Interpreting Roots

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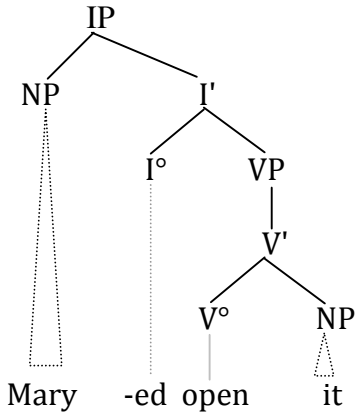
Heidi Harley, University of Arizona,
hharley@email.arizona.edu

1. Split-vPs: A quick review

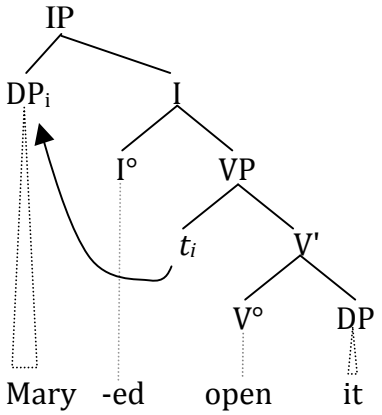
→ Not so long ago:

(1)



→ VP-internal subjects

(2)



→ Then: Hale and Keyser 1993, as adopted in Chomsky 1995:

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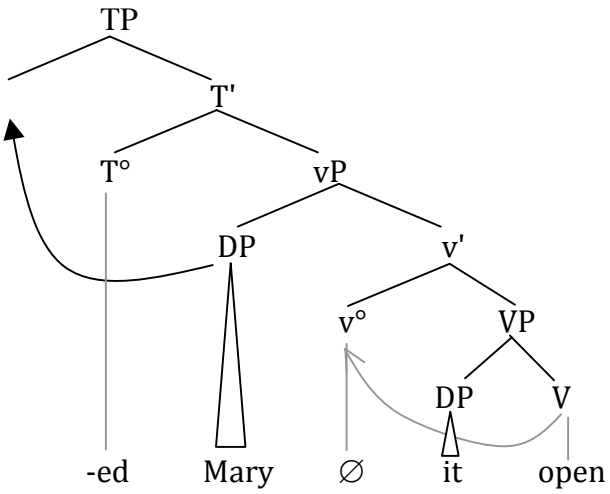


1.1 Hale and Keyser and the vP hypothesis

→ 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

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

a.	záae-'a song-do	"sing"
b.	hįį̨l-'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"

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

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

e. eztul egin "cough"
cough do
f. jolas egin "play"
play do
g. zurrunga egin "snore"
snore do

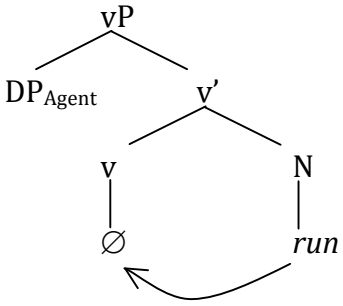
(3) English: A systematic correpsondence between unergative verbs and bare event nouns:

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…

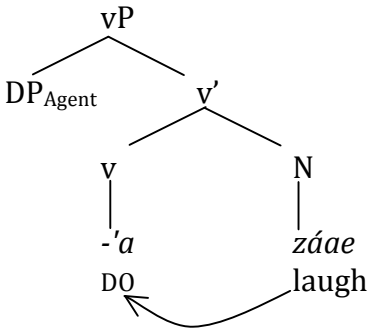
→ Their proposal: Unergative verbs are syntactically complex, cross-linguistically, involving a 'light' verb heading its own projection, and a nominal complement contributing the encyclopedic semantic content

→ 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)

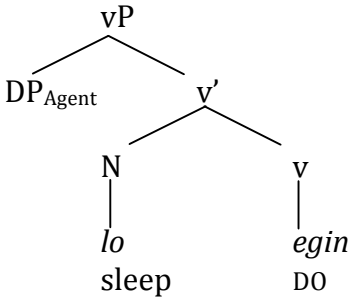
(4) a. Unergative verb derivation in English



b. Unergative verb derivation in Jemez



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



→ Only one Agent θ-role assigner, namely, v_{DO}

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

→ They proposed a similar approach to the pattern of inchoative-causative alternations cross-linguistically, which also involve ∅-morphology in English but overt morphology in other languages, and even periphrasitic 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:

(5)

English		*Hiaki*	
Verb	Adj	Verb	Adj
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° 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

→ Conclusion: The v° 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°

→ The v° in question is the equivalent of 'become'; it doesn't select an Agent.

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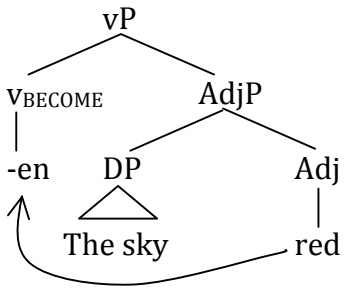

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→ So: Generalization maintained—specifier of vP is an Agent

→ 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° head

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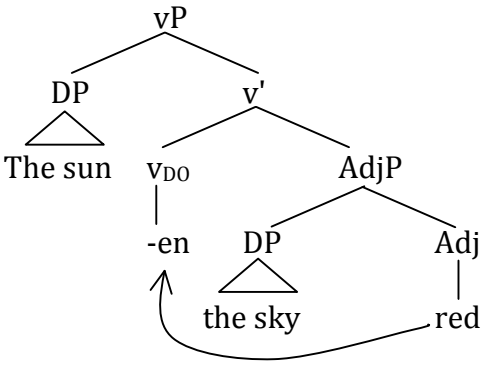

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→ The Agent argument is introduced by the v°, as with unergatives; the v° contributes the Agentive semantics

→ Since they're both ∅ morphemes in English, we can't see the change, but in many languages, the inchoative/causative alternation is necessarily accompanied by a change in overt verbalizing morphology.

- Japanese, Hiaki—complex change-of-state verbs, with v° morphemes clearly related to the productive causative morpheme
- Persian—complex all kinds of verbs, like Basque—syntactically separate bits

(1) Japanese (Jacobsen 1992):

Class/#[1]	√	Intr	Tr	Rough √ gloss
I: e/Ø	hag	hag-**e**-ru	hag-**ø**-u	'peel off'
30 pairs	hirak	hirak-**e**-ru	hirak-**ø**-u	'open'[2]
II: Ø/e	ak	ak-**ø**-u	ak-**e**-ru	'open'
44 pairs	hikkom	hikkom-**ø**-u	hikkom-**e**-ru	'draw back'
III: **ar/e**	ag	ag-**ar**-u	ag-**e**-ru	'rise'
71 pairs	aratam	aratam-**ar**-u	aratam-**e**-ru	'improve'
IV: ar/Ø	hasam	hasam-**ar**-u	hasam-**ø**-u	'catch between'
8 pairs	husag	husag-**ar**-u	husag-**ø**-u	'obstruct (clog, jam?)'
V: r/s	ama	ama-**r**-u	ama-**s**-u	'remain'
27 pairs	hita	hita-**r**-u	hita-**s**-u	'soak'
VI: re/s	arawa	arawa-**re**-ru	arawa-**s**-u	'show (up)'
18 pairs	hana	hana-**re**-ru	hana-**s**-u	'separate from'
VII: ri/s	ka	ka-**ri**-ru	ka-**s**-u	'borrow/(lend)'
2 pairs	ta	ta-**ri**-ru	ta-**s**-u	'suffice/(supplement)'
VIII: ø/as	hekom	hekom-**ø**-u	hekom-**as**-u	'dent'
38 pairs	her	her-**ø**-u	her-as-**u**	'decrease'
IX: e/as	bak	bak-**e**-ru	bak-**as**-u	'turn into/bewitch'
45 pairs	bar	bar-**e**-ru	bar-**as**-u	'come/bring to light'
X: i/as	ak	ak-**i**-ru	ak-**as**-u	'tire'
8 pairs	dek	dek-**i**-ru	dek-**as**-u	'come/bring into existence'
XI: i/os	horob	horob-**i**-ru	horob-**os**-u	'(fall to) ruin'
6 pairs	ok	ok-**i**-ru	ok-**o**s-u	'get up'
XII: Ø/se	abi	abi-**ø**-ru	abi-**se**-ru	'pour over (self/other)'
6 pairs	ki	ki-**ø**-ru	ki-**se**-ru	'put on (self/other)'
XIII: e/akas	obi	obi-**e**-ru	obi-(y)**akas**-u	'take fright/frighten'
4 pairs	hagur	hagur-**e**-ru	hagur-**akas**-u	'stray/evade'
XIV: or/e	kom	kom-**or**-u	kom-**e**-ru	'be fully present/fill'
2 pairs	nukum	nukum-**or**-u	nukum-**e**-ru	'warm'
XV: are/e	sut	sut-**are**-ru	sut-**e**-ru	'fall into disuse/discard'
3 pairs	wak	wak-**are**-ru	wak-**e**-ru	'divide'
XVI: Misc	nigiwa	nigiwa-**ø**-u	nigiwa-**s**-u	'(make) prosper'
25 pairs	nob	nob-**i**-ru	nob-**e**-ru	'extend'

(2) Hiaki: Jelinek (1997)

bwas**a**	"cook"	bwas**e**	"cook, ripen"
chakuk**ta**	"bend"	chakuk**te**	"bend"
chak**ta**	"drip"	chak**te**	"leak"
chihak**ta**	"smash"	chihak**te**	"shatter"
ham**ta**	"break"	ham**te**	"break"
heok**ta**	"melt"	heok**te**	"melt"
chu'ak**ta**	"stick on"	chu'ak**te**	"adhere"
chuk**ta**	"cut loose"	chuk**te**	"come loose"
chup**a**	"finish"	chup**e**	"come to end"
ko'ok**ta**	"pull apart"	ko'ok**te**	"come undone"
kowiik**ta**	"make crooked"	kowiik**te**	"get crooked"
kitok**ta**	deform"	kitok**te**	"shrivel"
kot**ta**	"break"	kot**te**	"break"

[1] The number of pairs does not include other pairs derived from a root already on the list even when these are not transparently semantically related; the number of items on each list, then, is actually somewhat larger.

[2] Mamoru Saito and Yosuke Sato (p.c.) inform me that the forms listed as meaning 'open' here, *hirakeru~hiraku*, are not used (the pair from class II, *aku~akeru*, is the appropriate one). Some other particular items in Jacobsen's lists also seem to not currently be in use, for example *bakasu, dekasu*, and *nukumeru*.

kut**ta**	"tigh**te**n"	kut**te**	"get tight"
kuu**ta**	"stir"	kuu**te**	"mix"
luu**ta**	"use up"	luu**te**	"run out"
man**a**	"place before"	man**e**	"be before"
moh**ta**	"grind"	moh**te**	"break up"
mohak**ta**	"**ta**ke apart"	mohak**te**	"crumble"
nason**ta**	"damage"	nason**te**	"get damaged"
pat**ta**	"shut"	pat**te**	"shut"
pes**ta**	"burst"	pes**te**	"burst"
pit**ta**	"press"	pit**te**	"settle down"
poh**ta**	"boil"	poh**te**	"boil"
pot**ta**	"stretch out"	pot**te**	"rise, expand"
rau**ta**	"rinse"	rau**te**	"rinse"
res**ta**	"spread out"	res**te**	"spread out"
revek**ta**	"break apart"	revek**te**	"come apart"
riu**ta**	"split"	riu**te**	"split"
rop**ta**	"sink"	rop**te**	"sink"
ro'ak**ta**	"roll over"	ro'ak**te**	"roll along"
sihho'o**ta**	"sprinkle"	sihho'o**te**	"drizzle"
sip**a**	"cool"	sip**e**	"cool"
siu**ta**	"tear"	siu**te**	"tear"
tei**ta**	"trip"	tei**te**	"trip"
toh**ta**	"discolor"	toh**te**	"fade"
topak**ta**	"turn over"	topak**te**	"flip over"
tot**ta**	"bend"	tot**te**	"collapse"
tuh**ta**	"press"	tuh**te**	"settle"
tuuch**a**	"put out (fire)"	tuuk**e**	"go out"
vee**ta**	"burn"	vee**te**	"burn"
vi'i**ta**	"twist"	vi'i**te**	"twist"
voh**ta**	"pour out"	voh**te**	"drop out"
vut**ta**	"undo"	vut**te**	"come undone"
weeyy**a**	"carry"	weey**e**	"move"
wiok**ta**	"untangle"	wiok**te**	"untangle"
wiu**ta**	"spend"	wiu**te**	"run out"
wohok**ta**	"dig up; puncture"	wohok**te**	"get a hole in"
woi**ta**	untie	woi**te**	"come untied"
wo'o**ta**	spill"	wo'o**te**	"spill"
yoh**ta**	"drop"	yoh**te**	"drop"
yook**a**	"paint"	yook**e**	"change color"

(3) Persian (Karimi 1997, Folli, Harley and Karimi 2005)

a. **N+LV**

kotak zadan/xordan	(beating hitting/colliding)	'to beat, to get beaten'
xar kardan/shodan	(donkey doing/becoming)	'to fool, become fooled
dust dâshtan	(friend having)	'to love'

b. **A+LV**

sabok kardan/shodan	(light making/becoming)	'to degrade' (tr & intr)
pahn kardan/shodan	(wide making/becoming)	'to widen' (tr & intr)
derâz keshidan	(long pulling)	'to lie down, to take a nap'

c. **Particle+LV**

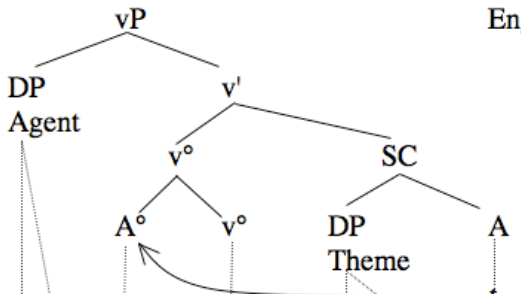
birun kardan	(out doing)	'to dismiss, to fire (someone)'
bâlâ âvardan	(up bringing)	'to vomit'
bâlâ keshidan	(up pulling)	'to steal'

d. **PP+V**

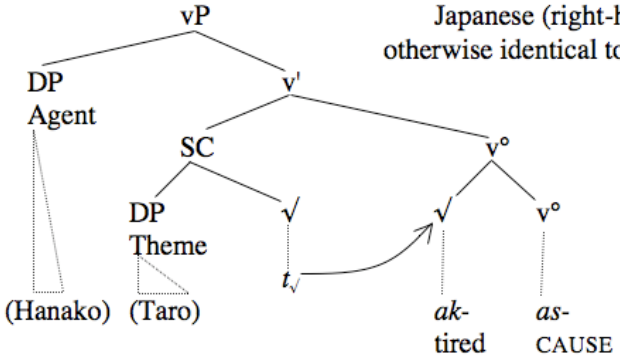
be yâd dâshtan	(to memory having)	'to have in memory'
bejâ âvardan	(to place bringing)	'to recognize'
be bâd dâdan	(to wind giving)	'to waste'

