us atelic predicates. We can sum up the typology of roots so far as follows:

(166) Two kinds of Thing roots



(167) Two kinds of unergative verbs with Event roots

Activities

- a. Sue danced for 5 minutes/#in 5 minutes
- b. Sue whistled for 5 minutes/#in 5 minutes
- c. Sue slept for 5 minutes/#in 5 minutes

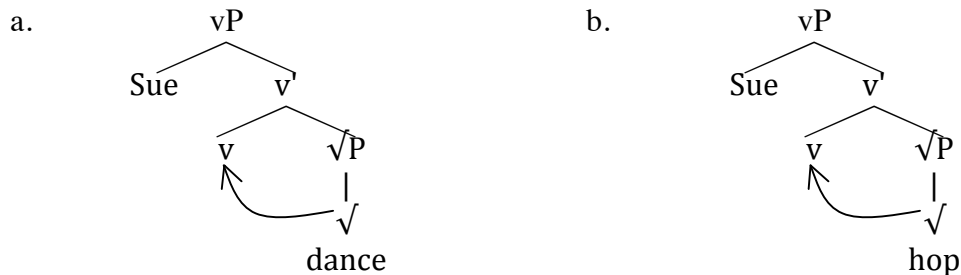
Semelfactives

- d. Sue hopped #for 5 minutes/#in 5 minutes
- e. Sue tripped #for 5 minutes/#in 5 minutes
- f. The light flashed #for 5 minutes/#in 5 minutes

→ Note that denominal unergatives with event-naming roots cannot be telic, unlike the verbs of birthing above. Rather, they are instantaneous events, which may be coerced to a repetition reading if cooccurring with an atelic frame adverbial. Following Smith 1991, I'll call these *semelfactives*.

→ H&K propose the same structure for these verbs as for the denominal verbs above:

(168) Same structure:



(169) Same aktionsart possibilities with paraphrase and unergative

- a. Sue danced for 5 minutes/#in 5 minutes
- b. Sue did a dance for 5 minutes/in 5 minutes
- c. Sue hopped #for 5 minutes/#in 5 minutes
- d. Sue did a hop #for 5 minutes/#in 5 minutes

→ Note the one difference in the atelic paraphrase: "dance" in its nominal form is a count noun, and a measured-out telic reading is available for the transitive paraphrase in 20(b). As with *pee* above, though, the important thing to notice is that it does allow an atelic reading, indicating that it may be interpreted unboundedly.

→ A speculation about the nature of roots that name Events:

- The bounded Event roots above do not "measure-out"; rather, they name an event that occurs at a point in time, not one that evolves over time. Consider that in the case of the bounded Thing roots, the measuring-out occurred over the physical quantity of the bounded Thing(s) in question. I hypothesize, following Pustejovsky 1991 and Jackendoff 1991 that while bounded Things must necessarily take up space, linguistic Events are fundamentally either pointlike (instantaneous) or extend arbitrarily long (activities).
- Where we're going: Most events that evolve over time to a culmination point (accomplishments) must be constructed from *two* sub-eventualities (again following Pustejovsky 1991). More on this anon. (Note: Incremental theme verbs (foal etc.) will constitute the exception to this generalization about accomplishments.)

(170) Four kinds of  $\sqrt{s}$

	bounded	unbounded
Thing	<i>foal</i>	<i>drool</i>
Event	<i>hop</i>	<i>dance</i>

- *The story so far:*
- Unergative verbs are created by incorporating a nominal root into a light verb.
  - The telicity of the resulting verb can be predicted on the basis of the ontological category of the root (Event or Thing), and whether that root denotes a bounded or an unbounded entity.

#### 7.4 Transitive atelic verbs

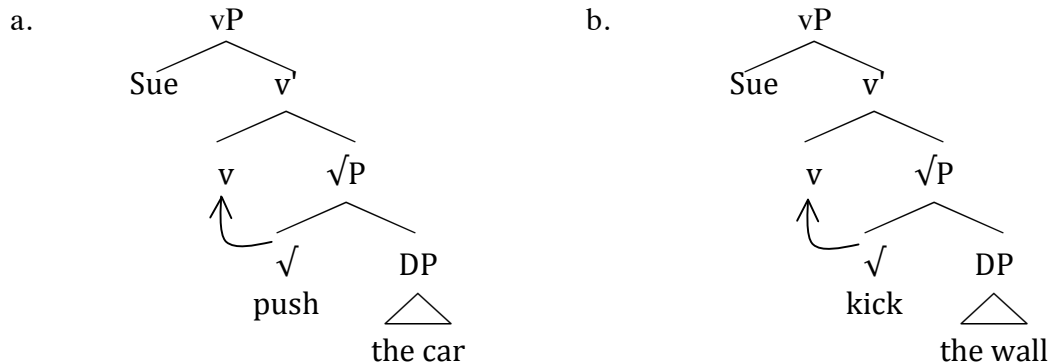
- Recall our class of problem verbs: they have a non-affected object which cannot measure out. In the past, this has been attributed to the Affectedness Condition, which governs the application of mapping rules.

(171) Pushing, hitting, kicking

- |    |                      |                              |
|----|----------------------|------------------------------|
| a. | John pushed the cart | for 5 minutes/#in 5 minutes  |
| b. | Sue drove the car    | for 5 minutes/#in 5 minutes  |
| c. | Sue kicked the wall  | #for 5 minutes/#in 5 minutes |
| d. | A bird pecked Sue    | #for 5 minutes/#in 5 minutes |

- If Event-denoting roots (but not Thing-denoting roots) can select for a complement, we can group these together with the unergative verbs with Event-denoting roots in (18). Note that they have the same aktionsart properties and they all have corresponding event-denoting nominals (*a push, a peck, etc.*). This would then entail that they have the structure below:

(172) A proposal



→ Why isn't there a corresponding group of transitive denominal verbs whose roots denote Things, not Events, and whose telicity depends on the boundedness of the incorporated thing?? Let us suppose that roots denoting Things cannot select arguments<sup>8</sup>, while Events can do so. Our inventory of basic root properties now looks like this:

(173) Another speculation

	no complement		complement	
	bounded	unbounded	bounded	unbounded
Event	<i>hop</i>	<i>sleep</i>	<i>kick</i>	<i>push</i>
Thing	<i>foal</i>	<i>drool</i>	N/A	N/A

→ The \$64,000 question: Why can't these objects measure-out?

→ Before answering that, let's first take a look at the structure of the other major class of verbs whose objects *do* measure out: not Incremental Theme predicates, but Change of State predicates.

### 7.5 Change-of-State verbs

(174) Deadjectival change-of-state verbs

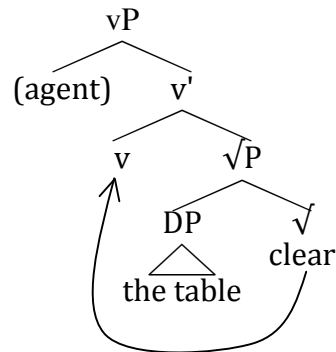
- a. Sue cleared the table #for 5 minutes/in 5 minutes.
- b. The archaeologist opened the sarcophagus #for 5 minutes/in 5 minutes
- c. Sue tamed the lion #for 5 minutes/in 5 minutes
- d. Sue roughened the tire surface #for a minute/in a minute

→ These are, of course, the canonical verbs that appear to have a very straightforward semantic analysis in terms of CAUSE + (BECOME) + STATE, where STATE = a small clause consisting of the adjectival state predicated of the object. Some undergo the inchoative/causative alternation, some do not.

<sup>8</sup> Maybe. What about *Bill fathered a son* (?in 2 years/#for 2 years).

→ Essentially preserving the analysis of the generative semanticists, H&K (and many others) propose the following light-verb structure for such verbs:

(175) The lexical syntax of deadjectival change-of-state verbs



→ Note that the incorporation of *clear* does not violate the HMC, as the DP is in the specifier of  $\sqrt{P}$ , and incorporation is head-to-head movement. The object DP is in what H&K call the "inner subject" position, as it is the subject of a small clause predicate, "the table (is) clear".

→ In these cases, the measuring-out is with respect to the entire *state* denoted by the small clause — the endstate. When that state is achieved, the accomplishment denoted by the whole construction is over. Note that the whole is constructed from two eventualities: the CAUSE event (little *v*), and the ENDSTATE event (the small clause). This has the nice property of corresponding to the semantic decomposition of accomplishments proposed by Pustejovsky and others.

→ Finally, notice that it must be inherent to the nature of these roots that they are predicative — they select for a subject argument, not for an object. They are then fundamentally stative, and neither bounded nor unbounded, adding to our inventory of roots:

(30) *A third kind of root*

	no complement		complement	
	bounded	unbounded	bounded	unbounded
Event	<i>hop</i>	<i>sleep</i>	<i>kick</i>	<i>push</i>
Thing	<i>foal</i>	<i>drool</i>	N/A	N/A
State	<i>clear</i>		TBA (prepositions)	

## 7.6 Denominal Location/Locatum verbs

(176) The pièce de resistance: denominal location/locatum verbs.

Location: bag, bank, bottle, box, cage, can, corral, crate, floor (opponent), garage, jail, kennel, package, pasture, pen, photograph, pocket, pot, shelve, ship (the oars), shoulder, tree.

Locatum: bandage, bar, bell, blindfold, bread, butter, clothe, curtain, dress, fund, gas, grease, harness, hook, house, ink, oil, paint, pepper, powder, saddle, salt, seed, shoe, spice, water, word.

→ For more verbs and significant discussion, see Kiparsky 1997.

→ Notice that the object of these verbs may measure-out:

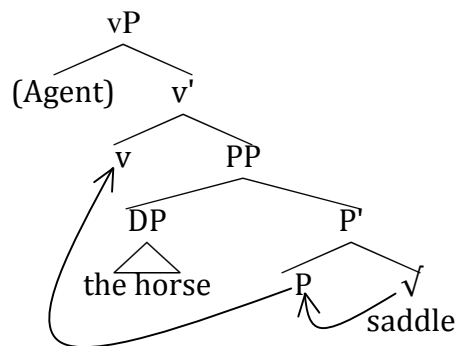
(177) Measuring-out while saddling:

- |    |                              |                              |
|----|------------------------------|------------------------------|
| a. | John saddled the horse       | #for 5 minutes/in 5 minutes  |
| b. | Sue boxed the computer       | #for 5 minutes/in 5 minutes  |
| c. | Mom blindfolded a 6-year-old | #for a minute/in a minute.   |
| d. | John saddled horses          | for 5 minutes/#in 5 minutes  |
| e. | Sue boxed computers          | for 5 minutes/#in 5 minutes  |
| f. | Mom blindfolded children     | for 5 minutes/#in 5 minutes. |

(178) Paraphrase has same aktionsart properties:

- |    |   |                              |
|----|---|------------------------------|
| a. | Mom fit the six-year old with a blindfold | #for 5 minutes/in 5 minutes. |
| b. | Mom fit children with a blindfold         | for 3 hours/#in 3 hours.     |

(179) A Hale-and-Keyser-style structural proposal:



→ Essentially, the proposal is that this, too, is a change of state verb. The PP is a small clause, predicating something like "WITH SADDLE" of the inner subject, *the horse*. Little *v* corresponds to CAUSE, as in the deadjectival case, above.

→ The same structure is proposed for both location and locatum verbs — that is, although in "saddle the horse", the saddle is being put on the horse, but in "box the computer", the computer is being put in the box, the incorporated thing (*saddle, box*) is always the



sister of P below P'. We'll see below that what matters is the boundedness of the incorporated thing, not whether it's the location or locatum.

(180) Another measurer-outer in the paraphrases:

- a. Sue put the computer in boxes for 5 minutes/#in 5 minutes
- b. Sue fit the horse with saddles for an hour/#in an hour.

→ Note that, although pragmatically odd, manipulating the boundedness of the prepositional object affects the aktionsart of the predicate. Selecting an unbounded root for incorporation, then, ought equally to affect the aktionsart of the predicate, in a way parallel to the *foal/drool* contrast above.

(181) An unbounded, incorporated Locatum:

- a. Susan watered the garden for an hour/in an hour
- b. Bill greased the chain for 5 minutes/in 5 minutes
- c. Jill painted the wall for an hour/in an hour
- d. Adelaide buttered the bread for 2 minutes/in 2 minutes

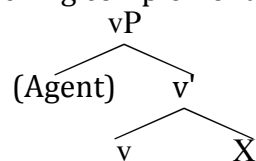
→ While the telic reading is available, as expected given the measuring-out potential of the definite, singular objects ("inner subjects" of the change of state), an atelic reading is also available! This is very surprising. Contrast these examples with the necessary telicity of a verb like *saddle* (cf. 31a above).