→ Change of state predicates in all these languages admit of the same morphosyntactic analysis, based on the bipartite structure described above, modulo independently-motivated differences in the structures, like headedness:

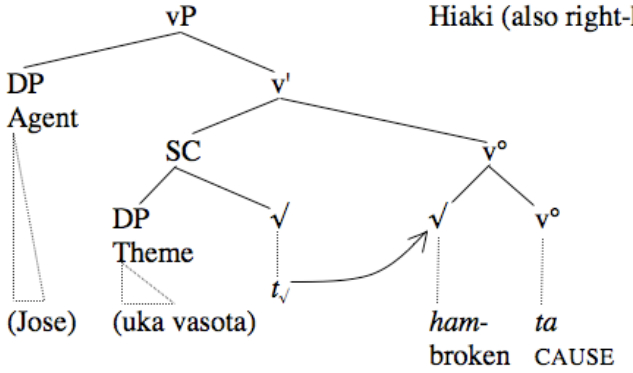
(4) a. *open* English



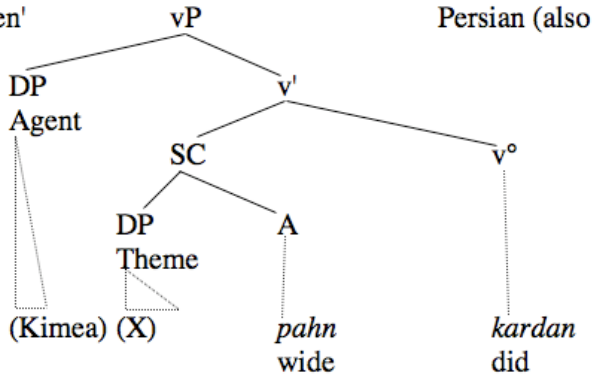
b. *ak-as-*, 'tire' Japanese (right-headed but otherwise identical to structure above)



c. *ham-ta*, 'break' Hiaki (also right-headed)



d. *pahn kardan*, 'widen' Persian (also right-headed)



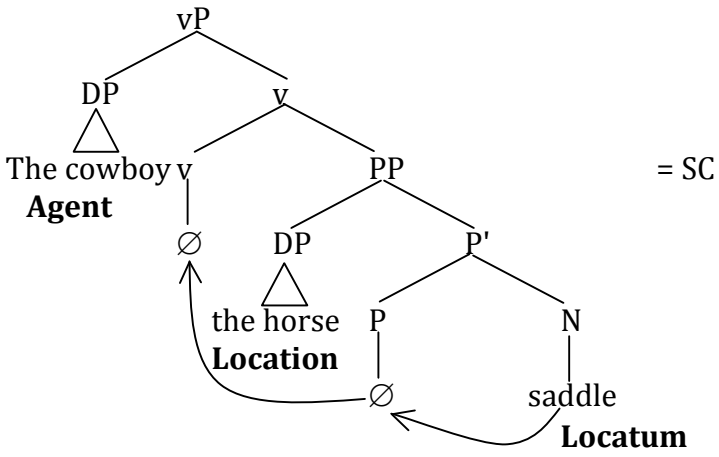
→ We have seen verbs with NP (intransitive) and AdjP (transitive) downstairs phrases; Natural extension: PP downstairs (see the Persian above, e.g.). This ultimately

will be the basic acount 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

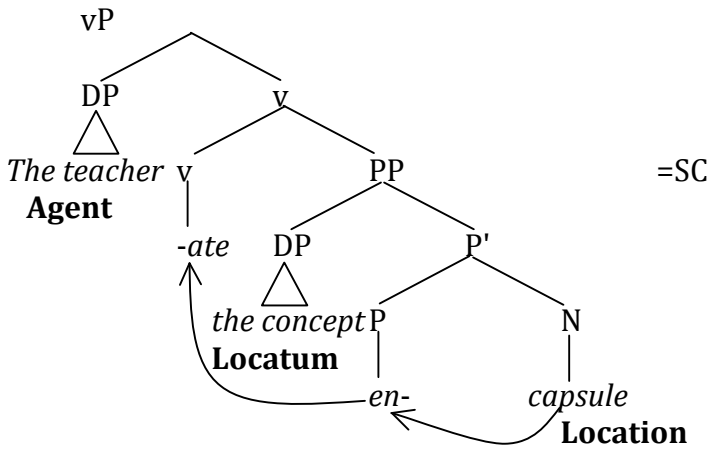
(8) a. bandage, bar, bell, blindfold, bread, butter, clothe, curtain, dress, fund, gas, grease, harness, hook, house, ink, oil, paint, pepper, powder, saddle, salt, seed, shoe, spice, water, word.

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:

(9)



→ 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. *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:

(10)

θ-role		Position of DP
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° 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:

(11) a. Manuela landed the plane ([$_{vP}$ *Manuela* [$_{v'}$ v_{CAUS} [$_{PP}$ *the plane* [$_{P'}$ ∅ *land*]]]])
b. The plane landed (=[$_{vP}$ v_{BECOME} [$_{PP}$ *the plane* [$_{P'}$ ∅ *land*]]])

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

(12) a. Manuela gave Anna a book. (= [$_{vP}$Manuela [$_{v'}$ v_{CAUS} [$_{PP}$ Anna [$_{P'}$ ∅ a book]]]])
b. Anna got a book (= [$_{vP}$ v_{BECOME} [$_{PP}$ Anna [$_{P'}$ ∅ 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°:

(13) a. It rained (= [$_{vP}$ v_{BECOME} [$_{N}$ rain]])
b. It snowed (= [$_{vP}$ v_{BECOME} [$_{N}$ 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:

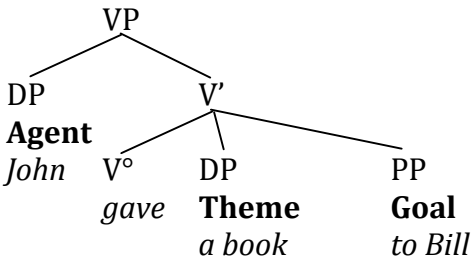
- Associate verb roots with licensing conditions, so that certain verb roots can only appear in the context of one or the other v° (Ramchand 2008, Siddiqi 2006 are examples of this approach)
- Ascribe the restriction to the semantics, not the syntax: The problem with *the horse saddled* is not ungrammaticality, but uninterpretability, given what we know about saddling. See Marantz 1997, Borer 2005 for variations on this approach.

→ We'll consider this issue in more detail shortly—the proposal in Harley and Noyer 2000 contained elements of both types of approaches

1.2 Syntactic motivations for the split-vP approach: Larson 1988

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

(14)

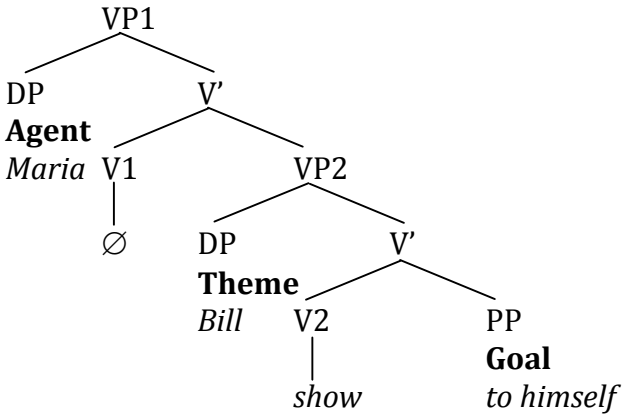


→ First internal argument DP c-commands second one (Barss and Lasnik 1986)

(15) 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

(16)



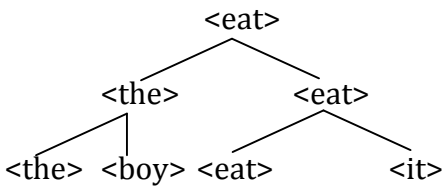
→ If VP1 is really vP, and VP2 is a really a variety of PP headed by a stative root √*show*, this structure is isomorphic to Hale and Keyser's.

1.3 Syntactic 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:

(17)



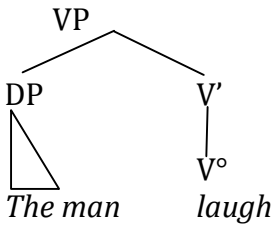
"The boy ate it." (vP portion only—no TP represented)

→ 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!

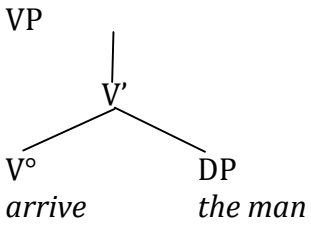
→ However, with the VP-internal subject hypothesis, GB theory relied *crucially* on nonbranching projections to make the specifier/complement distinction that was central to distinguishing unergative and unaccusative verbs.

(18) Before the advent of the vP hypothesis:

Unergative verbs in GB theory



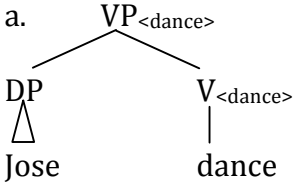
Unaccusative verbs in GB theory



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

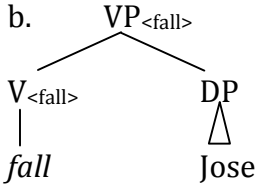
(19) Unergative

a.



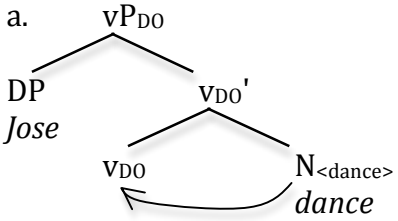
Unaccusative

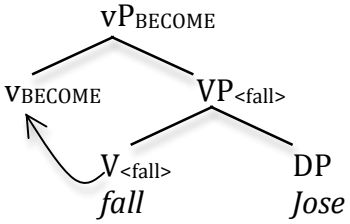
b.



→ 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.

(20) a.





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

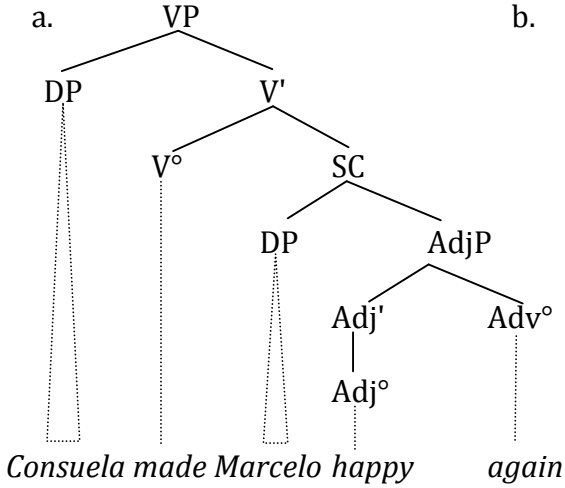
1.4 Semantic motivations for a split-vP approach

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

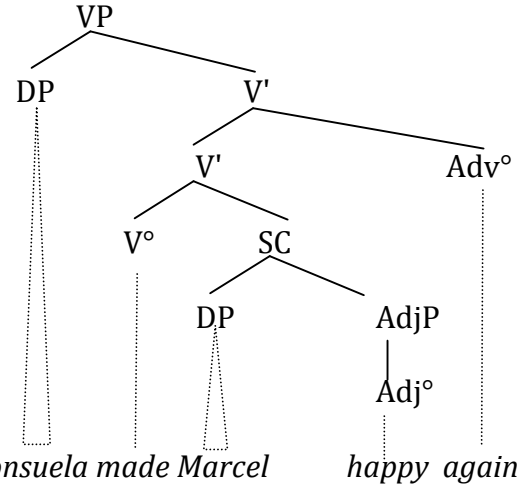
→ There are also semantic reasons; these were the original generative semantic arguments in favor of the proposal

→ 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:

(21) a.



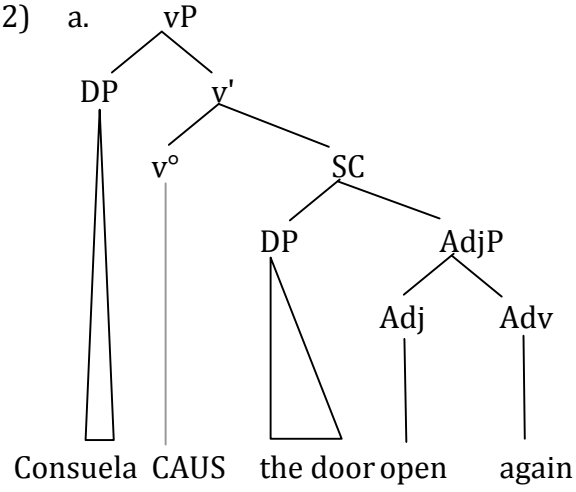
b.



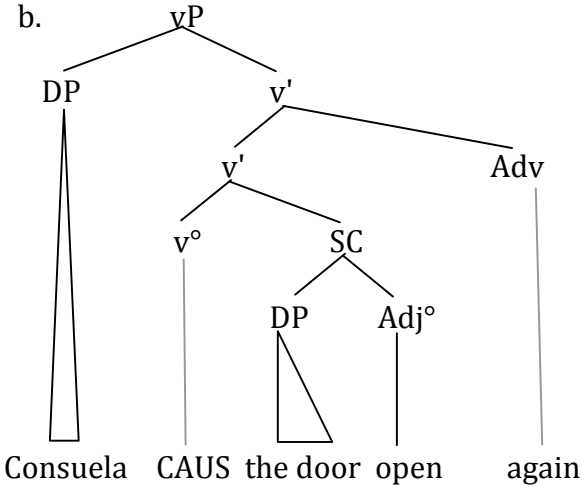
→ The scope of modification of *again* corresponds exactly to its attachment site; because the two attachment sites do not involve a change in linear order, the string is structurally ambiguous.

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

(22) a.



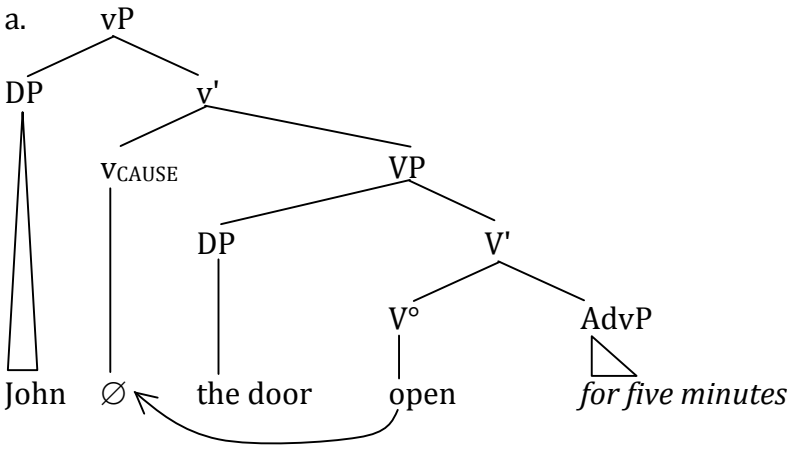
b.



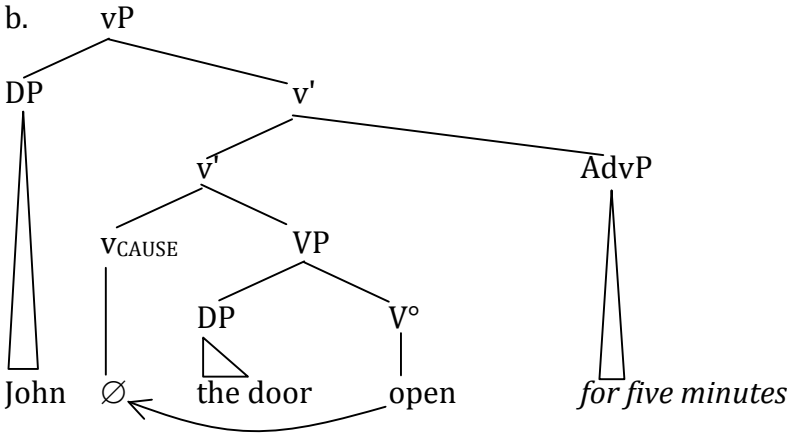
→ Von Stechow (1995) argued that it would be the height of theoretical profligacy to assume that the ambiguity in (21) is syntactic while that in (22) is lexical; the type-shifting operations needed to derive two scopes for *again* in the purely semantic domain would ascribe an exceptional degree of power to the semantic component when the necessary tools are already be present in the syntax.

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

(23) a.



b.



→ Also: Composition argument of Kratzer's which we'll consider later.

2. Relationship between bottom half of vP and the DM √: Harley & Noyer 2000

→ Category of lexical portion of vP?
-*corral, box*: N°?
-*open, redden*: Adj°?
-*give, melt*: V°?

→ DM notion of lexical category: acategorial √+functional categorizing head: v°, n°, a°

→ Derivational morphology overt realization of v°, n°, a°, e.g. –*ize* in *winterize*

→ Categorizing heads in canonical case go directly on acategorial √:
- √*categor-* + v° *-ize*
- √*nomin-* + n° *-al*
- √*happ-* + a° *-y*

→ Can also stack up: [[[[*nomin*]$_{\sqrt}$*-al*]$_{n}$*-iz*]$_{v}$*-ation*]$_{n}$

→ In (the Anglo-Saxon part of) the English lexicon, categorizing heads are frequently realized by ∅.

→ For verbs with no obvious derivational source in another category, works well to just relabel H&K's lower lexical category, or Larson's lower VP as √P: *melt, collect, pray, meet…*

→ Others, embedding obvious categorizing morphology, are derived by stacking a categorizing v° onto (minimally) an nP or aP, as in *to nominalize* or *to position*

→ For zero-derived noun/verb pairs, needs to be determined on a case-by-case basis whether they should both be derived from a common root, or whether the ∅-nominalizing head is embedded inside the ∅-verbalizing head, or vice versa. (See Kiparsky 1997, a.o.)

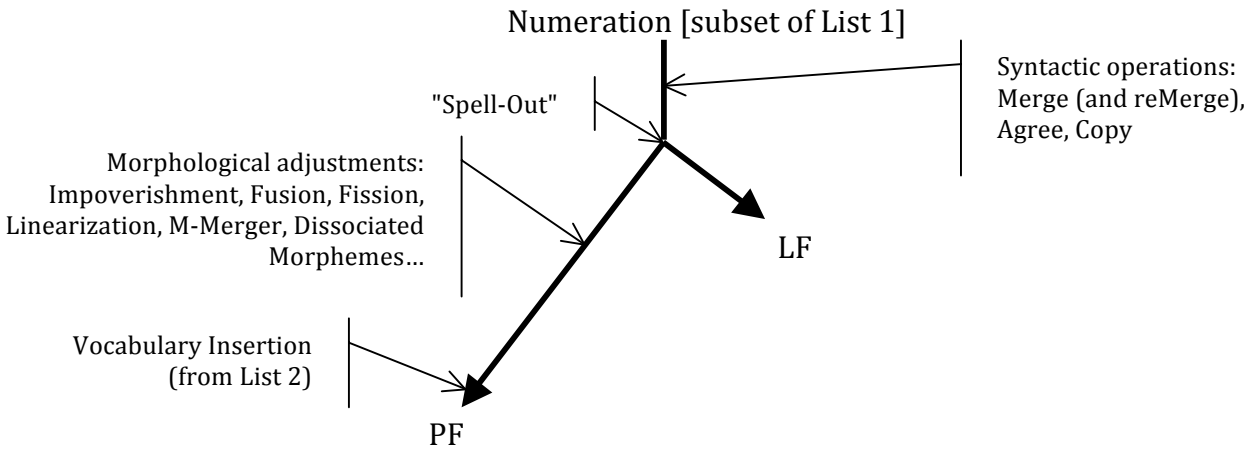
→ Might also be appealing to treat verb/noun stem allomorphy this way—both derived via ∅-affixation from a common root:
pretend~pretense
shelve~shelf
bleed~blood

2.1 Root and argument structure licensing in (early) DM: Harley & Noyer (2000)

→ DM framework

(5) The model:

List 1: Feature bundles: Abstract representations of syntactic primitives, both interpretable and uninterpretable, both functional and contentful.
List 2: Vocabulary Items: Instructions for pronouncing terminal nodes containing certain features



→ Derivational procedure:

a. Merge & Move of morphosyntactic features
b. Spell-out
c. Morphological operations
d. Vocabulary Insertion
e. Morphophonological operations (PF)

→ 'Full Interpretation' as applied to PF: Each terminal node in the syntax must have some representation at PF—each terminal node represents a "position of exponence" which must be provided by the morphological component with some phonological instructions (a 'realization')

→ Terminal nodes do not contain any specific phonological instructions until after the narrow syntax is complete.

→ Theoretical consequences
Syntactic Hierarchical Structure all the way down (including internal to words) (consequence of all structure being built by Merge)
Default situation: Morphological structure isomorphic to syntactic structure. (Mirror Principle falls out)
Underspecification of VIs and competition for insertion (consequence of Late Insertion)

Invisible phonology: Syntax can't 'see' irrelevant differences or similarities between items, e.g. that the English elsewhere forms of [+pl] and [+3sg] are identical.

→ Loci of crosslinguistic variation:
List 1: Content and structure of feature bundles (interacts with syntax)
List 2: Content and structure of Vocabulary Items
(does not interact with syntax(?))
Particular adjustments to terminal nodes performed after Spell-Out

→ Where are roots in all this? List 1? List 2?

→ Original DM position: Roots were in list 2 only. Consequence: Conceptual structure had to look at both LF and PF to know whether *The ice melted* or *The water froze.*

→ Harley and Noyer (2000): Root VIs (realizors of *l-nodes*) were subject to licensing conditions constraining their appearance in different argument structure frames.

(6) a. Chris thought the book to Martha.
b. The bridge exploded the engineers.

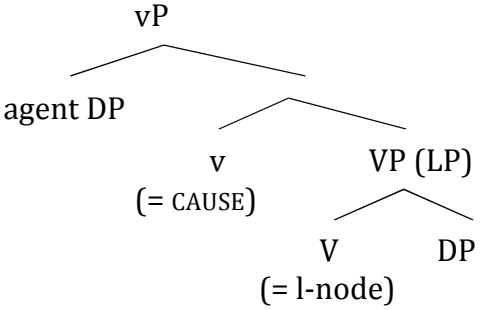
(7) a. */#The red under did not five lunch.
b. */#James put yesterday.
c. */#John knew Mary the book.

(8) */#The giraffe falls that the zebra jumps. (Lidz and Gleitman)

(9) a. Hannibal destroyed the city.
b. */#The city destroyed.

→ Only one type of L-node—like the variable slots in Levin and Rappaport's LCSes, not like the many different functional feature bundles in the numeration

(10) *destroy* - CAUSE = "destroyed" (resultant state)



→ Vocabulary items had licensing conditions on them specifying syntactic environments, so e.g. *destroy* could only occur in the context of both a sister DP and a c-commanding v_{CAUSE} —argumental selectional restrictions are essentially morphological in nature

→ Root vocabulary items inserted in l-nodes were not in competition in the Elsewhere condition sense (unlike all other VIs); any root VI with matching licensing restrictions and compatible with the conceptual intent could appear in a given l-node

(11) a. John grows tomatoes.
[$_{vP}$ [$_{DP}$John] [$_{v'}$ CAUSE [$_{LP}$ grown [$_{DP}$tomatoes]]]]
b. The demolition team exploded the casino.
[$_{vP}$ [$_{DP}$The demolition team] [$_{v'}$ CAUSE [$_{LP}$ exploded [$_{DP}$the casino]]]]

(12) a. Tomatoes grow.
[vP become [LP grown [DPtomatoes]]
b. The balloon exploded.
[vP become [LP exploded [DPthe balloon]]]

(13) Distributional variation among roots:

Verb	**Spec,vP**	**v**	**Spec,LP**	**L**	**Comp,LP**
give	DP	CAUSE	DP	l	DP
destroy	DP	CAUSE	Ø	l	DP
grow (tr)					
jump	DP	CAUSE	Ø	l	Ø
learn	Ø	BECOME	DP	l	DP
grow (intr)	Ø	BECOME	Ø	l	DP
arrive					
know	Ø	BE	DP	l	DP
tall (?)	Ø	BE	Ø	l	DP

(14) Licensing environments for roots

	Phonology	*Licensing environment*	*Encyclopedia*
a.	*sink*	[±v],[+DP],[±cause]	what we mean by *sink*
b.	*big*	[–v],[+DP]	what we mean by *big*
c.	*open*	[±v],[+DP],[±cause]	what we mean by *open*
d.	*destroy*	[+v],[+DP],[+cause]	what we mean by *destroy*
e.	*arrive*	[+v],[+DP],[–cause]	what we mean by *arrive*
f.	*grow*	[+v],[+DP],[±cause]	what we mean by *grow*

→ These kinds of constraints are equivalent in kind to, say, gender restrictions on roots in nominals, or plurality restrictions on *pluralia tantum* nominals, like *scissors* etc.

→ But: These licensing features are *not* responsible for 'transitivity' alternations in the nominalized forms (cf. Chomsky 1971):

(15) a. Tomatoes grow.
The growth of the tomatoes
The tomatoes' growth

b. John grows tomatoes.
#John's growth of tomatoes
#The tomatoes' growth by John

c. #The crop destroyed.
The destruction of the crop
The crop's destruction

d. The insects destroyed the crop.
The insects' destruction of the crop
The crop's destruction by the insects

→ Pattern in the nominal form is the inverse of that in the verbal form. Is this to do with a [±v_{CAUSE}] feature on *grow*?

→ No: Other alternating verbs have both 'transitive' and 'intransitive' nominalizations

(16) a. The balloon exploded.
The balloon's explosion
b. The army exploded the bridge.
The army's explosion of the bridge
c. Wealth accumulated.
The wealth's accumulation
d. John accumulated wealth.
John's accumulation of wealth
e. Jim and Tammy Faye separated.
Jim and Tammy Faye's separation
f. The teacher separated the children.
The teacher's separation of the children
g. The German principalities unified in the 19th century.
The principalities' unification in the 19th century
h. Bismarck unified the German principalities.
Bismarck's unification of the German principalities.

→ The well-formedness of the Agent nominalization is dependent on the Encyclopedic content of the object:

(17) a. Dust accumulated on the table.
b. The accumulation of dust on the table
c. #John's accumulation of dust on the table

→ Causes can't be possessors, only Agents can, but both Agents and Causes can be external arguments:

(18) a. Adultery separated Jim and Tammy Faye.
#Adultery's separation of Jim and Tammy Faye
b. The Cold War separated E. and W. Germany.
#The Cold War's separation of E. and W. Germany
c. The 19th century unified the principalities.

#The 19th century's unification of the principalities

→ Claim is that the availability of an agentive interpretation of a possessor in spec-DP of an event nominal doesn't have to do with the licensing features of the corresponding verb, but with Encyclopedic knowledge about the content of the roots.

→ Note that some things that formerly couldn't be grown now can, in an 'enlarge' sense; for those who accept transitive *grow* with things like 'economy' or 'income', agentive possessors of *growth* are fine:

(19) a. %Clinton grew the economy
b. %Clinton's growth of the economy.

→ Additional argument about suppletion at the end will have important ramifications later, but first we'll consider some other issues within the framework of the current picture.

→ State of play in 2000:
—Roots are only individuated at the VI stage
—Licensing conditions determine ungrammaticality of particular roots in incompatible syntacticosemantic frame configurations
—World knowledge determines 'colorless green ideas' effects; availability of agentive possessor interpretation for event nominals also effect of world knowledge.

3. Verbal event structure and the ontology of roots: Harley 2005

3.1 Introduction: A different subdivision of aspectual classes

(24) 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*

3.2 Background

(25) 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).

(26) 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).

(27) 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:

(28) 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:

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

a. *There*-insertion:
The bullet whistled as it passed my ear.
*There whistled a bullet (as it passed my ear).
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:

(30) 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*."

3.3 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.

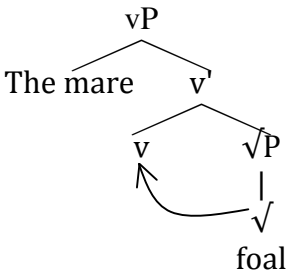
3.3.1 An overlooked class of telic verbs

→ 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.

(31) 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.

(32) 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.

(33) Telicity of both unergative and transitive paraphrase

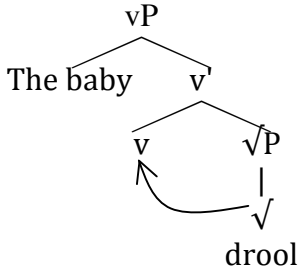
a.	The mare foaled	#for 2 hours/in 2 hours
b.	The mare had a foal	#for 2 hours/in 2 hours

→ 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.