→ **Conclusion #2:** Again, we attribute the introduced atelic reading in the paraphrases in (33) to the introduced unboundedness of the prepositional object. Similarly, we can explain the available atelicity of *to paint* in contrast to the necessary telicity of *to saddle* by attributing it to the unboundedness of the incorporated prepositional object in *paint*, vs. the boundedness of the incorporated prepositional object in *saddle*.

### 7.7 Deriving telicity

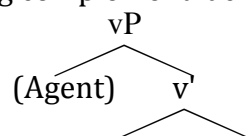
(182) The typology of argument structures, so far

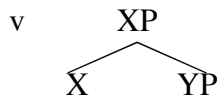
- a. vP with non-branching complement



*foal, run, drool, dance, calve....*

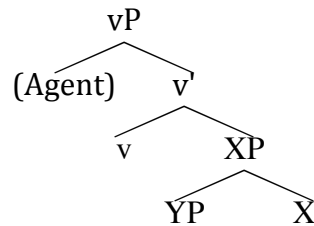
- b. vP with branching complement lacking a specifier





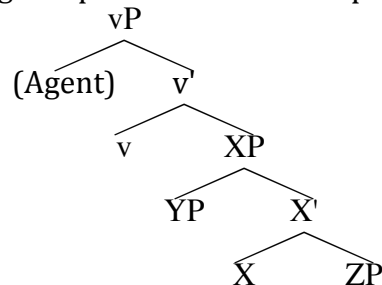
*push, kick, hit, kiss, pull...*

- c. vP with branching complement lacking a complement (small clause)



*clear, redden, clean, weaken...*

- d. vP with branching complement with both specifier and complement (small clause)



*saddle, box, water, paint, butter...*

(Also, without incorporation of ZP, this is the Larsonian framework for ditransitive verbs: *give, send, put...* (see, e.g. Harley 1996 for discussion).)

- Note that the distinction between type (b) and (c) above can be made on the basis of the ontological type (State vs. Event) of X: if X is an Event, it cannot be predicated of something
- **Assumption #1:** The above represent all the argument structures available in language: maximum of three "direct" arguments. Note: no multiple specifiers allowed!

(183) A different kind of denominal verb: instrumental activities

- |    |                         |                            |
|----|-------------------------|----------------------------|
| a. | John hammered the metal | for 5 minutes/in 5 minutes |
| b. | Sue brushed the dog     | for 5 minutes/in 5 minutes |
| c. | Jill raked the leaves   | for an hour/in an hour     |

- Notice that the boundedness of the nominal root here has no effect on the available atelicity. This is expected if the structural source of these nominal roots is not one of the possible measuring-out incorporating positions (i.e. complement to v or complement to P). Considering the incorporated nominal in thematic role terms, this makes sense: these incorporated nouns are neither Themes nor Location/Locatum, but rather Instruments.



(187) Inner subjects measure-out<sup>9</sup>

- a. John pushed carts to the cloakroom for 3 hours/#in 3 hours
- b. Susan hammered metal flat for 3 hours/#in 3 hours

→ Also, of course, the auxiliary selection change in Dutch results from the appearance of an inner subject and resulting availability of an unaccusative structure for the verb of motion *jump* when the endstate of the jumper is specified; similarly, the availability of *there*-insertion with verbs of motion results from the appearance of an inner subject and resulting availability of an unaccusative structure when the endstate is represented.

### 7.7.1 The productivity of Manner Incorporation varies parametrically

→ As demonstrated by Talmy 1986, verbs of manner of motion are not much available in Romance languages:

(188) Lack of lexical Manner elements in Romance:

- a. The bottle floated away from the bank.
- b. La botella se fué de la orilla flotando.  
the bottle REFL moved-away from the bank floating

→ Similarly, resultative constructions are unavailable in Romance languages, and most verbs of motion do not permit the addition of goal PPs or the causative accompanied motion construction (see Harley 1999; Mateu Fontanals 2000 for further discussion):

- (189) a. The horse jumped / Kay jumped the horse over the fence.  
b. El caballo brincó / \*Juan brincó el caballo sobre el cerco.  
the horse jumped / \*John jumped the horse over the fence.

→ **Conclusion #3:** If we understand that resultative constructions and motion-to-a-goal constructions involve a reanalysis of the verb root as a Manner element, we can attribute the absence of such constructions in Romance to the lack of productivity of Manner Incorporation in those languages.

### 7.8 Reprise: Incremental Themes

→ Above, the only classes of verbs that measure out with their direct object are change-of-state verbs, with argument structures (36c) and (36d) above, whose direct object is an inner subject. Verbs whose direct object does not affect their telicity one way or another have no inner subject (frames 36a and 36b above), except in one case: verbs of making or unmaking. This was the original parallel that led us towards the idea that decomposing verbs in the syntax might be a useful idea. The verbs that they paralleled were the very Incremental Theme verbs that got Tenny and Dowty going in the first place:

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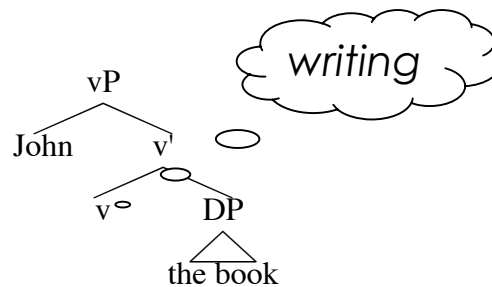
<sup>9</sup> This is the answer to the \$64,000 question: the objects of *push* verbs are not inner subjects.

(190) So: what about the telicity of verbs with incremental themes?

- a. Sue ate the apple #for 5 minutes/in 5 minutes
- b. Bill built the house #for a year/in a year.

→ Just as ditransitive verbs parallel location/locatum verbs without all the incorporation, I wish to claim that verbs of making and unmaking parallel the verbs of birthing without all the incorporation. The verb root will be an incorporated Manner element. The structure of, e.g., *write* will then be:

(191) A structure for incremental theme verbs



John MAKE the book by WRITE

→ There is then a significant structural difference between the objects that measure-out in change-of-state verbs (including ditransitive verbs), and the incremental theme objects. The former are "inner subjects" of a small clause, the latter are direct objects of a light verb of creation (or negative creation).

→ A test which may distinguish the two kinds of direct objects (may!) is the middle construction. Certainly location/locatum verbs take the middle easily...

(192) Middles and measuring-out

- a. These computers box easily.
- b. Shetland ponies saddle easily.

→ But it seems that verbs of making and unmaking resist the middle:

- (193) a. ??Powerbars eat quickly.
  - b. ??Frank Lloyd Wright houses don't build easily
  - c. ??Rodin statues sculpt easily.
  - d. ??Oxford shirts don't sew easily.
- Tenny 2000

→ and certainly verbs of birthing do:

- (194) a. \*\*\*Foals of this type have easily.
- b. ??Foals of this type birth easily.

→ As Tenny (2000) notes, however, it seems that some class members can occur in the middle:

(195) Maybe middles aren't the best test...

- a. ...the soup that eats like a meal
- b. ?Your initials embroider easily compared to mine.

→ However, consider the difference between a middle formed from (a) below, a genuine verb of creation, and a middle formed from the same verb in (b) below, in a change of state frame:

(196) But maybe they are

- a. Maria carved a toy soldier.
- a' ??Toy soldiers carve easily.
- b. Maria carved the wood.
- b'. Wood carves easily.

→ **Conclusion #4:** Middle formation (may) only apply to verbs whose argument structure contains an inner subject. Hale and Keyser 1999 come to the same conclusion looking at a very different set of data from psych verbs.

### 7.9 So which light verb is it?

→ In my paraphrases, intended to elucidate the lexical semantics and lexical syntax of these different types of verbs, I've used several different light verbs to correspond to the contribution of little v:

(197) DO, CAUSE, and MAKE

- a. Susan DO (a) DANCE
- b. Bill DO (a) PUSH (of) the cart.
- c. The mare MAKE (a) FOAL.
- d. Jennifer MAKE a book (by) WRITING
- e. Jill CAUSE the table CLEAR
- f. Maria CAUSE the horse WITH SADDLE
- g. Patty CAUSE the cart to New York (by) PUSHING

→ In fact, I think it's the same little v in all cases: one that denotes the beginning of an event, and its initiator. It's just a weakness of English that the beginnings of different kinds of events are referred to by different verbs. We MAKE Things, we DO Events, and we CAUSE states; the interpretation is wholly dependent on the ontological type of the complement to little v. In French, all three English verbs translate the same way: *faire*.

→ I didn't address the question of whether there's a light verb in unaccusative phrases or what it is; I assume there is, that it denotes the beginning of a spontaneous change-of-

state event, and that it differs from the *FAIRE* little *v* only in that it does not select an external argument in its specifier.

(198) BECOME

- a. BECOME [the door OPEN]
- b. BECOME [the screen CLEAR]
- c. BECOME [the bullet past my ear] (while) WHISTLING

### 7.10 *Some Concluding Thoughts*

→ *Take-home messages*

- a) Evidence that root type affects telicity of unergative verbs and denominal location/locatum verbs argues for a lexical-syntax approach to argument structure
- b) A Pustejovsky -style semantics for accomplishments — CAUSE+ ENDSTATE — is directly represented in their lexical syntax<sup>10</sup>.
- c) The fact that English allows productive Manner Incorporation accounts for certain transitivity alternations and the measuring-out effects that go with them; it can also explain why Romance doesn't show such alternations

→ Next: The argument structure and derivational morphology of Hiaki (I'm going to skip the Persian paper; it's quite straightforward and you've seen some of the data before)

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<sup>10</sup> Note that this entails that no monomorphemic root can name an Accomplishment.

## 8. Yaqui argument structure and derivational morphology

Readings:

Tubino-Blanco, M. and H. Harley. (To appear). [Sobre la opcionalidad del Causado en las causativas indirectas en yaqui](#) In the *Proceedings of the 2007 Friends of Uto-Aztecan Meeting/Taller de los amigos de lenguas yuto-aztecas*, Editorial Unison, Hermosillo, Son., Mexico

H. Harley. (In prep). [Applicatives and VoiceP in Hiaki](#). Handout from talk presented at 2007 GLOW meeting, Tromsø, Norway.

Jelinek, E. and H. Harley (in prep) [Impersonal passives in Yaqui](#). Ms., University of Arizona.

Harley, H., M. Tubino-Blanco and J. Haugen. (2009). [Applicative constructions and suppletive verbs in Hiaki \(Yaqui\)](#). In L. Lanz, A Franklin, J Hoecker, E Gentry Brunner, M Morrison, and C Pace, editors, *Rice Working Papers in Linguistics Volume 1*, pp. 42-51

M. Tubino-Blanco, H. Harley and J. Haugen. (2009). [The syntax of hybrid verb/affix lexemes and clause fusion in Hiaki \(Yaqui\)](#) In L. Lanz, A Franklin, J Hoecker, E Gentry Brunner, M Morrison, and C Pace, editors, *Rice Working Papers in Linguistics Volume 1*, pp. 79-91

### 8.1 A quick introduction to Hiaki morphosyntax

- Hiaki is an SOV, agglutinative, Uto-Aztecan language spoken in Sonora and in Arizona. It is robustly head-final, except for its rich determiner system, which is head-initial.
- It has two structural cases—nominative (-∅) and accusative (-ta)—and a bevy of postpositions
- It has a LOT of adicity-affecting verbal suffixes, including a passive, two causatives, two desideratives, an applicative, a directive, a quotative, participializers, and relativizers
- The passive is an impersonal passive. It can apply to any verb with a human subject argument to eliminate that argument, providing instead an existentially bound understood 'someone' interpretation for that role.
- If there are any accusative case-marked arguments in the corresponding active, the structurally highest one moves to subject position and becomes nominative.



- (199) a. Hose vachi-ta bwasa'a  
 Joe corn-ACC cook.TRANS  
 Joe is cooking corn.
- b. Vachi bwasa'a-wa  
 Corn cook.TRANS-EXST  
 There is corn being cooked; (People, they) are cooking corn.

→ if there are no such arguments, the impersonal passive is subjectless.

- (200) a. Ume yoemia aman yaha  
 The.PL people there arrive.PL  
 The people are arriving there.
- b. Aman yahi-wa  
 There arrive.PL-EXST  
 (People, they) are arriving there; Arriving there is going on.

→ Hiaki reflexives are beautifully obedient to Condition A.