(34) The difference between babies and other bodily emissions

a.	The baby drooled	for 2 hours/#in 2 hours
b.	The athelete 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.

(35) 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.

(36) 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.

3.3.2 Denominal unergatives with Event roots

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

(37) Two kinds of Thing roots

	bounded	unbounded
Thing	foal	drool

(38) 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

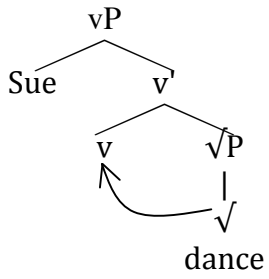
d. Sue hopped — #for 5 minutes/#in 5 minutes
e. Sue tripped — #for 5 minutes/#in 5 minutes
f. The light flashed — #for 5 minutes/#in 5 minutes

→ 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 coocurring with an atelic frame adverbial. Following Smith 1991, I'll call these *semelfactives*.

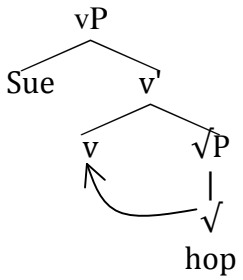
→ H&K propose the same structure for these verbs as for the denominal verbs above:

(39) Same structure:

a.



b.



(40) 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 occured 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.)

(41) Four kinds of √s

	bounded	unbounded
Thing	*foal*	*drool*
Event	*hop*	*dance*

→ *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.

3.4 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.

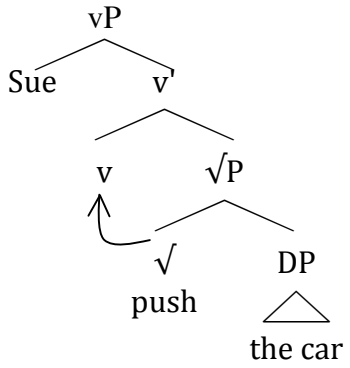
(42) Pushing, hitting, kicking

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:

(43) A proposal

a.



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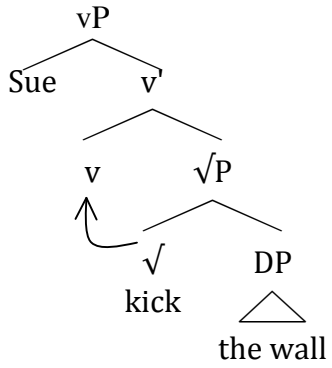


→ Why isn't there a corresponding group of transitive denominal verbs whose roots denote Things, not Events, and whose telicity depends on the boundedness of the incorporated thing?? Let us suppose that roots denoting Things cannot select arguments[3], while Events can do so. Our inventory of basic root properties now looks like this:

(44) Another speculation

	no complement		complement	
	bounded	unbounded	bounded	unbounded
Event	*hop*	*sleep*	*kick*	*push*
Thing	*foal*	*drool*	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.

3.5 Change-of-State verbs

(45) Deadjectival change-of-state verbs

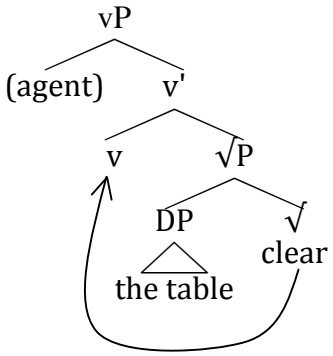
a. Sue cleared the table #for 5 minutes/in 5 minutes.
b. The archaeologist opened the sarcophagus #for 5 minutes/in 5 minutes
c. Sue tamed the lion #for 5 minutes/in 5 minutes
d. Sue straightened the rod #for a minute/in a minute

→ 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.

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

[3] Maybe. What about *Bill fathered a son* (*?in 2 years/#for 2 years*).

(46) 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 √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 *situation* denoted by the small clause — the predication of the endstate. When that state is acheived, 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 situation (the small clause). This has the nice property of corresponding to the semantic decomposition of accomplishments proposed by Pustejovsky and others.

→ It must be inherent to the nature of these roots that they are predicative — they select for a subject argument, not for an object.

→ When I originally wrote this paper, I didn't know about *degree acheivements*: *atelic* deadjectival change-of-state verbs, composed by putting an adjective which names an *unbounded* portion of a scale (rather than an endpoint of a scale) in the predicate position of the small clause; see Hay, Kennedy and Levin (2005).

→ Degree acheivements are crucially (potentially) atelic; the availability of the telic reading is strongly subject to encyclopedic knowledge about standards for particular cases:

(20) a. The soup cooled for/in 5 minutes.
b. The gap widened for/#in 5 minutes.

→ So there are bounded and unbounded State-naming roots as well

(30) *A third kind of root*

	no complement		complement	
	bounded	unbounded	bounded	unbounded
Event	*hop*	*sleep*	*kick*	*push*
Thing	*foal*	*drool*	N/A?	N/A?
State	*clear*	*cool*	TBA (prepositions)	

3.6 Denominal Location/Locatum verbs

(47) 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:

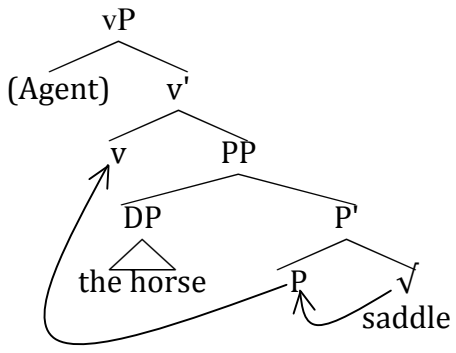
(48) Measuring-out while saddling:

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.

(49) 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.

(50) 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.

(51) 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.

(52) 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

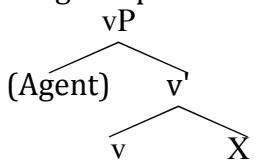
→ While the telic reading is available, as expected given the measuring-out potential of the definite, singular objects ("inner subjects" of the change of state), an atelic reading is also available! This is very surprising. Contrast these examples with the necessary telicity of a verb like *saddle*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

3.7 Deriving telicity

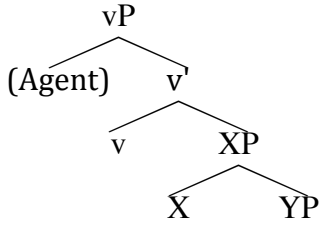
(53) The typology of argument structures, so far

a. vP with non-branching complement



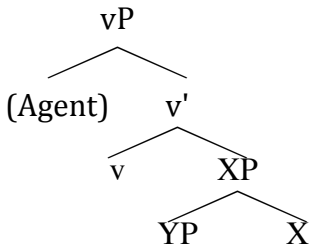
foal, run, drool, dance, calve....

b. vP with branching complement lacking a specifier



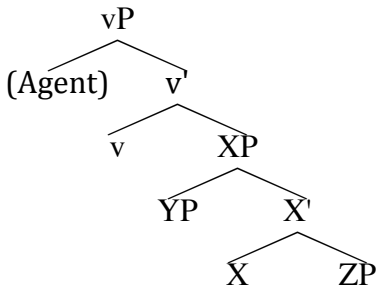
push, kick, hit, kiss, pull...

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...

→ Note that the distinciton 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!

(54) 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/Locatums, but rather Instruments.

→ **Assumption #2:** These are verbs created by Manner Incorporation: naming a verb of one of the four classes above ((36b), verbs of contact —*push, kick, kiss,* etc.) after a salient aspect of the Manner in which it is accomplished. This conflates these verbs with other manner-of-contact verbs such as *wipe,* etc.

(55) What happens when you try to include an endstate in the argument structure of *push*?

a. John pushed the cart — John DO (a) PUSH (of) the cart
b. John pushed the cart to New York — John CAUSE [the cart to New York] by PUSH

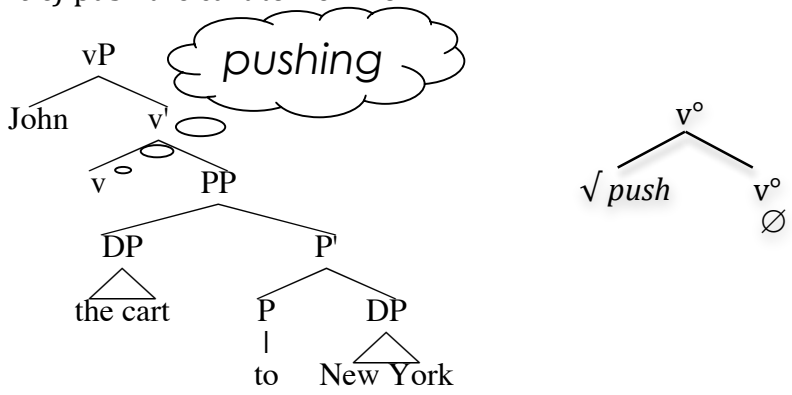
→ All of a sudden, there's no room for the PUSH event nominal in the argument structure, which is now saturated with a State complement to vP, complete with an internal subject (*the cart*) and a predicate (*P New York)*. Pushing is now relegated to a mere Manner element, which gets into the verb by (ta da!) Manner Incorporation on-the-fly.

(56) Same problem with manner-of-motion verbs

a. Sue ran. — Sue DO (a) RUN
b. Sue ran to New York — Sue CAUSE [(self) to New York] by RUN
c. The bullet whistled — The bullet DO (a) WHISTLE
d. The bullet whistled past my ear — BECOME [the bullet past my ear] while WHISTLE

→ What happens is that the (36d) verb frame is being used, but the verb is named after a manner element that can also occur as its own verb root in the (36a or b) frames.

(57) *The argument structure of* push the cart to New York.



→ Another way of thinking about it: consider Gleitman's example of the independent meaning supplied by the ditransitive frame. If you take a verb like *think*, which usually takes only a CP or DP complement, and force it into a ditransitive frame — *Sue thought the book to Mary* — what results is not ungrammaticality. Rather, we interpret *thinking* as a manner element describing the way in which the book was transferred to Mary (telepathically or telekinetically, probably). Cf. also the insights of construction grammar: Goldberg 1995.

(58) Inner subjects measure-out[4]

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

[4] This is the answer to the $64,000 question: the objects of *push* verbs are not inner subjects.

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.

3.7.1 The productivity of Manner Incorporation varies parametrically

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

(59) 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):

(60) 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.

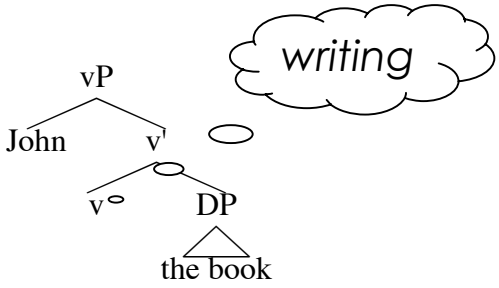
3.8 Reprise: Incremental Themes

→ 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:

(61) 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:

(62) 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).

3.9 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:

(63) 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.

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

3.10 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

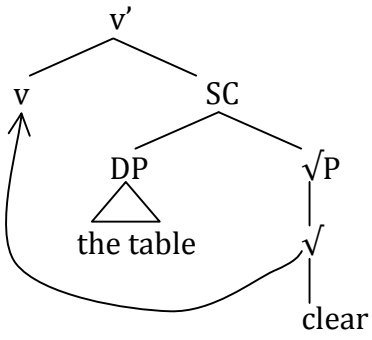
b) A Pustejovsky -style semantics for accomplishments — CAUSE+ ENDSTATE — is directly represented in their lexical syntax.

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

4. Unifying the two kinds of measuring-out: Truth of P = Existence of individual

→ Fundamental distinction: v with predicate-of-property complement (SC—PP or AP) vs. v with predicate-of-entities complement.

(21) a.



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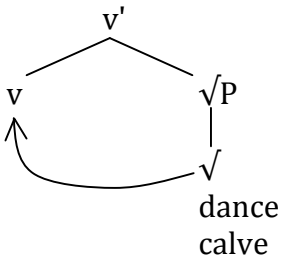
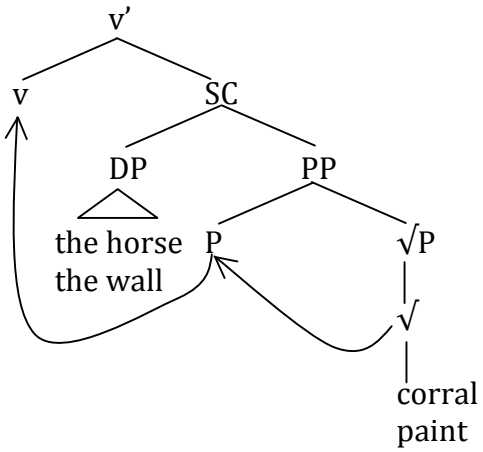
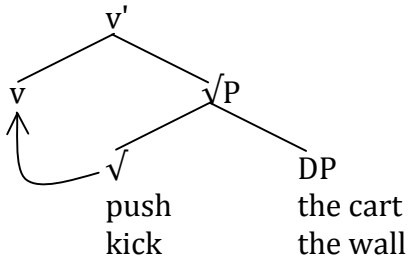


c.



d.



→ Key idea: Unergatives and transitive verbs of contact—(21) (a) and (d)) are not manner constructions, but Incremental Theme constructions

→ Unified semantics for v° (causative or not): a function to T iff its complement goes from an uninstantiated state to an instantiated state.

(22) $[(\lambda y \in D).[\lambda x \in D_{\text{Things,Events\&Situations}} . [\lambda e \in D_{\text{Events}} : e \text{ is an event of x becoming instantiated}]$

→ For SC-complements, (21)(b) & (c), this will just be Dowty's BECOME predicate: For endstate-naming predicates, ~P changes to P, or, with degree acheivement predicates, Ps: less P changes to more P)

→ For entity complements, (21)(a) & (d) this is a coming-into-existence assertion; it's as if there's a null existence predicate in the structure, but there isn't.

→ Homomorphism maps unfolding of event to subparts of the property or entity predicate; (21)(a) & (d) are the 'incremental Theme' structure.

→ This unifies the senses of e.g. *faire,* as a realization of v°

(23) a. *Elle lui a fait un manteau sur mesure*
She made him a made-to-measure coat
b. *Que fait-il?*
What's he doing?
c. *Le désir... lui a fait créer beaucoup de choses plaisantes et utiles*
...caused him to create many pleasing and useful items.

…and clarifies the sense in which H&K's v in (21)(a) *John danced* and *The cow calved* is the same v: John caused a dance to be instantiated, and the cow caused a calf to be instantiated.

→ 'Flavors' of v are determined by nature of the complement: nominal ('do'/'make') vs. predicative ('cause'/'make').