## 8.2 *Hiaki causatives: Direct and Indirect* (With Mercedes Tubino-Blanco)

### 8.2.1 Introduction

→ In this paper, we contrast the behavior of the direct causative affix *-tua* with that of the indirect causative affix *-tevo* in Hiaki (Yaqui). We first consider the straightforward cases, and propose a syntactic analysis based on them. We then go on to outline some more complex behavior with *-tevo* in combination with particular verb stems, which our account does not predict.

### 8.2.2 The Facts

→ Two causative morphemes in Hiaki

(201) Direct causation: the causative suffix *-tua* is affixed to the verbal stem (1).

- a. Maria hitevi-ta uusi-ta hitto-**tua**-k  
 Maria doctor-ACC child-ACC treat-CAUS.DIR-PERF  
 'Maria **made** the doctor treat the child'  
 ('María (le) mandó al médico tratar al niño')
- b. Aapo si yee va-vamih-**tua**  
 3SG very people RED-in.a.hurry-CAUS.DIR  
 'He's always **making** people rush'  
 ('Siempre hace correr a la gente')

- c. Hose Peo-ta lauti yevih-**tua**-k  
 Hose Peo-ACC early arrive(SG.SUBJ)-CAUS.DIR-PERF  
 'Hose **made** Peo arrive early' ('Hose hizo a Pedro llegar temprano')

(202) Indirect causation: the morpheme *-tevo* is suffixed to the verb (2).

- a. Maria uusi-ta hitto-**tevo**-k  
 Maria child-ACC treat-CAUS.INDIR-PERF  
 'Maria **had** the child treated' ('María mandó tratar al niño')
- b. Aapo hiva va-vamih-**tevo**  
 3SG always RED-in.a.hurry-CAUS.INDIR  
 'He's always **having** (people) rush ('Siempre hace correr')
- c. Inepo aman *yahi*-**tevo**-k  
 1SG there arrive(PL.SUBJ)-CAUS.INDIR-PERF  
 'I **had** people brought there' ('Hice traer a unos ahí, cf. hice que llegaran allí')

→ **The Causee argument**: In (1) and (2) a contrast is exhibited between the two affixes regarding the presence of the Causee argument, the subject of the embedded verb, e.g. *hitevi-ta*, 'doctor'.

(203) Direct causation (*-tua*):

The Causee argument, *hitevi-ta* 'the doctor' ('el médico'), is obligatory:

- \*Maria [uusi-ta hitto]-tua-k  
 Maria [child-ACC treat]-CAUS.DIR-PERF  
 'Maria made [(someone) treat the child]  
 ('María mandó [(a ?) tratar al niño] )

→ Indirect causation (-tevo): Depending on the embedded verb...

(204) Causee forbidden (more typical):

- a. Santoh-ta achai [(**\*aa yoemia-wa**) vachi-ta et]-tevo  
 Santoh-ACC father [(**\*his children-POSS**) corn-ACC plant]-CAUS.IND  
 'Santos' father had [his children plant the corn]  
 ('El padre de Santos mandó [a sus hijos sembrar el elote]')
- b. Aapo hiva (**\*yee**) va-vamih-**tevo**  
 3SG always people RED-in.a.hurry-CAUS.INDIR  
 'He's always having [(**\*people**) rush] ('Siempre manda que la gente corra')

(205) Causee optional (less typical; with only these verbs in our data so far)

- a. Maria [**hitevi-ta** uusi-ta hitto]-tevo-k [compare (2b)]  
Maria [doctor-ACC child-ACC treat]-CAUS.INDIR-PERF  
'Maria had [the child treated **by the doctor**]  
('María mandó [tratar al niño]' (a través del  
médico))
- b. Maala **aa** yevih-tevo-k **uka yoem-ta** [compare (2c)]  
mother 3SG arrive(SG.SUBJ)-CAUS.INDIR-PERF DET.ACC man-ACC  
'Mother had the man brought to her house' ('Mamá mandó traer al  
hombre (a la casa)')

8.2.3 The Syntax of the Causee: is it really optional?

→ We propose that, despite the puzzling facts above, the Causee is really syntactically suppressed with the indirect causative *-tevo*. Its behavior in passives shows it.

→ The subject of passivized causatives:

(206) Passive of direct causation (-tua): the Causee is promoted to subject (Like Japanese):

**Uu hitevi** uusi-ta hitto-tua-wa-k  
DET doctor child-ACC treat-CAUS.DIR-PASS-PERF  
'**The doctor** was made to treat the child' ('Al médico se le mandó tratar al niño')

→ Passive of indirect causation (-tevo): the embedded object is promoted to subject, *even with verbs where the Causee may optionally appear* (Like Italian FP)

(207) **Uu uusi** hitto-tevo-wa-k

DET child treat-CAUS.INDIR-PASS-PERF  
'Somebody had the child treated' ('Se ha mandado tratar al niño')

PUZZLE N.1: The facts in 3.1. show a clear contrast in the behavior of *-tua* and *-tevo* causatives: Only in the case of *-tua* does the Causee **hitevi** 'doctor' (médico) become the subject of a passive. In *-tevo* passives, the embedded object **uusi** 'child' (niño) is the argument becoming the subject.  
Why can *-tevo* causatives exhibit Causees at all in sentences like (205)?

8.2.4 Suppression of Causees with embedded intransitive number-suppletive predicates

→ Certain intransitive verbs exhibit number suppletion in Hiaki (8).

(208) a. **Uu uusi** aman **vuite**

DET child(sg) there run(SG.SUBJ)  
'**The child** is running' ('El niño corre')

b. **Ume uusi-m** aman **tenne** /**\*vuite**  
 DET.PL child-PL there run(PL.SUBJ) / \*run(SG.SUBJ)  
 'The children are running' ('Los niños corren')

→ Hiaki allows impersonal passivization of intransitives<sup>11</sup>:

(209) Pahko-po yi'i-wa-k  
 ceremony-PP dance-PASS-PERF  
 'People danced / There was dancing at the ceremony' Jelinek 1997: 181[7b]

→ If the passivized intransitive verb exhibits number suppletion (eg. *vuite*(sg.)/*tenne*(pl.) 'run' ('correr')), the 'default' agreement with the suppressed implicit subject is ALWAYS plural:

(210) a. Aman **tenni-wa**  
 there run(PL.SUBJ)-PASS  
 'People are running / there's running there'  
 ('Allí se corre / Hay gente corriendo allí')

COMPARE:

b. \*Aman **vuiti-wa**  
 there run(SG.SUBJ)-PASS  
 'People are running /there's running there'  
 ('Allí se corre/hay gente corriendo allí')

→ In causative environments, the singular form *vuite* 'run(sg.subj)' ('correr(suj.sg)') may appear embedded with the direct causative *-tua* whenever the Causee is singular:

(211) Heidi aman **aa=vui-vuiti-tua**  
 Heidi there 3SG=RED-run(SG.SUBJ)-CAUS.DIR  
 'Heidi makes him do running there' ('Heidi le hace (a él) correr /dar carreras allí')

→ In contrast, only the plural form *tenne* 'run(pl.subj)' ('correr(suj.pl)') is allowed as embedded to the indirect causative *-tevo* (with the Causee implicit–i.e. the subject of 'run' is suppressed, exactly as with *-wa* in (10a) above):

(12) a. Heidi aman **te-tenni-tevo**  
 heidi there RED-run(PL.SUBJ)-CAUS.INDIR  
 'Heidi has people do running there' ('Heidi hace correr /dar carreras allí')

b. \*Heidi aman **vuiti-tevo**  
 Heidi there run(SG.SUBJ)-CAUS.INDIR  
 'Heidi is having people run there' ('Heidi está haciendo correr allí')<sup>12</sup>

<sup>11</sup> It is important to note that, unlike in English, the possibility of specifying the agent in the form of a *by*-phrase is not an option in Hiaki (Escalante 1990)

→ **Conclusion:** The suppressed Causee argument with *-tevo* is like the suppressed Agent/Subject argument with *-wa*: semantically unspecified, not singular (like an impersonal), and genuinely syntactically absent.

### 8.2.5 Proposal and Analysis

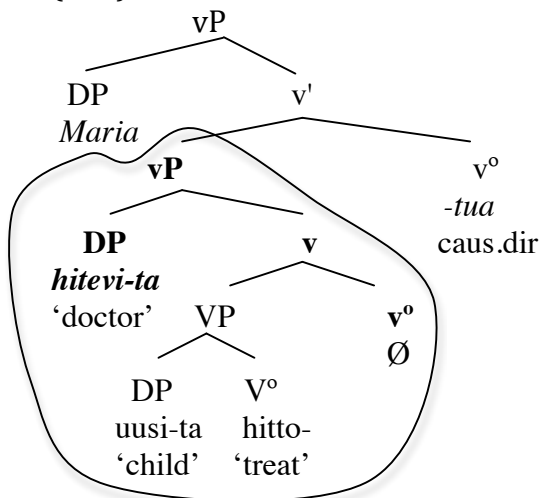
→ We propose an analysis within the vP/VoiceP framework, proposed in Jelinek (1998) (see also Pylkkänen 2002, Harley 2007). Such an analysis is also comparable to the analysis of indirect and direct causation in Hindi proposed in Ramchand (2008).

→ One obvious approach is to carry over the FI/FP distinction: *-tua* causatives behave like FI, and *-tevo* causatives behave like FP, without an embedded subject:

(212) a. Maria hitevi-ta uusi-ta hitto-**tua**  
 Maria doctor-ACC child-ACC treat-CAUS.DIR  
 'Maria is making the doctor treat the child'  
 ('María le ha mandado al médico tratar al niño')

b. Maria uusi-ta hitto-**tevo**  
 Maria child-ACC treat-CAUS.INDIR  
 'Maria is having the child treated' ('María ha mandado tratar al niño')

(213) a. Maria hitevi-ta uusi-ta hitto-tua

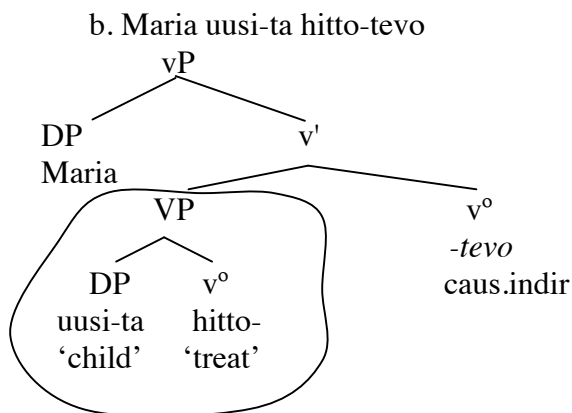


(18a): THE CAUSATIVE HEAD *-tua* TAKES A vP AS ITS COMPLEMENT. THIS HEAD INTRODUCES THE CAUSEE IN ITS SPEC POSITION [Spec, vP].

MAIN DIFFERENCE BETWEEN (18a) AND (18b): **ABSENCE OF A vP IN COMPLEMENT OF -TEVO (18b)**. vP IS THE PROJECTION THAT INTRODUCES THE EMBEDDED EXTERNAL ARGUMENT

<sup>12</sup> Note that the ungrammaticality of this sentence is not due to the lack of reduplication of the embedded verb, as (i) shows:

- (i) nee aman tenni-tevo  
 1SG there run(PL.SUBJ)-CAUS.INDIR  
 'I'm having people run' ('Estoy haciendo correr (a unos)')



(18b): THE CAUSATIVE VERB *-tevo* TAKES VP AS ITS COMPLEMENT. THIS VP DOES NOT 'MAKE ROOM' FOR A CAUSEE ARGUMENT, GIVEN ITS ABSENCE OF A SPEC-VP POSITION.

## 8.2.6 Summary up to this point

(214) Proposal: *-tua* and *-tevo* are causative light verbs which differ regarding the type of clause each embeds:

- a. *-tevo* selects for a subjectless, VP complement clause.
- b. *-tua* selects for a subject-ful vP complement clause.

→ This contrast is responsible for the

- 1) obligatory presence of the Causee in *-tua* causatives, *hitevi-ta* 'doctor' in (3)
- 2) the obligatory absence of the Causee in *-tevo* causatives (4)

→ The Causee in *-tevo* causatives, although not present syntactically, is semantically understood to be present, its existence being implied by the context. Interestingly, the examples exhibiting number suppletion in (12) suggest that this notional/semantic Causee in indirect *-tevo* causatives is morpho-syntactically salient enough to force number suppletion. This is paralleled by the passive examples in (6) and (7), where number suppletion is triggered by the impersonal, implicit Agent argument, which is syntactically absent in passive constructions.

## 8.2.7 Addenda, counterexamples and unsolved questions

→ **Problems unsolved!** Our data shows puzzles we still don't have an answer for.