→ The availability of a telic reading is determined by whether the homomorphism mapping terminates or not, which in turn is dependent on the [±bounded] properties of the constituents of the complement of v°.

5. Tricks with Manner Incorporation: Why Mary can't exhibit John her paintings

5.1 The Puzzle: A morphophonological constraint on dative shift

→ English ditransitive verbs can often productively 'dative-shift'.

(24) a. Mary showed the procedure to the class
a'. Mary showed the class the procedure

b. Mary gave a book to her son
b.' Mary gave her son a book

→ But a robust class of English ditransitive verbs cannot dative shift. Diachronically speaking, they're usually the ones of Latinate origin:

(25) a. Mary demonstrated the procedure to the class
a'. *Mary demonstrated the class the procedure

b. Mary presented the award to the author.
b'. *Mary presented the author the award.

→ What's up with that?

5.2 English bipartite verbs

→ English has some bipartite change-of-state verbs of the Japanese type:

(26) a. Mary color**ize**d the movie.
b. Mary clar**ifi**ed the issue.
c. Mary **en**dangered the crew.

→ The truly 'native' type of bipartite verb, however, are verb-particle constructions:

(27)	a.	*throw* the garbage *out*	*throw out* the garbage
	b.	*pick* the paper *up*	*pick up* the paper
	c.	*push* the needle *in*	*push in* the needle
	d.	*pass* the dish *around*	*pass around* the dish
	e.	*fight* the attackers *off*	*fight off* the attackers
	f.	*paste* the stamp *on*	*paste on* the stamp

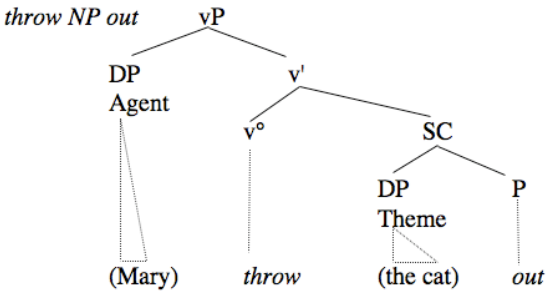
…cf. Persian ex in (18c)

→ Particle, not verb root, represents endstate (when semantically independent, at least):

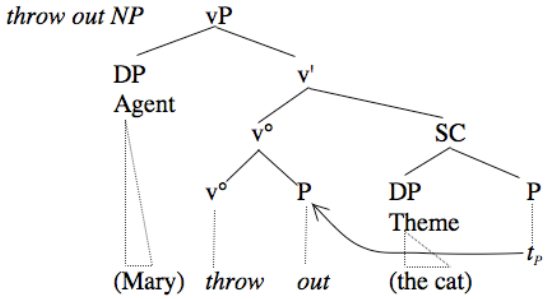
(28) a. (After letting him in only an hour before,) Mary threw the cat out again.
b. Mary threw the cat out for two hours (then she let him in again).

→ Particle shift can be (partially) analyzed as incorporating head-movement of lower SC P into upper v°.

(29) a.



b.



→ Note: Moral of (22) and (23): The verb *root,* in English, can be base-generated in v°, unlike what we have seen above in other langauges. I assume this is "Manner Incorporation" (Harley 1999, 2005, Zubizarreta and Oh 2008, McIntyre 2002).

→ Particle+V combinations often have idiosyncratic, 'lexicalized' semantic interps:

(30)

a.	*see NP through*	'to persevere with NP'	
b.	*chew NP out*	'to scold NP'	
c.	*piss NP off*	'to anger NP'	
d.	*fill NP in*	'to brief NP'	
e.	*work NP over*	'to beat NP'	
f.	*while NP away*	'to pass NP(=time)'	…

→ Same structure for English adjectival resultatives:

(31)
a. open the door wide
b. hammer the metal flat
c. wipe the table clean
d. sand the toy smooth
e. shake the man awake
f. shoot the attacker dead
g. stuff the suitcase full

→ Same semantics, too:

(32) a. Mary opened the door wide **again**.
1.Mary had opened the door wide before, did it again
2.The door had been open wide, had become closed to some degree, and Mary opened it wide again
b. Mary wiped the table clean **again**
1.Mary had wiped the table clean before, did it again.
2.The table was clean; it got messy; she wiped it, made it clean again.

→ English resultative constructions involve an overt, independent SC predicate (the particle or adjective), and a manner-identifying lexical verb in the v° position

→ Keyser and Roeper 1987 noted that *re*-affixation applies only to change-of-state verbs—but not to verb-particle or resultative constructions, though semantically they are change-of-state:

(33) a. Mary reopened the door.
b. *Mary reopened the door wide.
c. *Mary reopened the door up.

→ This can be analyzed in the current framework in the following way:
- *re-* must modify the SC predicate (has 'again' meaning, attaches to lower VP)
- In *Mary opened the door*, 'open' **is** the SC predicate
- Hence *Mary reopened the door* is fine
- In *Mary opened the door wide*, 'wide' is the SC predicate (*open* is in v°).
- So *Mary reopened the door wide* is out.

→ A robust observation about verb-particle and resultative constructions in English: They don't occur with Latinate verbs:

(34) Verb-particle constructions fine with Anglo-Saxon-type verbs but not Latinate ones

write it up	*compose it up/*arrange it up
eat it up	*consume it up
finish it up	*complete it up
throw it out	*discard it out
lie down	*recline down
hand it out	*distribute it out
show it off	*exhibit it off / *reveal it off
fire it up	*ignite it up
slice it off	*incise it off
tidy it up	*arrange it up
hide it away	*conceal it away
cut it apart	*dissect it apart
figure it out	*calculate it out
move it over	*displace it over
go away	*depart away
clear it up	*clarify it up
write it up	*compose it up
cast it off	*release it off
dig it up	*excavate it up
swell up	*expand up
trade it in	*exchange it in

(35) Resultatives fine with Anglo-Saxon verbs, not many Latinate ones

cut it apart	*divide it apart
fill it full	*inflate it full
walk yourself tired	*perambulate yourself tired
work yourself ragged	*decide yourself ragged

squeeze it empty	*compress it empty
stab it dead	*impale it dead
train yourself fit	*condition yourself fit
freeze solid	*congeal solid
dance yourself pink	*exert yourself pink
eat yourself sick	*devour yourself sick
drink yourself unconscious	*imbibe yourself unconscious
scrape it raw	*abrade it raw
break it short	*divide it short
grow big	*expand big
burn black	*combust black

→ How can the bipartite analysis of resultative complex predicates help here?

→ Hypothesis: Usual complementary distribution conclusions:

→ Relationship is clear for the *clarify/calculate* type, where the *-ify / -ate* is clearly a verbalizing suffix (a v°), and the verb roots are semi-compositional

→ **Clarify it up* would be bad for the same reason that **wipe it clear up* is

→ But what about the *consume/exhibit* type?

→ Diachronically, of course, many were once V+P constructions themselves, with incorporated P: *con+su#me(re…*

→ Could they be synchronically behaving this way in English?

→ Then **consume up* would be bad for the same reason that **throw up out* is bad…

5.3 Dative Shift as a verb+covert particle construction

→ A parallel restriction exists w/r to dative shift and Latinate verbs

→ Anglo-Saxon type verbs usually participate freely, given the right semantics; Latinate ones don't

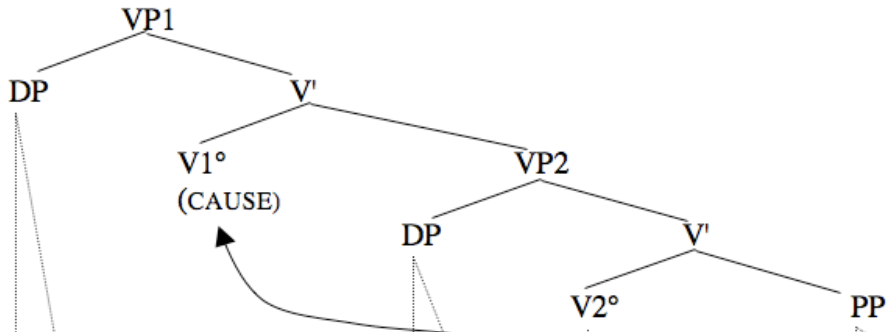
(36)
a. Susie gave Oxfam some canned food.
a'. Susie gave some canned food to Oxfam.
b. *Susie donated Oxfam some canned food.
b'. Susie donated some canned food to Oxfam.
c. Bill sent Sue his regards.
c'. Bill sent his regards to Sue.
d. *Bill conveyed Sue his regards.
d' Bill conveyed his regards to Sue.
e. Mary showed the committee her findings.
e' Mary showed her findings to the committee.
f. *Mary displayed the committee her findings.
f'. Mary displayed her findings to the committee.

g. Tom told Ben the story.
g.' Tom told the story to Ben.
h. *Tom recounted Ben the story.
h'. Tom recounted the story to Ben.
i. *Nikki described Lauren the picture.
i'. Nikki described the picture to Lauren.
j. Sydney found Meleeya the money.
j.' Sydney found the money for Meleeya.
k. *Sydney collected Meleeya the money.
k'. Sydney collected the money for Meleeya.

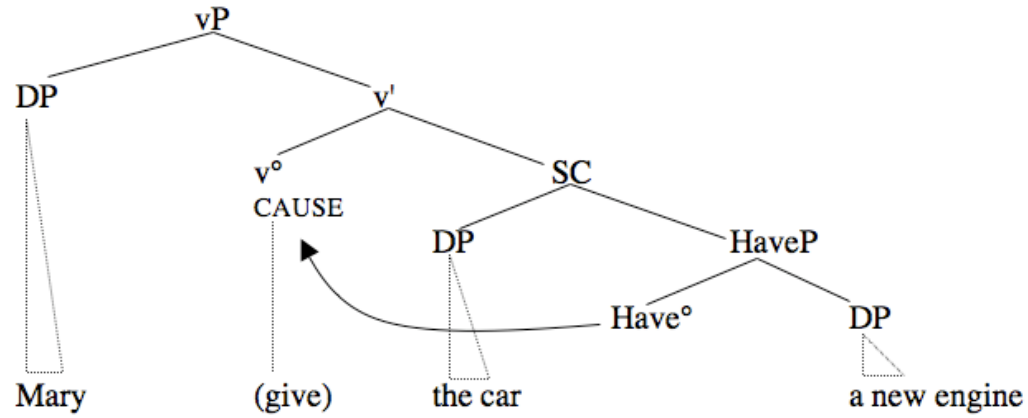
→ If dative shift involves a null particle in the SC predicate position, and inserting the verb root into v°, then we expect the restriction to be parallel between the two cases.

→ How does the dative alternation happen?
Harley 2003:

(37)



(38)



→ Oehrle's generalization (Oehrle 1976, Green 1974): Animate possessor restriction—two structures don't have same theta-roles

(39) a. The editor sent the article to Sue.
b. The editor sent the article to Philadelphia.
c. The editor sent Sue the article.
d. The editor sent Philadelphia the article.
e. Susan sent Harry to Max/down the hall/to his room/away.
f. Susan sent Max/*the hall/*his room/*away Harry.
g. Susan kicked the ball to Max/down the hall/out the window/upward..
h. Susan kicked Max/*the hall/*upward/*the window the ball.

→ Inanimate possessors only allowed when possession is inalienable; effect is parallel for 'have' and double-object 'give'

(40) a. The car has an engine.
b. #The car has a sweater.
(*ok:* The car has a sweater in it)
c. Mary gave the car a new engine.
d. #Mary gave the car a sweater

→ Other differences too:

(41) a. John taught the students French
b. John taught French to the students

(42) a. I knitted this sweater for our baby.
b. I knitted our baby this sweater.

→ Also idioms, licensing of inanimate causers, non-alternating verbs in both directions, etc.; leads lots of people (Green 1974, Richards 2001, Beck and Johnson 2004) to posit covert 'have' relation.

→ I identify this 'have' relation with the prepositional element P_{HAVE} proposed by Freeze 1991, Kayne 1993, as a subconstituent of verbal *have* (BE+P_{HAVE}) and (for Kayne) present in possessive structures (*John's book*).

→ Common objection: Mary can bake John a cake even if the cake never gets to John—even if John never *has* the cake (say it burns, or the dog eats it, or whatever).

→ Duration of 'have' state with verbal *have*, deriving from *be*, makes this a misleading objection.

→ Possession is an abstract relation between entities which can spring into existence in a purely 'legal' sense: It was always *John's cake*, even though he never tasted a bite.

→ Similarly someone can will someone something even if the beneficiary is unaware of the bequest.

→ In sum:
- 'Dative shift' represents a change in the SC predicate
- In *to*-dative, verb root starts in the SC and raises to v°
- In double object construction, the SC is headed by the predicate HAVE and the verb root is inserted in v° directly
- Like *open the door* vs *open the door wide*
- That is, making a double-object construction, like adding a resultative particle or adjective, involves a) kicking the verb root upstairs to v°and b) putting a different predicate in the downstairs Small Clause
- Like V-prt and resultative predicate constructions, double object constructions are ill-formed with Latinate verbs. Generally speaking.

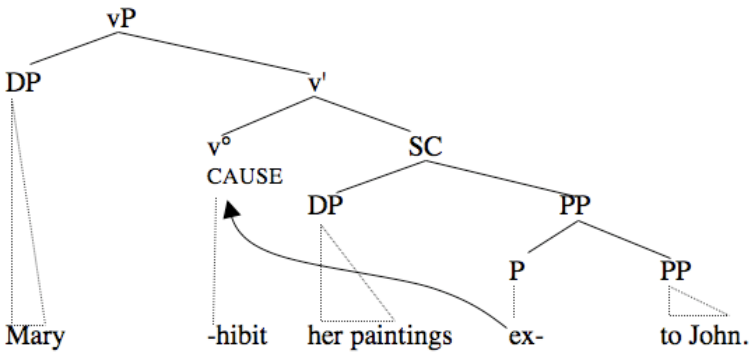
- And, verb-particle constructions, resultative constructions and double object constructions are ill-formed with each other. Generally speaking

(43) a. Mary showed John her paintings.
b. *Mary showed off John her paintings.
(cf. *Mary showed off her paintings (to John)*)
c. Mary passed the kids the potatoes.
d. *Mary passed around the kids the potatoes.
(cf. *Mary passed around the potatoes (to the kids)*)

5.4 Synchronic decomposition for Latinate verbs

→ The claim:

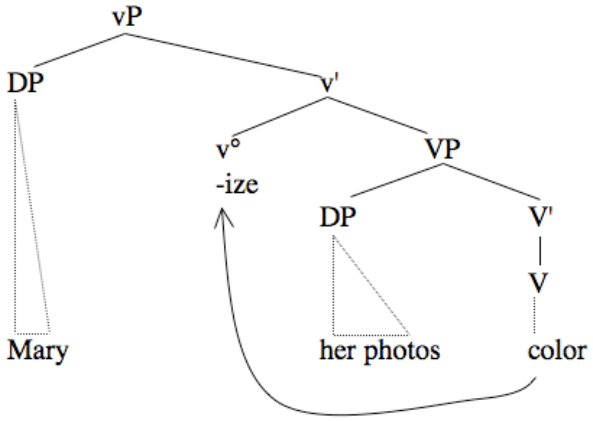
(44)



→ (And similarly for monotransitive Latinate verbs like *consume,* etc; in those cases the P has no complement).