→ **Optionality of Causee with *hitto* and *yevih-*** (mentioned above)

→ We claim that the syntax of *-tevo* (cf. its lack of VP) does not 'make room' for a Causee argument within its domain; hence, the absence of an overt Causee in indirect causatives.

→ However: We still need to provide an explanation for sentences like these (repeated from above)

(215) Maria [**hitevi-ta** uusi-ta hitto]-**tevo-k**  
 Maria [doctor-ACC child-ACC treat]-CAUS.INDIR-PERF  
 ‘Maria had [the child treated **by the doctor**]  
 (‘María mandó [tratar al niño] (a través del médico))

→ Why is the Causee able to appear in this sentence?

→ Indirect causation and embedded subject of *yepsa/yevih-/yahi-*, ‘arrive’: a puzzle: A similar but more complex problem arises with *yepsa*, ‘arrive’, in combination with *-tevo*.

→ As noted above, in combination with the unaccusative verb *yepsa* ‘arrive’ (‘llegar’), *-tevo* causatives may retain the sole argument of the embedded verb as an object (just as with *-tua*).

(216) Maala **aa** yevih-**tevo-k** **uka** **yoem-ta**  
 mother 3SG arrive(SG.SUBJ)-CAUS.INDIR-PERF DET.ACC man-ACC  
 ‘Mother had the man brought to her house (eg. by somebody)  
 (‘Mamá mandó traer al hombre (a la casa))’

(217) Hose Peo-ta lautí yevih-**tua-k**  
 Hose Peo-ACC early arrive(SG.SUBJ)-CAUS.DIR-PERF  
 ‘Hose made Peo arrive early’ (‘Hose hizo a Pedro llegar temprano’)

→ However, there is a subtle semantic difference between the *yevih-tevo* and *yevih-tua* combinations: The former, but not the later, implies the existence of an unspecified argument which caused the embedded ‘arriving’ event (as reflected in the gloss).

→ This is like other *-tevo* sentences in that the embedded, caused, event is understood to involve an unspecified Causee

→ Unlike other *-tevo* sentences, the unspecified Causee is not a suppressed part of the argument structure of the embedded verb (ie., it’s merely implicit from the context).

→ The argument structure of this embedded verb may be fully present with *-tevo*.

→ It doesn't have to be present, however—it can behave as expected, where the single argument of the embedded verb is suppressed (as also shown above in (2c)).

(20) Inepo aman **yahi-tevo-k**  
 1SG there arrive(PL.SUBJ)-CAUS.INDIR-PERF  
 ‘I had people brought there’ (‘Hice traer a unos ahí, cf. hice que llegaran allí’)

→ When the embedded argument is absent with this verb (20), we see plural agreement, as expected, cf. 12a above:

- The singular agreement with the unusual sentence in (18) ((5b)), with the overt Causee, is like the singular agreement in the corresponding *-tua* construction
- In terms of agreement, then (18) and (19) are behaving exactly alike: *-tevo* is acting just like *-tua*, morphosyntactically. Semantically, however, it's different — the *-tevo* sentence involves an implicit embedded external argument
- Just to complicate matters further, in another example with peculiar combination of *yepsa* and *-tevo*, there doesn't seem to be any implied argument at all—in this case, it seems that *-tevo* can function exactly like the direct causative *-tua*:

(218) a. Kaaro-m hiva si vu-vu'uria. Kiali'ikun **vato'o-raa-ta** kaa lauti  
 car-PL always very RED-multiply that.is.why in.baptism-AVRZ-ACC NEG early

**yahi-tevo-k / yahi-tua-k**

arrive(PL.SUBJ)CAUS.INDIR-PERF / arrive(PL.SUBJ)-CAUS.DIR-PERF

'There is always a lot of traffic. That caused people to arrive late' ('Como había muchos coches, se hizo llegar tarde (a la gente)')

- **Passive interpretation with *ne'e* 'fly' ('volar')**: Some intransitives within the scope of *-tevo* (eg. *ne'e* 'fly') both (i) allow an overt Causee and (ii) receive a passive interpretation. The facts are shown in (22).

(219) a. Uu uusi **am**=ni'i-**tua-k**  
 DET child 3PL=fly-CAUS.DIR-PERF  
 'The child made them fly' ('El niño los hizo volar')

THE USUAL STRUCTURE: *-tua* +  
 intransitive + accusative

b. Uu uusi **wikichi-m** ni'i-**tevo-k**  
 DET child bird-PL fly-CAUS.INDIR-PERF  
 'The child **had the birds fly?**' ('El niño mandó que volara el pájaro')

THE PUZZLING STRUCTURE: *-tevo* +  
 intransitive + ... accusative Causee?

c. Wikichi-m ni'i-**tevo-k**  
 bird-PL fly-CAUS.INDIR-PERF  
 'The birds were allowed to fly' ('Dejaron volar a los pájaros')

**PUZZLING!** *-tevo* + passive interpretation (but no passive morpheme *-wa*) -- again, like there is an implicit Causee

- Tentative solution? The accusative arguments appearing in *-tevo* + intransitive sentences such as (22b,c) are generated as internal arguments within the domain of the intransitive verb, rather than as real Causees (i.e., in the Spec position of vP, which, we claim, is absent within the domain of *-tevo*). (This would unify these *ne'e* cases and the *yepsa/yevih-/yaha-* cases above, assuming *yepsa*, 'arrive', is unaccusative.) Findings on the interaction between intransitive suppletive verbs and the applicative morpheme *-ria*, in Harley et al. (2006), provide further support regarding this possibility

- Onwards! To the interaction of causatives and applicatives, and the motivation of Pylkkanen's (2002) VoiceP+vP+VP architecture!

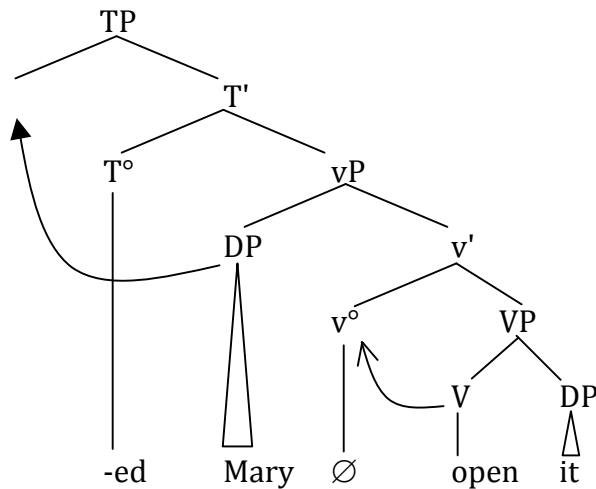


### 8.3 Applicatives, causatives and the Mirror Principle: vP-external subjects and Voice

#### 8.3.1 Introduction

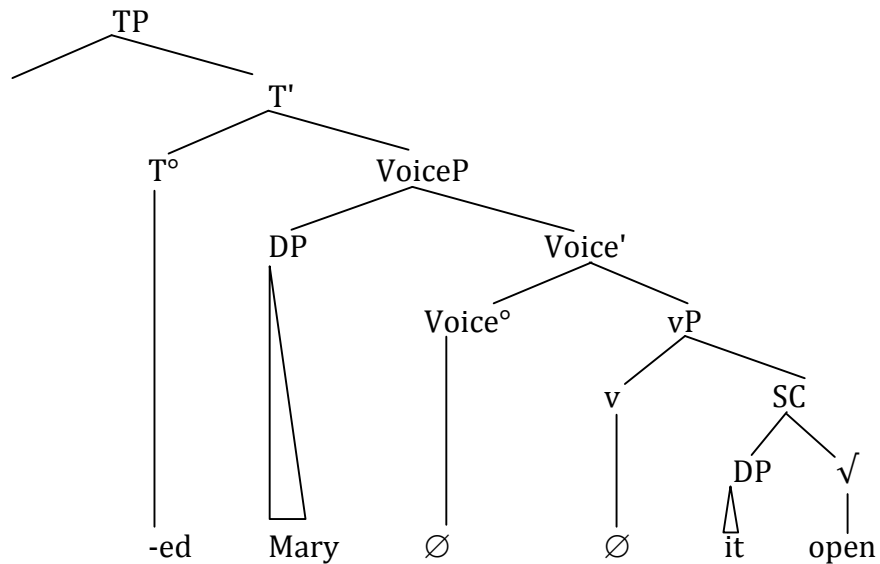
→ Following work by Hale and Keyser (1993), Chomsky (1995) and Kratzer (1994, 1996), and following groundwork laid by Larson (1988), the VP came to have two parts, an upper external-argument selecting part, and a lower, internal-argument selecting part: vP and VP.

(220)



→ I have thought it was possible to get away with just this much VP decomposition (assuming certain modifications to do with the category of the VP constituent)

→ In this talk, however, I present evidence that more structure is needed, namely, at least a VoiceP on top of an external-argument-less vP:



### Structure of talk:

- Review McGinnis's and Pylkkanen's analysis for applicative structures within the split-vP, showing how it provides strong evidence for the split-vP proposal.
- Introduce Hiaki verbal morphology and syntax, including lexical causatives, productive causatives and applicatives
- Show how interaction of productive causatives and applicatives argues for structure in 0, including VoiceP. The key argument for the separation of Voice and v is a minor variation on the argument presented by Pylkkänen 2002: 122-125.
- Salient point: the causative v<sup>o</sup> head does *not* introduce the overt external argument in Hiaki causatives. Rather, the external argument must be introduced by a Voice<sup>o</sup> head which selects for the causative vP
- Introduce Hiaki indirect causatives and show how VoiceP is nice for them too.
- Skip over similar argument from English nominalizations due to Borer (2005)
- Discuss consequences for base-generation of external arguments, stacking passive morphology, unaccusatives, etc.

### 8.3.2 McGinnis (2001 et seq.), Pylkkanen (2002): Applicatives and the split VP

→ One major benefit of the split-vP, in a morphologically decompositional syntax, is an appropriate spot to put the applicative morpheme and its argument, in languages which have applicatives (Pylkkanen 2002).

→ Applicatives introduce an additional benefactee or malefactee argument to a clause

→ Very productive, morphologically overt in many languages. Canonical examples include Chichewa and Kinyarwanda; Hiaki (Yaqui) also has a productive applicative morpheme: <sup>13</sup>

(221)       Voocha-m    woita  
          shoe-pl    untie  
          "Untie the shoes"

(222)       Usi-ta        voocha-m    woita-ria  
          Child-acc   shoe-pl    untie-appl  
          "Untie the shoes for the child!"

(223)       Inepo Hose-ta       livrom       hinu-ria-k  
          I     Jose-acc book   bought-appl-prf  
          "I bought Jose a book"

---

<sup>13</sup> Aside for the applicatively inclined: The fact that the Hiaki applicative *-ria* can attach to unergative verbs as in (225) means that it is a 'high' applicative in Pylkkanen (2002)'s terms. Indeed, Harley, Haugen and Tubino (2006) show that it cannot attach to unaccusative verbs, suggesting it selects for an agentive vP complement. The fact that the Hiaki applicative is strongly asymmetric in its interaction with the passive and the other arguments of the clause, however, is evidence that it is not a phase head, in McGinnis' (2001, 2003) approach to symmetric applicatives. This suggests that the high/low applicative distinction does not necessarily correlate with the symmetric/asymmetric distinction, contra the proposal of McGinnis (2001).

(224) Inepo Hose-ta pueta-ta eta-ria-k  
 I Jose-acc door-acc close-appl-prf  
 "I closed the door for Jose"

(225) U'u maaso uusi-m yi'i-ria-k  
 The deer.dancer the children-pl dance-appl-prf  
 "The deer dancer danced for the children"

→ Salient features of the Hiaki applicative:

- (I) Introduces a new argument into sentence
- (II) New argument is a syntactic object (with *-ta* accusative suffix in e.g. (224))
- (III) New argument is c-commanded by subject, c-commands all internal arguments (Rude 1996)

→ Proving (III):

→ When coreferential with the matrix subject, the applied argument must be reflexive:

(226) Aapo tu'i mo'ove-ta au= hinu-ria-k  
 He good hat-acc 3.refl=bought  
 "He bought himself a good hat."

Dedrick & Casad 1999:343 [17]

→ When the external argument is suppressed (impersonal) passive suffix, the applied argument, not the internal argument, becomes the new nominative subject argument:

(227) Hose maso-ta me'a-k  
 Jose deer-acc kill-prf  
 "Jose killed the deer"

(228) Maaso me'e-wa-k  
 Deer kill-pass-prf  
 "The deer was killed"

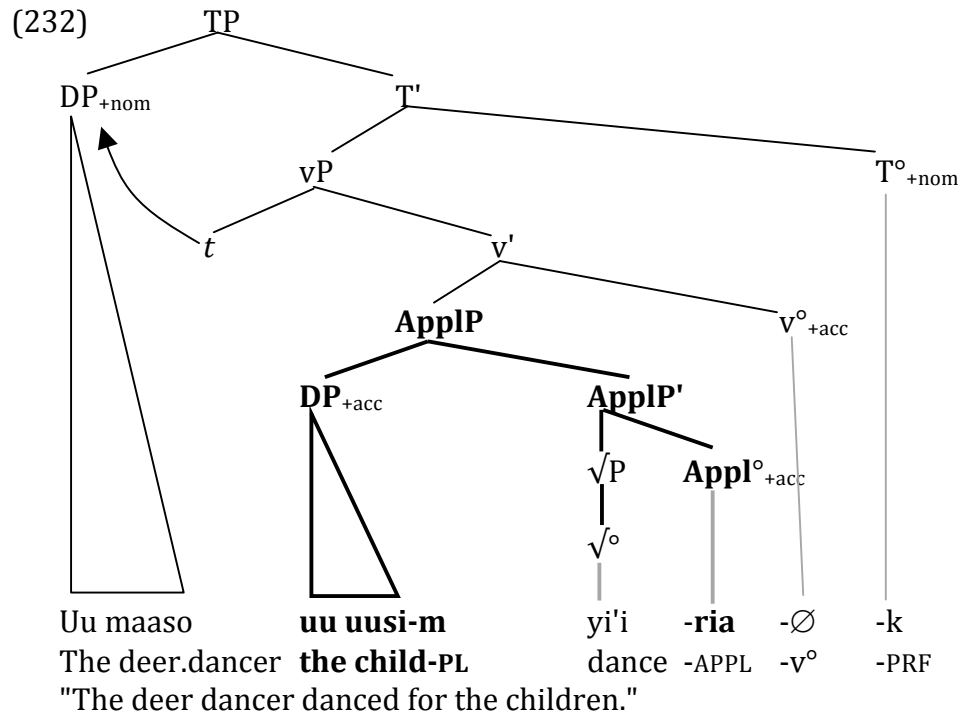
(229) Hose Maria-ta maso-ta me'e-ria-k  
 Jose Maria-acc deer-acc kill-appl-prf  
 "Jose killed Maria's deer on her." ("Maria" is malefactive argument of *-ria*)

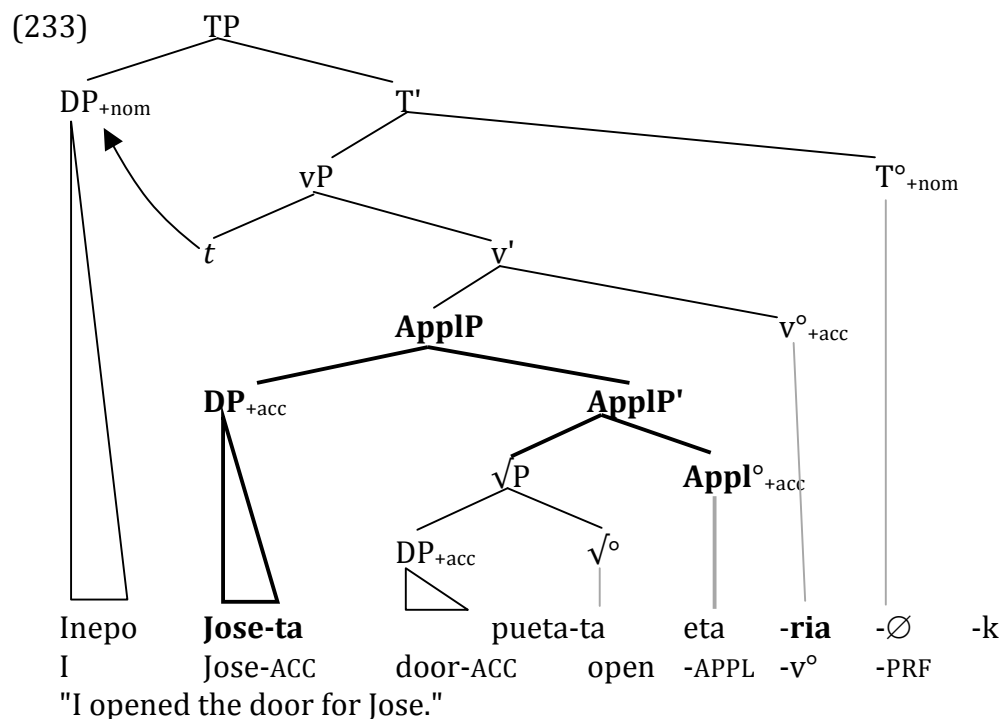
(230) Maria maso-ta me'e-ria-wa-k  
 Maria deer-acc kill-appl-pass-prf  
 "Maria had her deer killed on her"

(231) \*Maso Maria-ta me'e-ria-wa-k  
 deer Maria-acc kill-appl-pass-prf

→ So: Applied argument appears (structurally) between external argument and internal argument. It is introduced by the *-ria-* morpheme itself, presumably the head of an ApplP. Applied argument in Spec-AppIP.

→ Split-VP allows us to compose the V with the Appl<sup>o</sup> *-ria* **below** the v<sup>o</sup> and **above** the VP, thereby introducing the applied argument below the external argument and above the internal arguments, as required.





→ This is Pykkänen's argument for a split-VP (from applicatives with these same properties in other languages, not in Hiaki.)

### 8.3.3 Hiaki and the split-VP

→ *Bipartite verb morphology in Hiaki*: Hiaki exhibits a fair amount of morphological evidence, like that of Japanese, that some agentive verbs are made up of a root and a causative verbalizing head.

(234) Change-of-state predicates:

<u>Verb</u>	<u>Adj</u>	<u>Verb</u>	<u>Adj</u>
to redden	red	sikisi	siki
to fatten	fat	awia	awi
to soften	soft	bwalkote	bwalko
to sharpen	sharp	bwawite	bwawi
to warm	warm	sukawe	suka

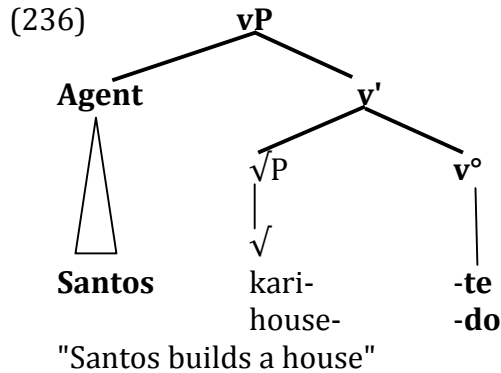
→ Agentive denominal unergative predicates:

(235)

<u>Noun</u>		<u>Verb</u>		
cho'oko	'salt'	cho'okote	'to salt'	
heewi	'yes!'	hewite	'to agree'	
hiosia	'paper'	hiohte	'to write'	(s→h/ _C)
haawa	'steam'	hawassate	'to steam'	

hipetam	'mat, bed'	hipette	'to weave, make a mat'
kari	'house'	karite	'build a house'

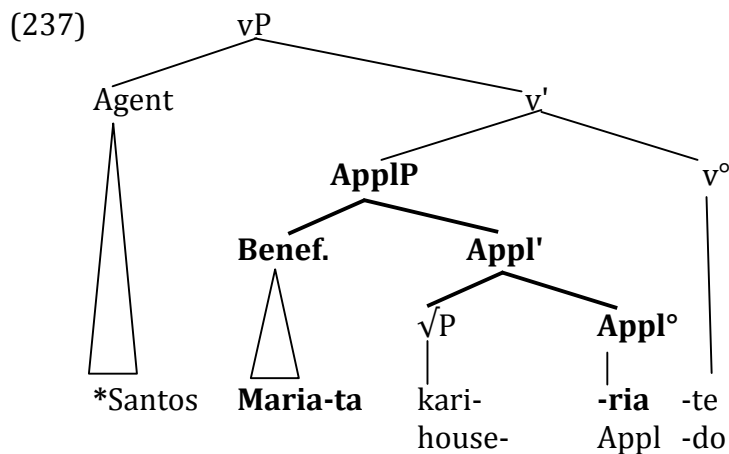
→ Bipartite verb structure copes with these morphological divisions very nicely: the *-te* in things like *kari-te* 'house-do', for example, could be analyzed as heading the external-argument-introducing  $v^{\circ}$ , as in Japanese, above:



→ Now, consider the morpheme-order prediction made by the split-VP analysis of applicatives, above.

→ The applicative head *-ria* introduces an applied object below the external Agent argument, between  $v^{\circ}$  and  $\sqrt{\phantom{x}}$ .

→ If *-ria* obeys the Mirror Principle prediction, then, it should fit linearly in between *kari-* and *-te*, as in the following structure:



→ This morpheme order is *impossible*, though.

→ The applicative morpheme must *follow* the purported  $v^{\circ}$  morpheme!

(238) Santos Maria-ta      kari-te-ria      (> Santos kari-te)  
 Santos Maria-acc      house-v°-appl      Santos house-v°  
 "Santos is building a house for Maria."      "Santos is building a house"

→ Hmm! Possible conclusion: apparent v° morphology like *-te* isn't actually v°, though it may historically have been; has become reanalyzed as part of root (hence 'lexical'). Actual v° is morphologically null, and still 'follows' the Appl° head.

→ Not a viable solution for the next set of data: the interaction of productive causatives and applicatives in Hiaki.

### 8.3.4 Splitting the vP: Voice, causatives and applicatives

#### *Causatives*

→ Besides having a productive applicative construction, Hiaki has a beautifully productive affixal causative for expressing garden-variety causation:

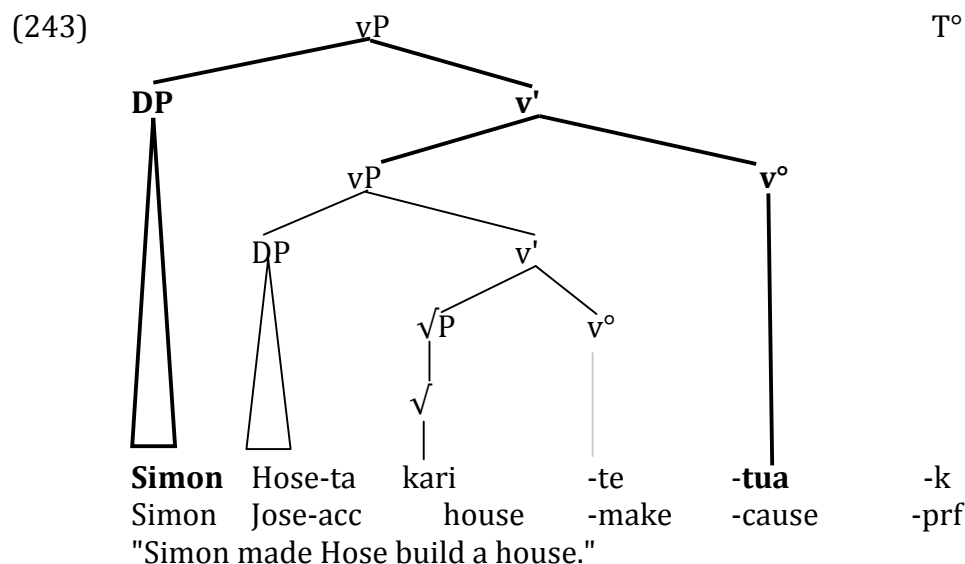
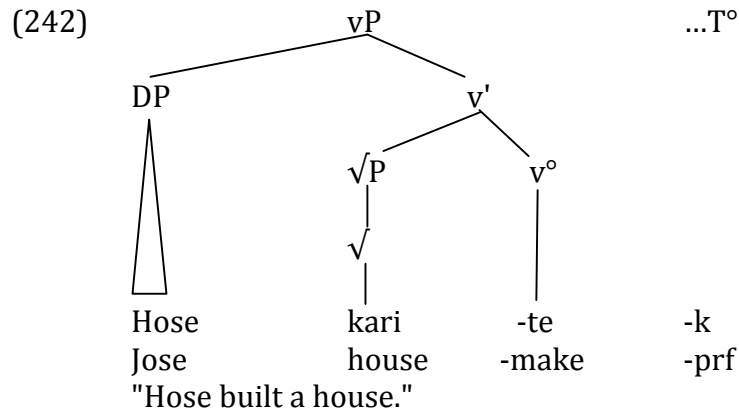
(239)      Art    Heidi-ta      utte'a-po      hipaksia-tua-k  
           "Art    Heidi-acc      strength-in      do.laundry-caus-prf  
           "Art made Heidi do laundry against her will."