→ For the Japanese-style verbs, the suffix is the upstairs predicate:

(45)



→ How can kids discover that these are bimorphemic? What could motivate a morpheme boundary between *con+sume*, or between *clar+ify?*

→ For the *con+sume* type, especially, there's no decompositional semantics correlating with morpheme parts to motivate decomposition (not like *happy ~ unhappy*)

→ For the *clarify* type, the semantics is there in many cases

→ The *-ify* and *-ize* and *-ate* morphs are frequent enough, have regular enough derivational behavior (*-ification/-ization/-ation*) and correlate strongly enough with word class, even impressionistically, to motivate decomposition by the acquiring child

→ Even without the semantics, though, there's lots of cues for the *consume* type:
- Aggressive segmentation?
- Phonotactic cues
- Allomorphic patterning
- Prosodic cues

5.4.1 Segmentation

→ LAD may be an aggressive segmenter (babies are structuralists, using discovery procedures!)

→ Identical sequences of segments in different contexts filed as potential morphemes

→ When appearing to combine with other filed sequences, even when semantics is noncompositional, morphemic analysis (e.g. Longtin et al. 2003):

(46) a. re-ceive, de-ceive, con-ceive
b. re-fer, de-fer, con-fer
c. de-feat, con-geal, re-peat

5.4.2 Phonotactics

⇒ English phonotactics predicts morpheme boundaries between prefix and root in many cases (Hammond 1999, 2000); if no morpheme boundary, then an otherwise very clear generalization about English word-internal consonant cluster possibilities fails in cases like *adhere, inhibit, exhume*

5.4.3 Morphologically conditioned allomorphy

→ Some roots show morphologically conditioned allomorphy independently of which prefix is attached.

(47)

-cieve~cept	conceive ~ conception
-sume~sumpt	consume ~ consumption
-duce~duct	reduce ~ reduction
-vene~vent	convene ~ convention
-cede~cess	concede ~ concession

→ Also some derivational selection here too:

(48)

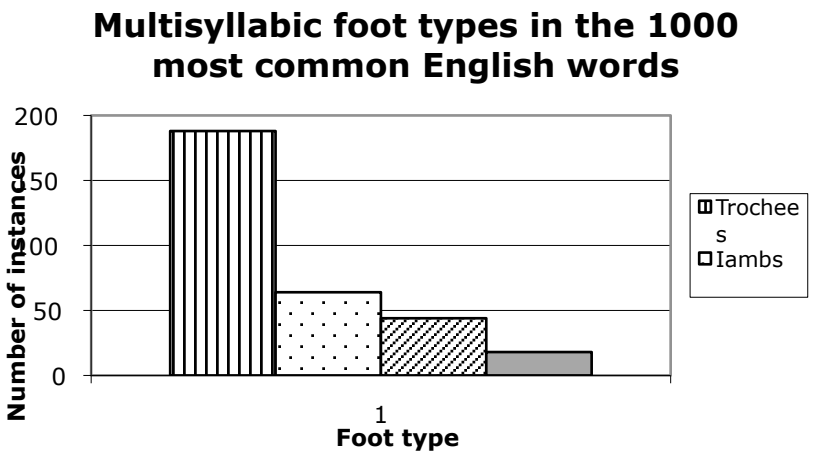
-cept + -tion	*-pose + -ition*	*-fer + -ence*
conception	imposition	inference
reception	deposition	conference

perception	preposition	deference
deception	composition	reference

5.4.4 Prosody

→ Prosody matters: Early English lexicon strongly trochaic (e.g. Jusczyk, Houston and Newcome 1999b)

(49)



→ Evidence that prosody is relevant to the constructions at hand:

(50) **confess up* but *'fess up*!
doNATE the library the book vs *DOnate the library the book*

→ Nearly all of the *consume* type of Latinate verb have wS stress patterns, some SS patterns, SwS (two feet, like *dissect* or *intervene*)

→ (Of course it's not literally 'Latinate' that matters: Plenty of Romance-borrowed trochees act like the Anglo-saxon vocabulary: *offer, train,* etc. are fine with particles, and, where relevant, in the double object construction.)

5.4.5 Psycholinguistic evidence

→ Coppock (2008) reports experiment on adults with nonce SS verbs and found that SS verbs are significantly less acceptable in the double object construction

→ Gropen et. al 1989 tested children with invented ditransitive verbs
- Half the verbs were 'Anglo-Saxon', half were 'Latinate'
- E.g. *norp, pell* vs *repetrine, orgulate*
- Taught the children the verbs in the *to*-dative frame (in one condition)
- Then elicited the verbs from kids
- The children dative-shifted more often with the invented "Anglo-Saxon" verbs than with the invented "Latinate" verbs
- …though not significantly…but, significant results with adults in one grammaticality task

→ Further, a line of masked-priming work begun with Taft and Forster (1975) shows evidence for morphological priming ('affix stripping') across Latinate words with shared roots, such as *exhibit* and *inhibit*

→ They proposed that this effect can be most readily understood if speakers do in fact decompose these forms into their subconstituents, despite their semantic opacity.

5.4.6 Maybe it's 'just' prosody/phonology/morphology, not syntax?

→ Previous approaches to the prosodic restriction on dative shift:
Grimshaw: Dative shifting verbs must be a single prosodic foot. (But why? and why not in some other construction?)
Pesetsky: Null *G* morpheme in double object construction requires a certain shape for its host. (What about V-prt?)

→ Current account has most in common with Keyser and Roeper's "Abstract Clitic Hypothesis", but with the bonus of being grounded in semantic and syntactic as well as morphological motivation

→ But: What about the semantic noncompositionality? Doesn't that prove these are lexically indivisible units? At least particles have semantic content *outside* verb-particle constructions…

→ *Cran*-morphs and idioms say otherwise.

→ Consider what would happen if the SC predicate (*ex-*, e.g.) is replaced, by a particle, a resultative predicate, or HAVE

→ The verb root (*-hibit*), e.g., would be stranded in v°, uninterpretable without its mate.

→ Like trying to interpret *caboodle* without *kit, gamut* without *run the, cahoots* without *in, cran-* without *berry*…

5.5 Counterexamples

→ Overall response: There's more possible structure in the vP than meets the eye.

5.5.1 Particles with dative-shifted ditransitives (Basilico 2008)

→ Basilico: Benefactive ditransitives co-occur with particles; true dative ditransitives don't

(51) a. The scientist wrote the committee up a report of his findings.
b. The mother fixed the children up a nutritious lunch.
c. I cooked her up something special.
d. The cub master built the scouts up a fire.
e. The lawyer drew his client up a contract.

(52) a. The clerk wrote us out a list of problems.

b. The student printed his advisor out a copy of the first chapter.
c. We poured our guests out some drinks.
d. The mother picked her daughter out a nice dress.

(53) a. Break me off a piece of that Kit-Kat bar!
b. The baker tore the customers off some bread.

(54) a. %I printed out my advisor a copy of the first chapter.
b. %The mother picked out her daughter a nice dress.
c. %I fixed up my mom a nice basket.

(55) a. ??I'll draw my client a contract up.
b. ?I'll print you a copy out

→ Consistent with the idea that benefactive arguments introduced by an Appl head or are in general in a different place in the structure than true double-object Possessors; Basilico provides evidence that when the particle is present, the caused-possession interpretation of the double-object construction disappears

5.5.2 Particles with (iambic) Latinate verbs (van Gelderen 2006)

(56) We received it in for you (University librarian, ASU).

(57) a. they .. did receive in such booties of catell or other things (1607, Cowell, from the OED).
b. Each grape to weep, and crimsin streams to spin Into the Vate, set to receive them in (1605, Sylvester, from the OED).

(58) a. Elizabeth's accession allowed him to receive back his wife (BNC-GTB938)
b. a husband who changed his mind to receive his wife back without ceremony (BNC-HTX2122).

(59) evaporate out
dissipate away

→ van Gelderen offers a diachronic account whereby these particles begin life as adverbials adjoined to the SC predicate, become specifiers of a TelicP, and eventually become heads of Telic°; at the same time, however, the adverbial syntax is still available for certain particles.

→ If particles can in certain circumstances (semantically contentful? phonologically heavy?) be adverbial, then in those circumstances, all bets w/r to dative shift are off.

5.5.3 Dative-shifting Latinate verbs (Levin 1993)

→ Levin lists verbs from different semantic classes which occur in the double object construction in her corpus search

→ I have bolded potentially problematic cases for discussion (most are not problematic), and bolded and underlined those which are intractable to my current understanding

(60) Levin's list of non-dative-shifting verbs
address, administer, **broadcast**, convey, contribute, delegate, deliver, denounce, demonstrate, describe, donate, elucidate, exhibit, express, explain, **forfeit**, illustrate, introduce, narrate, portray, **proffer**, recite, recommend, refer, reimburse, remit, restore, return, **sacrifice**, submit, surrender, transfer, transport.

(61) Levin's dative-shifting verbs:
sending: **forward**, hand, mail, post, send, ship, slip, smuggle, sneak
giving: feed, give, lease, lend, loan, pass, pay, peddle, **refund**, render, rent, **repay**, sell, serve, trade
throwing: bush, bat, bunt, **catapult**, chuck, flick, fling, flip, hit, hurl, kick, lob, pass, pitch, punt, shoot, shove, slam, slop, sling, throw, tip, toss
telling: ask, cite, pose, preach, quote, read, relay, show, teach, tell, write
instrument: cable, email, fax, modem, phone, radio, relay, **semaphore(??)** **satellite (??)**, sign, signal, **telephone**, **telecast**, **telegraph**, telex, wire, **wireless(??)**
future having advance, allocate**,** **allot, assign**, award, **bequeath**, cede, **concede**, **extend**, grant, guarantee, issue, leave, offer, owe, promise, **refuse**, vote, will, yield.

5.6 Conclusions

→ Verbs have a bipartite structure, even when they don't look like they do

→ This structure can help us to understand the crosslinguistically correlated distribution of verb-particle, resultative and double object constructions

6. The Interpretation of roots in context: Idiomaticity

Marantz vs. Marantz:

→ Marantz 1997 argued that one domain for 'listed' special meanings was at the vP/VoiceP level—the functional projection at which the external argument is introduced

→ Marantz 2001, Arad 2003 disagree, putting the boundary for special meaning at the 'first categorizing head' level—the first 'little x°' to compose with the root triggers the semantic cycle. All subsequent structures which include that first structure within them must contain that first structure's special meaning implications.

6.1 Marantz 2001, Arad 2003: First categorizing head = first phase = idiosyncratic domain

→ Marantz, Arad: Semantic cycle is at first categorizer, after that, interpretation must be preserved, compositional. Phrasal idioms (I think) are interpreted metaphorically.

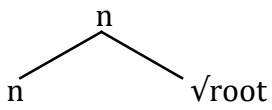
→ Marantz's ex: *donation* vs. *donating*

→ Some of Arad's examples:

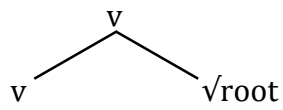
(62) √sgr [+ first categorizing head]

a.	CaCaC (v)	sagar	(v, close)
b.	hiCCiC (v)	hisgir	(v, extradite)
c.	hitCaCCeC (v)	histager	(v, cocoon oneself)
d.	CeCeC (n)	seger	(n, closure)
e.	CoCCayim (n)	sograyim	(n, parentheses)
f.	miCCeCet (n)	misgeret	(n, frame)

(63) a.



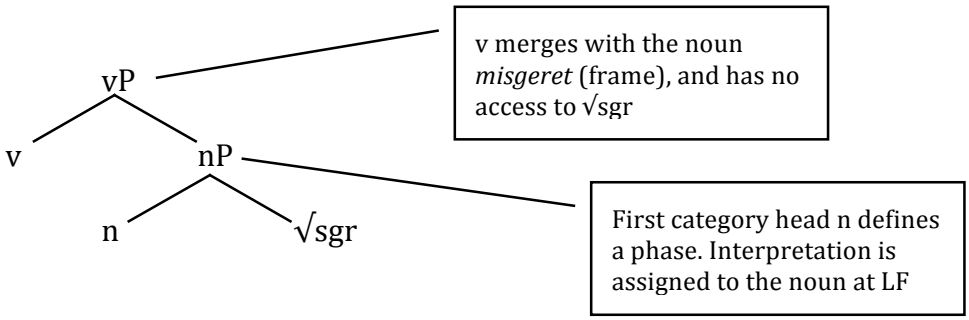
b.