(240)      Simon Hose-ta      kari-te-tua  
           Simon Jose-acc      house-vrb-caus  
           "Simon is making Jose build a house."

(241)      Uu maroma    ume yoeme-m      kari-ta      ho'o-'oota-ka-m-ta  
           The foreman    the man-pl      house-acc      back-bone-ppl-s.rel-acc  
  
           hoo-tua-taite  
           make-cause-start  
           "The foreman is making the men start to build a house with a peaked roof"  
           (Lit: "...a house that has a backbone.")

→ In line with a great deal of research on affixal causatives cross-linguistically (Harley 1995, Kural 1995, Travis 2000, Svenonius 2005, among many others), I analyze the affixal causative morpheme as an iteration of vP

→ The causative vP adds an external argument (the Causer) to the syntax and a causative morpheme to the verb. The former external argument (the Causee) becomes the highest internal accusative argument, getting accusative case via ECM from the causative v°



→ Categorizing the causative morpheme as another  $v^\circ$  is motivated by both semantic and morphological factors:

- (i) The causative morpheme means something like 'cause', and for change of state predicates (*John opened the door* etc.) that's supposed to be the meaning of the  $v^\circ$  that introduces the external argument
- (ii) For some languages, certain regular external-argument-introducing  $v^\circ$ s are actually morphologically realized as 'lexicalized' versions of the causative morpheme: Japanese and also Hiaki have certain verbs like this:

(244) Mala pale-ta aman vittua-la diachronically: vit-tua  
 Mother young.boy-acc there send-compl see-cause  
 "Mother sent the young boy there"

(245) Itepo am hiapsi-tua-ne  
 we them heart-caus-fut  
 "We will feed them/care for them/give them strength."  
 (lit: "cause them to have heart")



- Also in Molina et al. dictionary: *alleatua*, 'amuse', *asoatua*, 'to birth', *asukatua*, 'sweeten', *chihtua*, 'nurse (tr.)', *eetua*, 'bother, annoy', *hioptua*, 'confuse', *mahatua*, 'frighten', *na'atua* 'tell on sb.', *puhtua*, 'give sb. the evil eye'...
- In these cases, *-tua* has been lexicalized as the external-argument-introducing morpheme for a verb like *send* (as for *clar-ify* in English)—the structure is no different from that of a basic verb.
- There are several similar examples in Japanese, where a lexical causative is formed with the default 'syntactic' causative morpheme, *-sase* (Miyagawa 1984, 1998))
- This is just motivation for arguing that the vP in a regular lexical causative verb and the vP headed by the productive causative morpheme have something in common, namely their default realization as *-tua*; ergo they're both v°s...
  
- Crucially, though, the productive causative morpheme vP can also *not* be part of the verb's lexical entry—it's *productive*, applying to essentially any verb, including novel and borrowed ones...

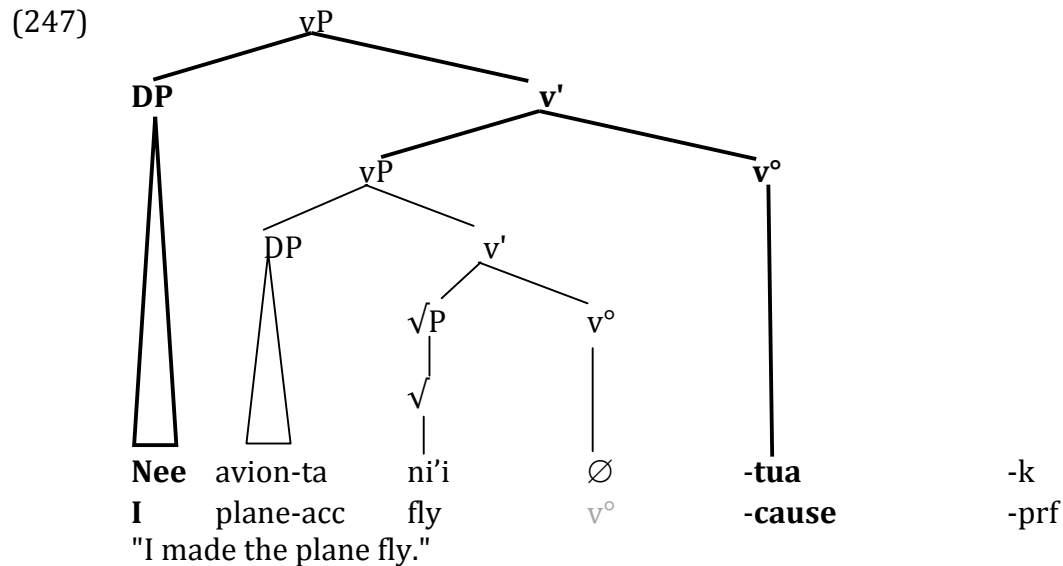
→ No way to claim that it's lexicalized/reanalyzed as part of the verb stem!

### 8.3.5 Causatives WITH applicatives

- So: Causative morphemes introduce a new external argument
- Benefactive morphemes introduce a new internal argument, between the external argument and the verb—crucially, c-commanded by the external argument.
- How do they interact?

→ Example of a causative sentence:

- (246) a.   Uu avion       ne'e-k  
           The plane    fly-prf  
           "The plane flew"
- b.   Nee   uka avion-ta       ni'i-tua-k  
           I     the.acc plane-acc   fly-caus-prf  
           "I made the (model) airplane fly."



→ What if I wanted to say, "I made the model plane fly for the child" — make a benefactive out of this causative sentence?

→ Introduced applicative argument ('the child') appears below the external argument— hence should be below 'I'

→ Morpheme order should mirror syntactic structure, so if the applicative argument is below the causer argument, the applicative morpheme should definitely be inside the causative morpheme.

→ But it's not:

(248) Nee ili usi-ta avion-ta ni'i-tua-ria-k  
 I little child plane-acc fly-caus-appl-prf  
 "I made the (model) plane fly for the child."

→ Morpheme order is telling us that the *-ria* phrase is above the *-tua* phrase

→ Argument hierarchy tests are telling us that the argument of *-tua* is above the argument of *-ria*

→ Causer c-commands benefactee

→ Note: This is *not* a causative of a benefactive of *fly*. A direct benefactive of the embedded clause here, "the plane flew" is impossible, because planes are not intentional— intentionality is necessary to license benefactive:

(249) #Uu avion ili usi-ta ni'i-ria-k  
 The plane little child-acc fly-appl-prf  
 "The plane flew for the child."

→ Crucially, causatives of benefactives *are* possible, with the opposite morpheme order, when the semantics are right. This scopally-motivated reordering is impossible in other languages with both kinds of suffixes (Hyman 2003, Buell and Sy 2004)

(250) Nee ili usi-ta mala-ta aa tu'ute-ria-tua-k  
 I little child-acc mother-acc it clean-appl-caus-prf  
 "I made the child clean it for mother."

→ Here we have a benefactive sentence — 'The child cleaned it for mother' which is causativized (I made [the child clean it for mother]). The morpheme order reflects this derivational history. The argument order does not.

### 8.3.6 Analytical options

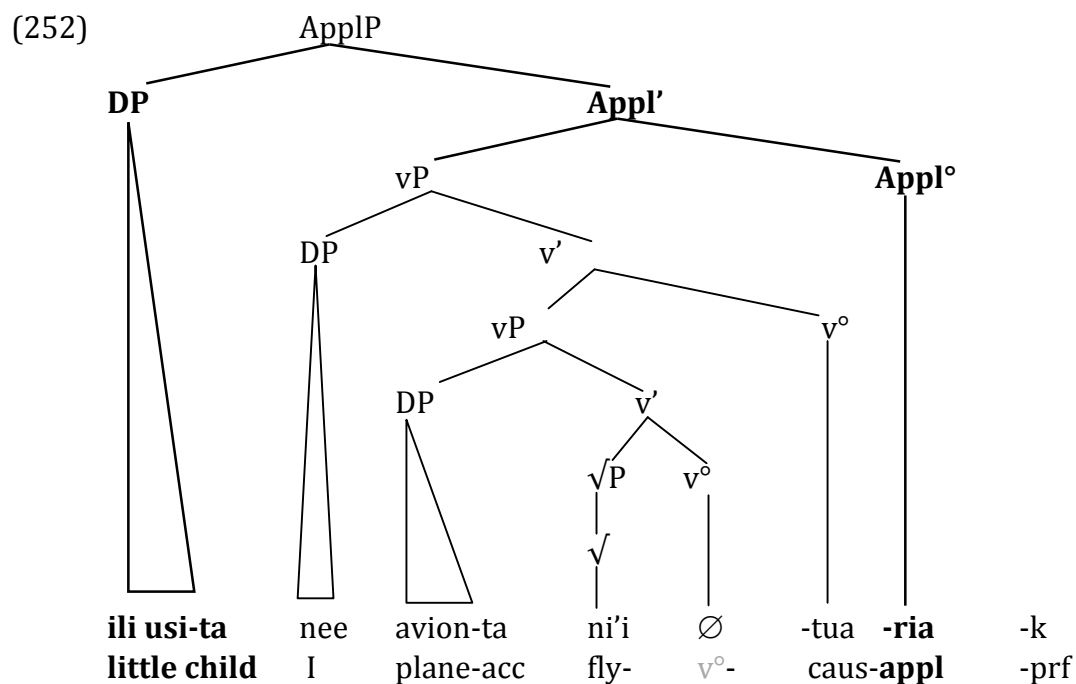
*A: Morpheme order = syntactic structure, syntax messy*

**Option A:** Morpheme order reflects 'true' syntactic structure, Benefactee generated above Causer, Causer moves around/across benefactee to Spec-TP subject position

→ Applicative of causative example again:

(251) Nee ili usi-ta avion-ta ni'i-tua-ria-k  
 I little child plane-acc fly-caus-appl-prf  
 "I made the plane fly for the child."

→ If external argument is selected by *-tua*, 'cause', and benefactive argument is selected by *-ria*, 'appl', then underlying structure is like this:



→ Would have to be transformed into actual clause structure by movement of *nee*, 'I', to spec-TP, *across* the applied argument *ili uusita*, 'litte chid'.

→ Problems:

Minimality violation: Why is Causer able to move across Benefactee?

(can't be because Benefactee is inert/has inherent case—in passive, Benefactee gets nominative )

Actually can causativize applicative clauses with different scope—in that case, order appl-cause gives a higher Causee than Benefactee. Analysis would require Causee to move around Benefactee for accusative ECM from the causative morpheme, as here Causer moves around B. for nominative.

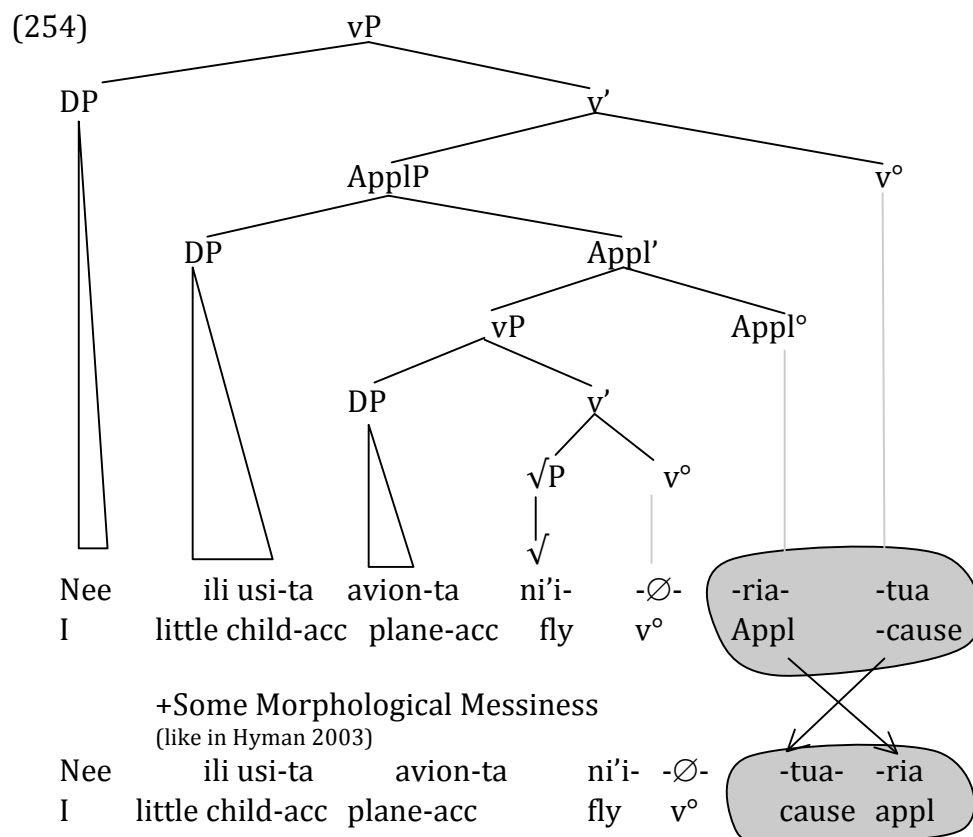
Lose argument from applicatives for separating external argument from verb (since applicative argument would be base-generated outside external argument.)

→ Recall: in impersonal passive of this same sentence, the Benefactee gets nominative case, and the Causer may not appear, showing that the Benefactee is not inert for A-mvt and does not bear an inherent case

(253)      Ili uusi          avion-ta          ni'i-tua-ria-wa-k  
              little child    plane-acc      fly-caus-appl-imp-prf  
              "They/Someone made the plane fly for the little child."  
              [Closest translation, structurally speaking:  
              "The little child was flown the plane (by someone)."]

*B: Argument c-command structure =syntactic structure, morphology messy.*

**Option B:**    Argument hierarchy reflects 'true' syntactic structure, Benefactee generated below Causer, benefactive morpheme generated inside causative morpheme. Idiosyncratic templatic restrictions cause the order *-ria-tua* to be rewritten as *-tua-ria*.  
(cf. Hyman 2003)



→ Problems:

Order *-ria-tua* is fine when *-ria* is an applicative of the embedded verb—  
 templatic restrictions would have to take into account scope of *-ria*  
 No evidence for a morphemic template from elsewhere in the lg—all the  
 verbal derivational affixes are beautifully productive w/r to each other  
 based only on semantic and syntactic restrictions...

→ Morphological messiness would have to be sensitive to scope of *-ria*, since, as noted  
 above, *-ria-tua* is a well-formed sequence—it's fine as a causative of an applicative:

(255) Nee ili usi-ta mala-ta aa tu'ute-ria-tua-k  
 I little child-acc mother-acc it clean-appl-caus-prf  
 "I made the child clean it for mother."

→ Plus it just seems wrong: the first is an applicative of a causative, the second a causative  
 of an applicative; surely one would want the fact that the morpheme order reflects  
 this to fall out of the analysis, not be an ugly kluge.

*Option C: Lexicalism*

**Option C:** Presyntactic word formation. These forms are derived in the lexicon.  
 Applying a benefactive to a causative augments the theta-grid of the verb in the lexicon  
 with a Benefactee/Goal argument; general linking rule principles predict that when the

complex verb is projected to the syntax, the Causer argument will be projected to the highest position, the Benefactee to the next-highest position.

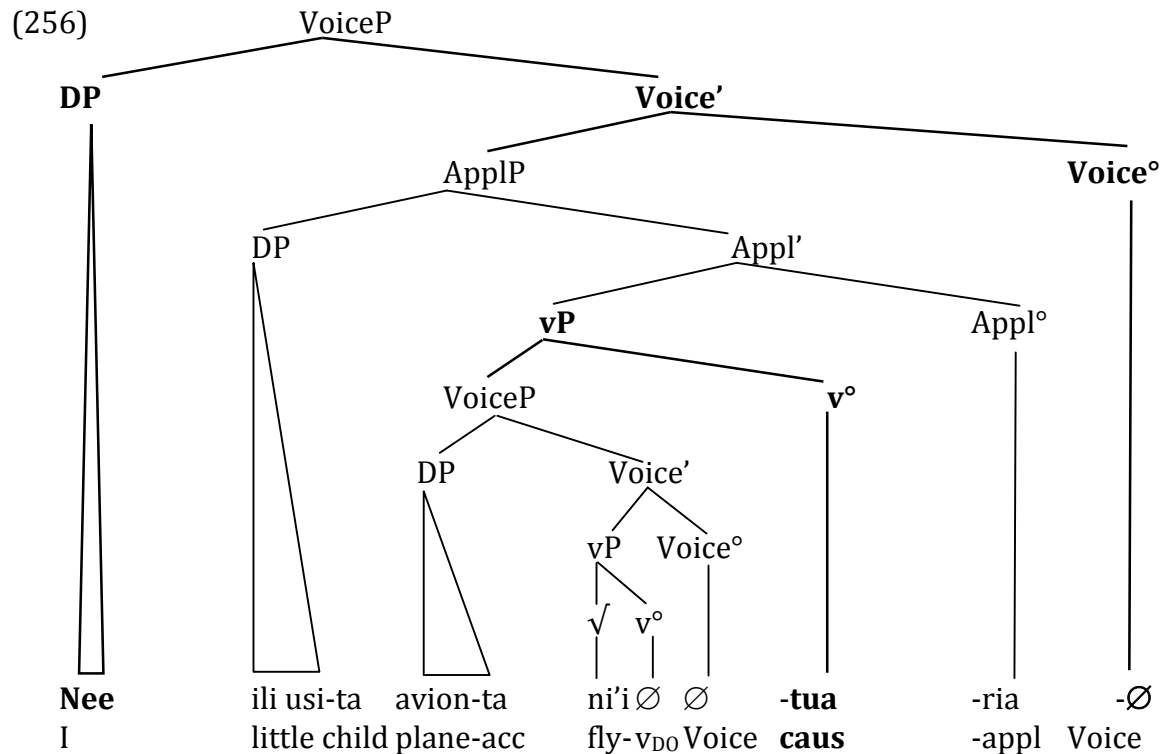
--Problems:

Theoretical: Building words in the syntax has been an attractive and useful idea, I'm not ready to give up on it.

Empirical: Question about how to cope with relative position of Benefactee and embedded Causee. Linking rules should predict the embedded Causee should be higher than the Benefactee too. Brackets in theta-grid?

*Option D: Splitting vP: Voice for external argument, v° for Cause, ApplP and Benefactee in between:*

**Option D:** The external argument is not introduced by the causative morpheme at all, but by a higher Voice morpheme. The causative morpheme just introduces the idea of causation—it does the semantic and morphological job, but not the syntactic one



→ Note the extra 'Voice' head in the embedded vP as well—given the morpheme order between applicatives and lexical causatives like *karite*, 'build.house' and *vittua* 'send', embedded external arguments are also introduced by Voice° rather than by v°.

→ Problem: Embedded Causers but no embedded passive Voice morphology allowed?. But: *-tevo!*

→ Very much like Hale and Keyser's description of their original idea: the external argument just gets inserted for 'free', in a way completely thematically unrelated to embedded argument structure (though not what they would have wanted morphologically)

### 8.3.7 Another morphological reason for splitting vP and VoiceP: Indirect causatives

→ Besides the *-tua* 'direct' causative, where the Causee must be expressed (like Romance *faire infinitif*), Hiaki also has a productive 'indirect' causative, *-tevo* (like Romance *faire par*), where the Causee is necessarily suppressed; the embedded verb gets a 'passive' or 'impersonal' reading (without any passive or impersonal voice morphology)

(257) Inepo Santoh-ta hitto-tevo-k  
 I Santos-acc medical.care-caus.indir-prf  
 "I had Santos treated (by sb.)"

→ In these *-tevo* cases, when you passivize, the embedded object becomes the derived subject, showing that the Causer is truly syntactically absent:

(258) Santos hitto-tevo-wa-k  
 Santos medical.care-caus.indir-pass-prf  
 "(Somebody) got (somebody) to treat Santos" (lit, "Santos was gotten to be treated.")

→ This can naturally be accounted for if *-tevo* selects a constituent as a complement which does not contain the external-argument-selecting head (see, e.g. Folli and Harley (2005)'s treatment of *faire par* causatives, or Ramchand (2006) on Hindi indirect causatives).

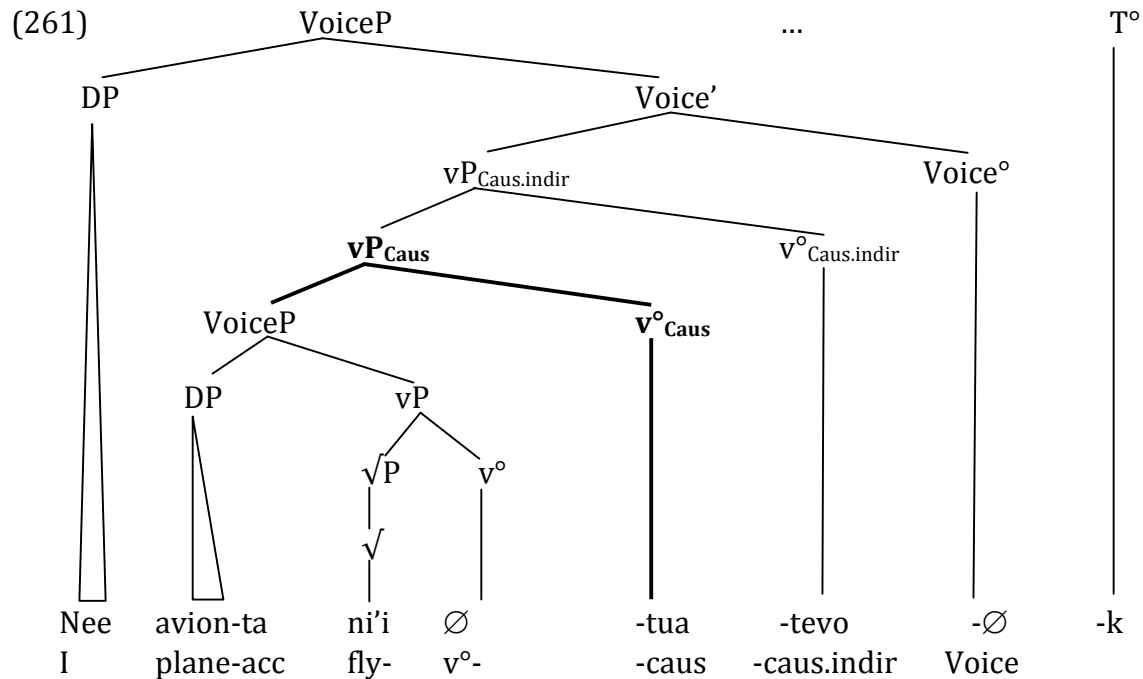
→ However, *-tevo* is able to attach to a constituent which contains causative  $v^\circ$  morphology, even though the Causee (associated with that causative morphology) is not present<sup>14</sup>

(259) 'Lexical'  $v^\circ$  morphology  
 Nee Santoh-ta-u hiohteita vittua-tevo-k  
 I Santos-acc-to letter-acc send-caus.indir-prf  
 "I had a letter sent to Santos." (implied: by somebody)

(260) Productive causative morphology, causative argument suppressed by *tevo*  
 Nee uka avion-ta ni'i-tua-tevo-k  
 I the plane-acc fly-caus-caus.indir-k  
 "I had (somebody) fly the plane."

<sup>14</sup> Recall, *vit-tua*, 'send', is made up of root *vit-* 'see' plus *-tua* 'cause'; we assume the *-tua* is a realization of  $v^\circ$  morphology.

→ Causative morphology can thus be present without introducing a Causee. This is natural if vP can be present without VoiceP. This will result in the desired 'passive' reading for the embedded clause, expressing an externally caused event but without specifying who/what caused it. The structure is given below:



- So the verbal morphology is built up, with internal argument additions if necessary, before any external argument is introduced.
- Note that this entails that the difference between 'lexical' and 'syntactic' affixal causatives is actually not about presence or absence of an extra vP between the causative v° and the rest of the verb, but rather presence or absence of an intervening VoiceP between the causative v° and the rest of the verb.

**Another morphological reason for splitting vP and VoiceP:  
 English nominalizations (Borer 2003)**

→ English event nominalizations do not contain a true external argument (Chomsky 1970, Marantz 1997, Harley and Noyer 2000):

- (262)
- a. John grew tomatoes
  - b. #John's growth of tomatoes
  - c. The television amused the children.
  - d. #The television's amusement of the children
  - e. Adultery separated Jim and Tammy Faye Bakker.
  - f. #Adultery's separation of Jim and Tammy Faye Bakker





- b. Ume yoeme(m) hi'ibwa-tua-wa  
 The.pl man-(pl) eat-caus-pass  
 "The men are being fed"

→ Note as well of course that passive *-wa* or *-rare* applies to 'lexical' causatives in both Hiaki and Japanese without affecting their overt  $v^o$  morphology:

- (267) Aman kari-te-wa (Hiaki)  
 There house- $v^o$ -pass  
 "Houses are being built there."