(64) [√sgr + n°] + another categorizing head

a.	miCCeCet	misgeret	(a frame) (= (62)f)
b.	CiCCeC	misger	(to frame)

(65) √sgr → N misgeret → V misger



→ Not so. Idiosyncratic semantics can be assigned outside the first categorizing cycle (Harley and Stone, Borer):

(66) a. *edit* *editor* *editorial*
'of or relating to the editor'
'opinion article'

b. *nature* *natural* *naturalized*
'made natural'
'became a citizen by residing in country'

c. *sanitary* *sanitarium*

'institution for mentally ill'

d. (*audit auditor)* *auditory* *auditorium*
'to do with audition' 'large performance space'

e. *class* *classify* *classifieds*
'small newpaper advertisements'

f. *nation* *national* *nationalize*
'make national'
'government takeover of business'
(Not antonym: *private)* (Antonym: *privatize*)

g. *dominate* *dominatrix*
'woman who does ritualized sexual domination'

h. *institute* *institution* *institutuional* *institutionalize*
'commit X to a facility'

i. *universe* *university*
'institution of higher learning'

j. *hospital* *hospitality*
'welcomingness'

Other cases: *conserve~conservation?, relate~relation? deduce~deduction? protect~protector~protectorate? economic~economical?*

→ Clear cases of categorized roots with meanings wholly dependent on bigger context:

(67) a. *kit and* ***caboodle***
b. *run the* ***gamut***
c. *in* ***cahoots*** with

7. Rules about idiosyncratic interpretation

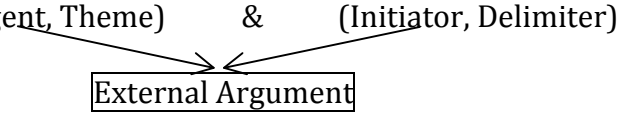
→ Of course the first combination of a root with a categorizer will likely be idiosyncratic

→ Further combinations, though, up to whatever the real first semantic cycle node is (see below), *can* be idiosyncratic

→ What's the first *semantic* cyclic node? Kratzer (1996) had a compelling account about why it would be Voice

7.1 Rules about idiomatic interpretations 1: No Agent-V idioms?Marantz 1984, 97 & Kratzer 1996

(65) Williams: *buy* (1, 2)
Rappaport & Levin: *buy* (<Agent>, Theme)
Grimshaw: Thematic (Agent, Theme) & Aspectual (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:

(66) *buy* λxλe[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

(67)

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

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

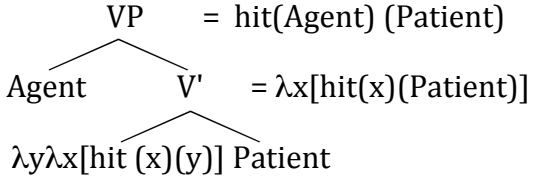
kill the bottle / the peanuts / the casserole / the wine
kill an hour / a few minutes / time

→ 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: hit(x)(y), in the system we saw above:

(69)



"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:

(70) **kill$_1$** 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$_2$ 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$_3$ 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

(71) **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, if *kill* is semantically transitive? Neither approach predicts that it should be impossible:

(72) **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:

7.1.1 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

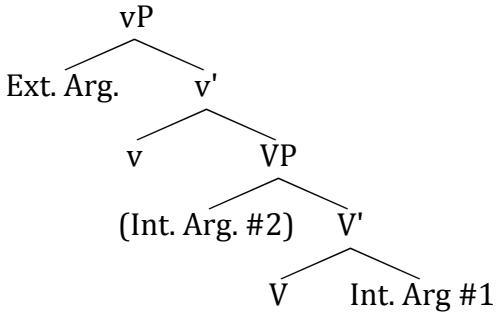
(73) Morphological evidence: Malagasy 'active' prefix *-an-*

M+an+sasa	ny lamba	(amin ny savony)	Rasoa
T+v+wash	the clothes	with the soap	Rasoa

"Rasoa 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:

(74)



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

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

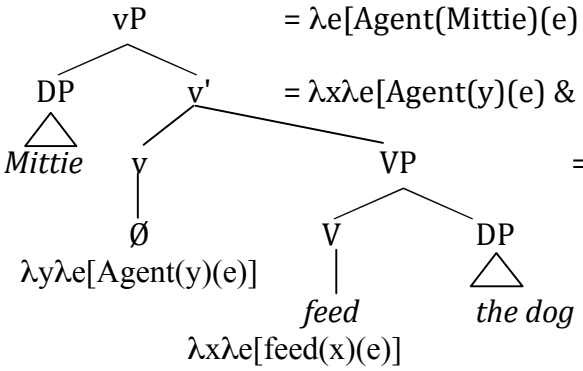
→ How do the denotations of VP & vP get combined? "Event Identification"

→ Object composes (function application) with verb root, subject composes with VoiceP. The interpretations of the two saturated (except for event-arg) predicates are brought together via coordination under the event binder (event identification).

(4)

(Voice)	(VP)		Voice'
f	g	➔	h
<e,<s,t>>	<s,t>		<e,<s,t>>
$\lambda x_e \lambda e_s$Agent(x)(e)	λe_swash(the clothes)(e)		$\lambda x_e \lambda e_s$[Agent(x)(e) &wash(the clothes)(e)]

(75)



= λe[Agent(Mittie)(e) & feed(the dog)(e)] by F.A.

= λxλe[Agent(y)(e) & feed(the dog)(e)] by E.I.

= λe[feed(the dog)(e)] by FA

→ "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.

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

→ Treatment fits with claims that idioms must be constituents. Does *not* fit with claims that objects are introduced by a separate functional head, independent of the properties of the root.

→ Koopman and Sportiche (1986): If a maximal projection XP is involved in an idiom, then minimally the head X° is part of the idiom; spec and comp positions may not be.

→ Contrast explains availability of object-verb idioms, absence of (external-argument) subject-verb idioms. (Subject-verb idioms available in unaccusative/non-agentive structures, e.g. *The shit hit the fan*, *The cat is out of the bag*, Russian Experiencer idioms). Marantz (1984) and (1997) had a lot of empirical support for this generalization.

→ Account *requires* that roots (introducers of idiosyncratic truth conditions) compose by function application with their arguments.

→ Roots select for and compose with their internal arguments (except in manner constructions)

7.1.2 One-replacement argument for root + obj composition (Harley 2005):

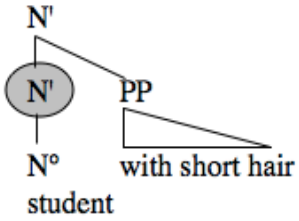
→ Within deverbal nominals, arguments and adjuncts behave differently with respect to the *one*-replacement constituent test

(68) a. *This [student]$_N$ [of chemistry]$_{PP}$ and
that [one]$_N$ [of physics]$_{PP}$ sit together

b. That [student]$_N$ [with short hair]$_{PP}$ and
this [one]$_N$ [with long hair]$_{PP}$ sit together

→ Original proposal (Jackendoff): *one* = N'
–Argument *chemistry* is sister of N *student* under N'
–Adjunct *with short hair* is sister of N' under N'
–*One* is of category N', not N

→ Can't work in BPS: Requires nonbranching N' node in *student with short hair*



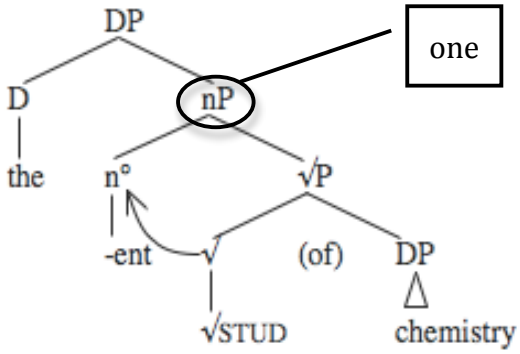
→ Acategorial Root proposal can resolve this problem

→ Capture identical argument-selection properties of related N and V at the Root level, below n° or v°

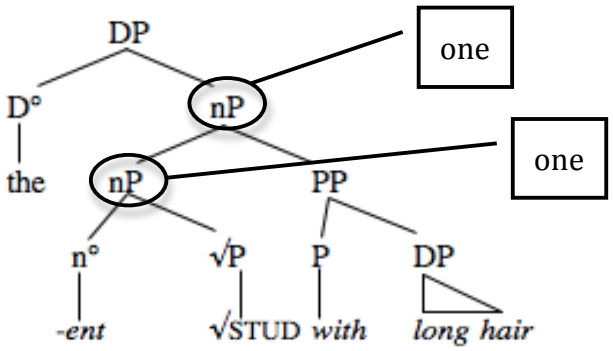
→ Encyclopedic content (semantics) associated with Roots; makes sense that selectional requirements are property of Roots

→ Then *one* can simply be an n° anaphor, the way *do* is a v° anaphor (Merchant 2005)

(69) He studies chemistry / The student of chemistry



(70) The student (of chemistry) with long hair (compare He studies (chemistry) with long hair)



→ If *one* is of category n°, then:
–nP modifiers can attach to it
–It cannot take arguments (only roots can do that)
–It cannot co-occur with a root specified for a particular n° head VI
(i.e. no *stud-one* (*of chemistry*))
–Problems for BPS posed by *one*-replacement resolved

→ Key point for current discussion: (internal) arguments are sisters of roots, not of nP or vP.

7.2 Rules about 'idiosyncratic' interpretation 2: No D° = CUC

7.2.1 Objections to the syntactic account of denominal V creation: Kiparsky 1997

→ Denominal verb formation has a lot of 'word-like' characteristics (like most things formed with derivational processes)
—Very gappy (paraphrases aren't)
—Referentially opaque (paraphrases aren't)
—Subject to particular interpretive constraints (paraphrases aren't)
→ Hyponomous/cognate objects? (*John painted the joint with glue; Bill sweated blood*)
(See Haugen 2009)
→ 'True' vs. 'apparent' denominal verbs? (*Sue hammered the desk with her shoe; #Jenny taped the poster to the wall with pushpins.*) (See Harley and Haugen 2007)
→ Failure to strand modifiers? (#*Betty buttered the bread unsalted; #The cow calved lively.*)[5]

7.2.2 Gappiness

(71) a. The cow calved. (The cow had a calf)
b. #The goat kidded. (The goat had a kid)
c. The wound bled. (The wound oozed blood)
d. #The wound pussed. (The wound oozed pus).

[5] But: *John saddled the horse Western* (contra Kiparsky's judgment, imho), *(In the gatorade commercials) the athletes sweat magenta…*

(72) a. John banked the money. (John put his money in a bank.)
b. #John bonded the money. (John put his money in a bond.)
c. John buttered his bread. (John covered his bread with butter.)
d. #John jellied his bread. (John covered his bread with jelly.)

→ This is like the gappiness of derivational morphology:

(73)	a.	inform	~	information	*informance
	b.	conform	~	conformation	*conformance
	c.	deform	~	deformation	*deformance
	d.	perform	~	*performation	performance

(74)	a.	electric	~	electricity
	b.	iconic	~	iconicity
	c.	specific	~	specificity
	d.	toxic	~	toxicity
	e.	scientific	~	*scientificity
	f.	politic	~	*politicity
	g.	dramatic	~	*dramaticity
	h.	terrific	~	*terrificity

7.2.3 Referential opacity

→ Nouns in paraphrases can introduce discourse referents:

(75) a. Mary covered her face with paint yesterday. It was acrylic.
b. John was trying to repair his shirt. He got as far as loading the needle with thread, but then found it didn't match the shirt.

→ Nouns inside denominal verbs generally cannot:

(76) a. #Mary painted her face yesterday. It was acrylic.
b. #John threaded the needle, but then found it didn't match his shirt.

→ This is again famously like nominals inside words created by derivational processes like compounding:

(77) a. #John has a lovely teapot but never drinks it.
b. #Mary has a very high-end lawnmower. Even so, it still looks awful.

7.3 Kiparsky 1997: The Canonical Use Constraint

→ The explanation for the differences between denominal verbs and their syntactic paraphrases lies in the different properties of lexical derivation and syntactic derivation

→ We should not search for explanations about the lexical semantics of denominal verbs in the realm of syntactic argument structure

→ Rather, the appropriate types of interesting generalizations about denominal verb well-formedness are semantic in nature, and imposed by universal cognitive/linguistic structure. (There are also language-specific ones, of course.)

→ Hypotheses about semantic structure do better than those about syntactic structure as predictors of denominal verb interpretations, e.g. Bierwisch and Wunderlich 1986 et seq.

→ In particular, Kiparsky 1997 proposes a number of semantic constraints as explanations for which denominal verbs are well-formed and which not:

(78) *Theta-role constraint*
Only the lowest (most deeply embedded [in semantic structure]) θ-role can be expressed by the noun of a denominal verb[6]

(79) *Canonical Use Constraint*
If an action is named after a thing, it involves a canonical use of the thing.

(80) *The Lexicalization Constraint*
A verb can inherently express at most one semantic role.

→ (78) is dealt with in a fully integrated fashion by syntactic approaches
→ (80) is very tricky; reminsicent of Talmy (1987)'s observation; but in languages with multimorphemic/compounding verbs, pretty clearly false. Insofar as it's true, can perhaps have a principled syntactic explanation
→ (79), I will argue, can be shown to be true, but is correlated with a particular *syntactic* configuration—that is, it's better understood as a fact about certain syntactic structures than as a semantic constraint on lexicalization.

7.3.1 The Canonical Use Constraint

→ The particular problem: Certain kinds of gappiness in denominal verb formation:

(81) a. John mulched the bushes.
b. #John bushed the mulch.
c. Sue painted the house.
d. #Sue housed the paint.
e. Mary corralled the horse.
f. #Mary horsed the corral.
g. Bill skewered the meat.

[6] Apparently false for instrumental denominal verbs, which are problematic for both syntactic and semantic accounts that adopt this kind of idea.

h. #Bill meated the skewer.

→ How the CUC solves it:

"The reason we do not *bush fertilizer* or *house paint* is that it is not a canonical use of bushes to put fertilizer on them, and it is not a canonical use of houses to put paint on them (whereas it is of course a canonical use of fertilizer to put it on bushes, and a canonical use of paint to put it on houses.)"

Kiparsky 1997: 482

→ Also predicts constraints on uses of instrumental denominals, e.g. why "using a roll of tape as a paperweight is not 'taping' the papers."

→ The CUC is an expression of an intuition that has been repeatedly observed over the years by people interested in lexical semantics and lexical decomposition.

(82) a. Fodor 1981:
"..when Michelangelo dipped his brush into Cerulean Blue, he thereby covered the surface of his brush with paint and did so with the intention that his brush should be covered with paint as the result of having dipped it. But Michelangelo was not, for all that, painting his brush."

b. McCawley 1971:
"…one does not 'hammer a nail in' when one places the hammer on the nail and then sits on it, though obviously this non-stereotypic manner of driving the nail in also shares the basic features of the direct causation prototype."

c. Kiparsky 1997:
"…when a vat of paint explodes in a paint factory, covering everyone with paint…we know that…(1[a]) would not be [a] legitimate report of what happened:
(1) a. #The explosion painted the workers red.

→ If an item can be canonically be seen as a either a location or a locatum, both uses of the denominal verb are fine:

(83) a. *to ice*: To put ice in something/to put something on ice.
b. *to index*: To put an index in something/to put something in an index
c. *to string*: To put strings in something/to put something on string[7]
d. *to thread*: To put thread in something/to put something on thread

→ More examples from Kiparsky of cases where syntactic paraphrase is fine, but denominal verb is subject to CUC:

[7] Also to remove strings from something, *John was stringing the beans…*

(84) a. #The motels were full, but the authorities managed to imprison all the victims of the flood
b. #Because there was no room at the inn, Joseph and Mary stabled the infant Jesus

→ So the CUC can get us a long way to understanding some of the systematicity of the gappiness in denominal verb formation; it's a true generalization.

→ But is it a generalization about lexical semantics? Or about syntax?

→ Something like the CUC seems to apply in another class of cases: the interpretation of bare singular nouns in English and other languages

7.3.2 Bare singular nouns in English: Stvan 1998

→ Not mass, not plural, but determinerless nonetheless:

(85) a. John is going to school
b. I'll see you in court.
c. The captain wants everyone on deck
d. The workers on site found conditions to be awful.
e. The pastor insists that everyone come to church once a week.