→ Note also that on this view, passive doesn't have to be connected to any particular semantics associated with various 'flavors' of  $v^o$ : External arguments need not be Agents; passivized verbs need not be agentive (Voice captures Williams' generalization as discussed by Collins 2005).

- (268) a. John was seen (by Mary).  
 b. Sue was loved (by John)

→ Merchant (2007) comes to very similar conclusions based on grammaticality of VP-ellipsis with Voice mismatch in antecedent and elided VP; conclusion is that VoiceP is not elided; rather its complement is. On the present account, the complement of VoiceP is identical in active and passive (at least in Japanese and Hiaki), hence one can be a good antecedent for the other.

- (269) a. The janitor must remove the trash whenever it is apparent that it should be.  
 b. The system can be used by anyone who wants to.

(Merchant 2007:3)

→ Note that on Collins (2005) and Merchant (2007)'s  $vP$ +VoiceP approach, the external argument is generated in spec- $vP$ , and moves up to an empty spec-VoiceP. This can't be the case, given these Hiaki data: The external argument has to be base-generated higher than the benefactee, which (according to the morpheme order) is base-generated outside the  $vP$ . Pylkkanen's approach, where the head introducing causation and the one introducing external arguments are independent, has to be closer to right.

### 8.3.9 VoiceP, passives and unaccusatives

→ Clear (because of applicatives) that overt external argument can't be base-generated in spec- $vP$ .

→ In transitives, however,  $vP$  introduces causative/transitive semantics, including a variable for the external argument which is bound by the DP introduced in spec-VoiceP

→ This variable, I assume, is covert, not syntactically present, and is bound by the DP in spec-VoiceP via what Wurmbrand (2000) calls 'semantic control', since exhaustive. (See Wurmbrand for tests distinguishing syntactic control of a syntactically present null element like PRO and semantic control, established only at LF via variable binding.) This 'semantic control' approach to active transitives also avoids potential locality problems associated with having a null DP present in spec-vP.<sup>15</sup>

→ Active Voice requires External Merge of a DP; assuming external Merge is a feature-checking operation, along the lines of Adger (2003), active Voice must have an external-Merge-triggering feature.

→ Non-active Voice would then be cases where the Voice head refuses External Merge of an external argument—relevant features absent.

→ Passive interpretation follows when the variable introduced by the vP is existentially bound—causative/transitive meaning present (thanks to vP) but no DP to bind the variable.

→ Internal argument moves out of VoiceP to subject position. If VoiceP is a phase, it must do so via Spec-VoiceP—passive VoiceP must have an EPP feature to trigger internal Merge. The difference between active and passive Voice would then be the difference between internal and external Merge features.

→ What happens in an unaccusative? In Hiaki and Japanese, (and English) Voice is Active, yet (by the usual hypothesis) no external argument is Merged.

(270) Yoemem      aman    koko-k  
          People      there   die.pl-prf  
          "People died there"

→ The usual hypothesis, then, entails that in unaccusatives, the external Merge features of Voice must be absent. Again, by the usual hypothesis, the internal argument is promoted, so the internal-Merge triggering EPP feature must be present. That is, on the usual hypothesis, we cannot distinguish between unaccusative Voice and passive Voice.

→ In some languages, or for some subset of unaccusatives in some languages, it's not desirable to distinguish—both unaccusative and passive Voice are realized by the same 'non-active' Voice morphology (see Kalluli on Albanian, e.g.)

→ In Hiaki and Japanese (and English) however, unaccusatives take a clearly active Voice, not passive Voice

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<sup>15</sup> Thought: How can we ensure that the variable must be bound by whatever is in spec-VoiceP, or get existentially bound if Voice is Passive, even when there's a closer potential binder sitting in Spec-AppIP in an applicative?

→ Possibility A: Passive Voice morphology in these languages is sensitive to the features of  $v^\circ$  as well as of Voice—inserted only when Voice has internal Merge feature *and*  $v^\circ$  has the causative/external-argument-taking semantics. Active Voice morphology is the default, applying elsewhere—when Voice has an external Merge feature and also when it has the EPP feature but the  $v^\circ$  is inchoative  $v^\circ_{\text{BECOME}}$ .

→ Possibility B: VoiceP is absent in unaccusatives in these languages. (This will pose no morphological problems, since  $vP$  will still be there).

→ Possibility C, maybe the most interesting one: VoiceP is there, but the usual hypothesis about unaccusativity is wrong. Unaccusative arguments are base-generated in spec-VoiceP like active transitive arguments.

→ Note that in Hiaki, there is such a thing as a passive of an unaccusative:

(271) Aman koko-wa-k  
There die.pl-pass-prf  
“People died there/It was died there (by people)”

→ This would seem to suggest that in active unaccusatives in Hiaki, the usual process of external Merge of a DP argument in spec-VoiceP occurs, which can be prevented in the usual way by an impersonal passive Voice.

→ What about the internal argument, the argument of the downstairs  $\sqrt{\quad}$ ?

→ Perhaps this takes us back to an account of unaccusativity in which a null DP (behaving like a bound variable) is merged in object position and bound by the externally-Merged DP in spec-VoiceP in active unaccusatives—that is, back to a treatment in which active unaccusatives are reflexive.

→ The difference between this kind of active-voice reflexive unaccusative and regular transitive reflexives in this case would reside in differences in  $v^\circ$  semantics—the difference between (272)a and b would simply be that in (a),  $v^\circ$  is inchoative and in (b),  $v^\circ$  is causative. In the latter, the external argument in VoiceP semantically controls the Agent variable introduced by  $v_{\text{CAUS}}$  as well as binding the object DP, while in the former, the external argument in VoiceP simply binds the object DP; no semantic control is established because the  $v^\circ$  doesn't introduce a variable.

(272) a. Jean s'-est evanoui.  
John SE-is fainted  
"John fainted."

b. Jean s'-est tué.  
John SE-is killed.  
"John killed himself."

→ If possibility C is correct for some cases, suggests that there are different kinds of unaccusativity cross-linguistically—possibility A for some. Also different kinds of passives — stacking vs. participle-forming, e.g.

	Voice	v°	√
Transitives	Active, Spec filled by external Merge	introduces variable bound via semantic control from spec-VoiceP	selects object DP
Unaccusative A1 ('external reflexive' - Romance; McGinnis 1997)	Active, Spec filled by external Merge	no variable	selects object DP coindexed with DP in spec-Voice. One of these is realized as reflexive (external); obj DP becomes subject.
Unaccusative A2 (active - English, Hiaki)	Active, Spec filled by external merge	no variable	selects null object DP, coindexed with spec-VoiceP
Unaccusative B (Albanian, Greek)	Nonactive, spec-VoiceP empty	no variable	object DP ultimately becomes subject
Passive	Nonactive, spec-VoiceP empty	variable bound by existential closure	object DP undergoes internal Merge, ultimately becomes subject

→ Consistent with priming data from English and Spanish that suggests that English passives but not unaccusatives prime a trace-type representation in object position, while Spanish passives and (reflexive) unaccusatives both prime such a representation (Sanz and Bever 1997).

## Conclusions

→ Head containing causative morphology and semantics (vP) is independent of external-argument-introducing head (VoiceP).

\*\*\*\*\* Reprise of earlier paper on causative morphology: The correct structures! \*\*\*\*\*

→ **The interaction between *-tua* and *-tevo*** It is possible in Hiaki for both causative verbs *-tua* and *-tevo* to appear together in the same sentence. If this is the case, the syntax of the indirect causative *-tevo* suppresses the Causer argument of *-tua*. The contrast is shown in (19) and the analysis is shown in (20).

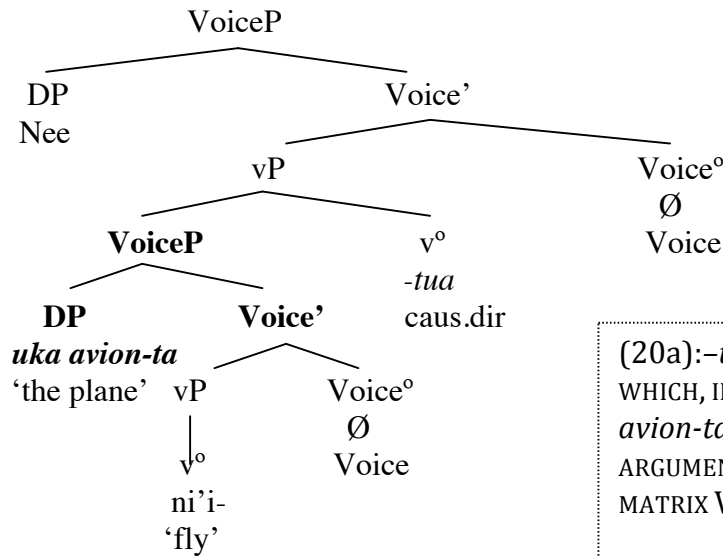
(273) a. Nee uka avion-ta ni'i-tua  
 1SG DET plane-ACC fly-CAUS.DIR  
 'I'm making the plane fly' ('Estoy haciendo volar al avión')

COMPARE WITH:

- b. Nee uka avion-ta ni'i-tua-tevo  
 1SG DET plane-ACC fly-CAUS.DIR-CAUS.INDIR  
 'I'm having (somebody) make the plane fly'  
 ('He mandado hacer que el avión vuele'<sup>16</sup>)

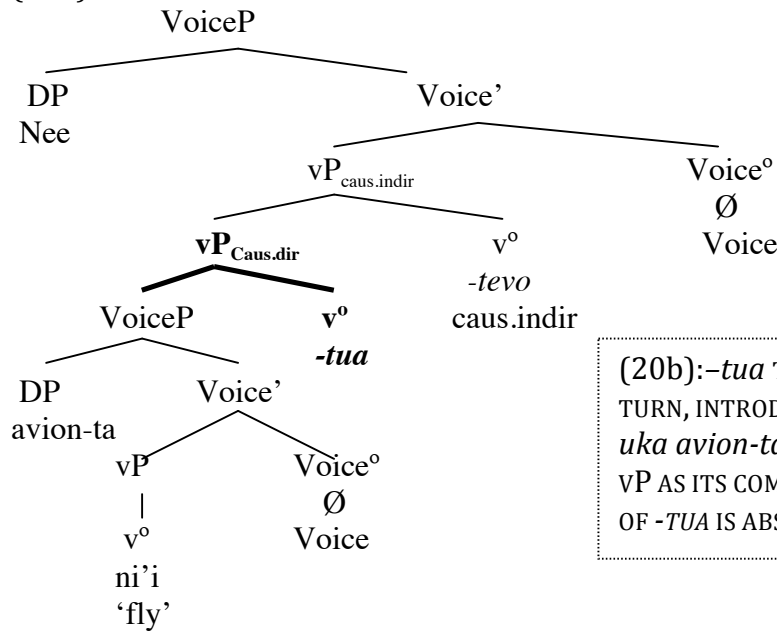
[Adapted from Harley (2007)]

(274) a. Nee uka avion-ta ni'i-tua



(20a): *-tua* TAKES A VoiceP AS ITS COMPLEMENT, WHICH, IN TURN, INTRODUCES THE CAUSEE *uka avion-ta* 'the plane'. IN ADDITION, THE EXTERNAL ARGUMENT OF *-tua* IS INTRODUCED BY A SEPARATE, MATRIX VOICEP.

(275) Nee uka avion-ta ni'i-tua-tevo



(20b): *-tua* TAKES VoiceP AS ITS COMPLEMENT, WHICH, IN TURN, INTRODUCES THE EMBEDDED EXTERNAL ARGUMENT *uka avion-ta* 'the plane'. HOWEVER, *-tevo* TAKES ONLY A VP AS ITS COMPLEMENT. HENCE, THE EXTERNAL ARGUMENT OF *-TUA* IS ABSENT FROM THE COMPLEX CLAUSE

<sup>16</sup> The infinitival version of this indirect causative is not possible to produce in MT's Spanish.

## 9. Take-Home Messages

- Significant theoretical improvement over baggage of lexicon, linking operations, theta roles, lexical conceptual structures, etc.
- Lexical semantic primitives like CAUSE, DO, Appl, etc. are composed with each other in the syntax
- They are responsible for the appearance or absence of external arguments and applicative arguments
- Gives good insight into the syntactic behavior of a range of phenomena in several languages
- No need for morphology and syntax to compete with each other to do the same job—they are treated by the same system
- Animacy effects, hierarchies of arguments, etc. can be treated well in this kind of a system
- Still lots of puzzles remaining!