→ Several different semantic subtypes, according to Stvan:

(86) a. Bill was watching TV.
b. She caught it on film.
c. You kids get in bed right now!
d. We're on target to make the deadline.
e. I'm not on sabbatical.

→ Not restricted to object of PP (Stvan 1998: 24):

(87) a. Church is a comfort, all right, but your water and your sewer, those are necessities.
(Garrison Keillor, Lake Wobegon Days, New York: Viking, 1985, p. 209)
b. He didn't want to give the impression that "prison was only for those not socially advantaged."
(Arthur S. Hayes, "Ex-Fed Official Gets Jail Term For Data Leak," Wall Street Journal, Sept. 14, 1989)
c. For many of us, school doesn't summon up happy memories.
(Roy Harvey, "Chicago Books Reviewed," Chicago Books in Review vol. 1, no. 4 Fall 96, p. 13)

(88) a. break/pitch/set up camp
b. attend/cut short/skip church
c. break/leave jail
d. enter kindergarten
e. enter/face/flee/mention prison

f. enter seminary
g. attend/hate/invent/like/miss/start/teach school
h. visit town

→ Subject to the CUC:

(89) a. John is going to high school
For education
b. John is going to the high school
To deliver something? A dance? a concert?
c. The pastor wants everyone to come to church once a week
For services
d. The pastor wants everyone to come to the church once a week
To pick up aid supplies? Paint the pews? Town meeting?
e. My cousin is in jail.
Serving time
f. My cousin is in the jail.
Doing volunteer work? Visiting a friend?
g. I watched TV last night.
TV is on.
h. I watched the TV last night.
Could be unplugged? I thought it might explode?

→ When something becomes canonical in a speech community, a bare singular use can arise:

For example, a number of rarely found PP forms, such as *in studio, on property*, *in kitchen* (referring to a professional chef), and *out of office* (here meaning a secretary's workplace, not a political office)—as well as the bare forms of *church, synagogue, temple,* and *court*—were most acceptable for speakers who were participants in the subcommunities that attend these places regularly.
(Stvan 1998: 28)

→ Bonus: Not only do bare singular nouns in English exhibit CUC effects, they are referentially opaque, too:

(90) a. #John went to jail, which was built in the 1960s
b. #Mary watched TV. It was made by Sanyo.

→ ...as remarked on by Stvan:

"... many people have referred to bare singular forms in general as institutional or generic uses of the noun since they do not pick out a particular referent" (Stvan 1998: 11)

→ And, oddly, bare singular N use is 'gappy': It's not enough to have a clear locational canonical use to guarantee acceptability as a bare singular

(91) a. at school/work/home/sea
b. #at factory/field/barn/party

→ Dialects can vary as to which bare Ns are licensed:

(92) a. %at university
b. %at hospital

7.3.3 Bare singular Ns in other languages: 'Pseudo-incorporation'

→ Similar phenomena have been observed and discussed at length in Niuean (Massam 2001), Hindi (Dayal 2003)
→ Niuean: Mostly VSO

→ But: VOS acceptable if O lacks case, determiner:

(93) a. Takafaga tumau ni e ia e tau ika
hunt always EMPH ERG he ABS pl fish
"He's always hunting fish" (V adv S O)

b. Takafaga ika tumau ni a ia
hunt fish always EMPH ABS he
"He's always fish-hunting" (V O adv S)

→ Non-case-marked O remains *in situ*; entire VP fronted to spec-TP or higher to give VOS order

→ Analysis: Case-marked O raises away from base-position to check Case in a functional projection below final position of subject. (Note case on subject changes.)

→ "…the incorporated noun in this type of NI is non-specific and non-referential."

→ But it is clearly syntactically composed with the V, not lexically composed: allows modification, e.g.:

(94) a. Ne inu kofe kono a Mele
PSTdrink coffee bitter ABS Mary
"Mary bitter-coffee-drank"

b. Kua kai ika mo e talo a mautolu he mogonei
PREF eat fish with ABS taro ABS we.exl at now
"We're fish-with-taro-eating right now."

→ Hindi: Dayal 2003 "Semantic but not syntactic incorporation": correlated with absence of determiners, case-marking on bare singular objects

(95) a. Anu bacca sambhaal rahii hai
Anu child is-looking-after
"Anu is babysitting"

b. Anu bacce-ko sambhaal rahii hai
Anu child-ACC is-looking-after
“Anu is looking after the child.”

→ Syntactically the bare singular N is clearly an independent unit; can be modified/complex phrasal units, can be non-adjacent to V/scrambled in right context, active for agreement:

(96) *Bare singulars can be phrasal* (modification, coordination)
a. anu sirf puraanii kitaab becegii
A. only old book will-sell
"Anu will only sell old books."
b. anu kutta aur billi paaltii hai
Anu dog and cat breeds
“Anu breeds cats and dogs.”

(97) *Bare singulars can be away from V*
a. anu bacca nahii samhaalegii
Anu child not will-look-after
“Anu will not look after children.”

b. kitaab Anu bhii becegii
book, Anu also will-sell
“Anu will also sell books.”

(98) *Bare singulars active for agreement*
puure din maiN-ne (apne kamre meN) kitaab paRhii
whole day I-erg (self’s room in) book-fem read-fem-sing.
“The whole day I read books in my room.”

→ Bare singular Ns are 'number neutral'—no singular entailment

→ And, they are 'gappy':

(99) a. laRkii-dekhnaa, laRkii DhuunDhnaa, baccaa-khilaanaa, baccaa-samhaalnaa
girl-seeing girl-finding child-looking.after child-looking.after

b. *baccaa-maarnaa, *laRkii-sulaanaa *aurat-dekhnaa, *laRkii-khilaanaa
child-beating girl-putting.to.sleep woman.seeing girl-looking.after

→ And fairly referentially opaque:

(100) a. anu apne beTe ke-liye laRkii dekh rahii hai.
Anu self’s son for girl is-looking-at
“Anu is looking at prospective brides for her son.”

vo #uskaa/laRkii-kaa swabhaav jaanaa caahtii hai.
she her/girl's nature to-know wants
"She wants to know #her/the girl's temperament."

→ Dayal's interpretation of the CUC effects: like Dowty's notion of *appropriate classification:*

> We now come to the third novel aspect of the proposal, namely the restriction imposed by the requirement of *appropriate classification*. The idea… is that lexicalization targets only those [event+manner] combinations…that have some cultural stability. Therefore, cooking by stirring in a hot pan with a little oil has become lexicalized into *stir-fry* but while we can easily conceptualize an event of cooking an egg by putting it in a pan and placing it on a hot car engine we would not expect to see a lexical manner of verb for such events. … The same, I am claiming, holds true of incorporation. A predicate + property combination is possible only if events in which that property is a theme of that predicate are relatively frequent and sufficiently distinct from other similar activities. (Dayal 2003: 17)

(101) An event denoted by a predicate δ that incorporates a property γ is *appropriately classificatory* iff
$\Diamond_{probable}(\exists e\,[\delta(e) \,\&\, \exists y\,[Ag(e) = y] \,\&\, \exists x\,[\gamma(x) \,\&\, Th(e) = x]])$ *(extensional verbs)*
$\Diamond_{probable}(\exists e\,[\delta(e) \,\&\, \exists y\,[Ag(e) = y] \,\&\, Th(e) = \gamma])$ *(intensional verbs)*
(Dayal 2003: 16)

→ Consequence for modification (as in (96)a above):

> "Of course, there are certain types of modification and conjunction that are not acceptable in incorporation. For example, [37a] cannot have a modifier like *bhaarii* 'heavy'. This is because modification must preserve prototypicality, and while *old books* can enter into a prototypical relation with *sell*, *heavy books* cannot."
> (Dayal 2003:12)

→ Conclusion of both Massam and Dayal: these structures are fully syntactically formed, but have all the salient semantic characteristics of incorporation in incorporating languages

→ Important factor is presence/interpretation of bare singular NP, not morphosyntactic incorporation

7.3.4 English bare singular NPs: Number-neutral, phrasal

→ As for Hindi, English bare singulars are number-neutral (see Stvan's remarks about 'institutional' readings above)

(102) Every child in Tucson goes to school. (not just one school)

→ And of course they can be phrasal, as long as the prototypicality/CUC requirement as described by Dayal is satisfied:

(103) a. He goes to Hebrew school.
b. He's in debtor's prison.
c. She caught it on 35mm film.

7.3.5 The moral of the story

→ CUC effects, while genuine, and while truly sensitive to a whole host of lexical-semantic and cultural factors, are not an argument that denominal verbs are formed in the lexicon, subject to special semantic constraints on 'naming'

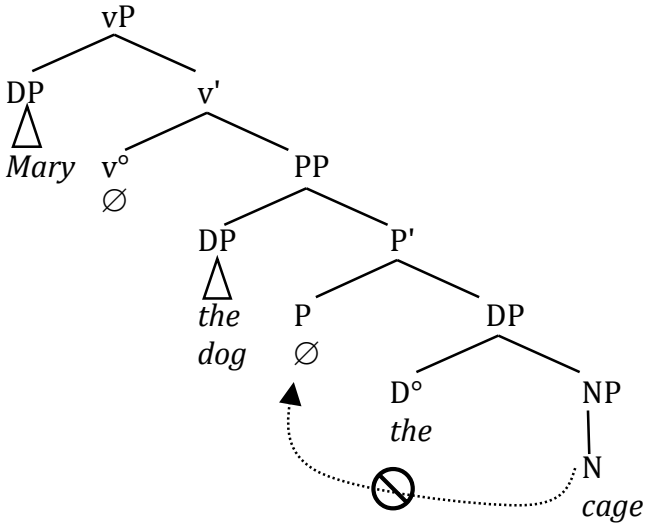
→ Indeed, they're an argument that denominal verbs are formed in the syntax

→ The generalization from Dayal, Massam, and Stvan, is that CUC effects appear when an NP has no functional superstructure—no selecting Num° or D° or Q° or K° heads

→ That is, *if you are a bare singular NP*, you are subject to the CUC.

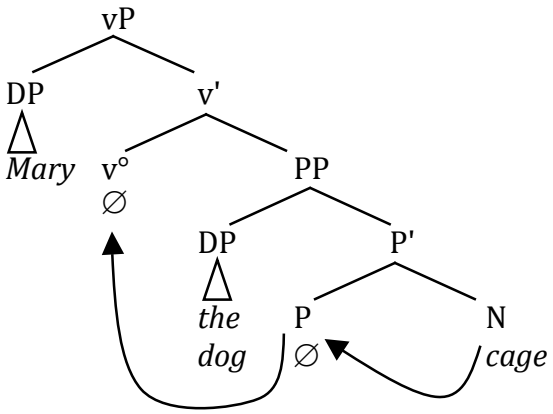
→ When can an N° incorporate/conflate to produce a denominal verb? Only if it's bare; Minimality guarantees that intervening functional heads (if they cannot incorporate themselves) will prevent N from incorporating:

(104) a.



N incorporation cannot skip intervening D° head

b.



N incorporation can only proceed without intervening superstructure

→ That is, the appearance of CUC effects in denominal Vs (and, presumably, in the whole range of incorporation cases considered by Mithun) are a *subcase* of the whole CUC phenomenon, entailed by the syntactic restrictions on incorporation, which entail that the incorporee is a bare N°.

→ Because the incorporee must be a bare N°, CUC effects appear. It's not about word-formation, it's about the special interpretive restrictions on bare NPs *in the syntax.*

→ Relevant to us: It's also not about bare *roots*. These idiosyncratic, lexical-ish effects are applying to categorized Ns, or N+V combinations ('complex predicates').

→ Complex predicates and monomorphemic English Vs have the same kinds of meanings; it's because they are both formed within a single domain of idiomatic interpretation. Both are composed in a structurally complex way.

7.4 Rules about idiomatic interpretations 3: McGinnis 2002: On the systematic aspect of idioms

→ The main point: the aspectual properties of idioms are the ones predicted by their syntactic structure.

→ Conclusion: syntactic structure is compositional, even in these cases where the content words are not interpreted compositionally

Argument:

1. Idioms fall into all the usual aspectual classes, as detected by all the usual tests:

(105) States
a. Hermione was the cat's pyjamas for years/#in an hour.
b. *Hermione is being the cat's pyjamas.

(106) Activities:
c. Harry jumped through hoops for years/#in an hour. (activity)
d. Harry is jumping through hoops.

(107) Accomplishments:

e. Hermione paid her dues in ten years. (accomplishment)
f. Hermione stopped paying her dues.

(108) Achievements:
g. Harry struck paydirt in an hour. (achievement)
h. #Harry stopped striking paydirt.

2. 2 classes of theory make different predictions:

a) Jackendoff's Representational Modularity model as a default maps syntactic structure onto semantic structure ('LCS' = Lexical Conceptual Structure). E.g. *kick* with 2 syntactic arguments, is mapped onto a semantic representation — an LCS — with two argument slots.
b) In RM, idiomaticity can arise when some aspect of this mapping is irregular. So *kick* in *John kicked the bucket* maps onto an LCS with only one argument slot (for 'John'). The semantics of the idiom are structurally idiosyncratic — the mapping could be arbitrary.
c) In Distributed Morphology, on the other hand, syntactic structure is computed from invariant morphosyntactic/semantic features; idiomaticity is specified only on roots (for some context), and is specified in the Encyclopedia. Morphosyntactic features' meanings *must* be interpreted, and interpreted compositionally, in the same way in idioms as anywhere else.

→ Assumption (see Tenny & Krifka): Aspectual meaning is structurally computed, via operations that look at things like the boundedness of direct object meanings.

(E.g. #*Hermione climbed in 10 hours* vs. *Hermione climbed a mountain in 10 hours*)

→ Jackendoff predicts that aspectual meaning should be able to be as 'idiomatic', i.e. variable, as any other kind of structural meaning (where, e.g., syntactic valence need not correspond with semantic valence).

→ DM predicts that if structural meaning is there, it must be computed in the same way, & with the same results, in idioms and non-idioms

3. Compositional aspect in idioms

→ Building on an observation of Marantz's about the most-used idiom of them all:

→ Although *kick the bucket* is regularly glossed as *die*, it really must mean something more like *croak* -- *die* isn't (rigorously) punctual, while *croak* is:

(109) a. Hermione was dying for weeks.
b. #Hermione was kicking the bucket for weeks.

→ Marantz asserts that the oddness of (b) results because *kick the bucket* has the same punctual qualities that the non-idiomatic interpretation must have — because these punctual qualities are a structural consequence of being a certain type of verb in a certain syntactic structure.

→ McGinnis builds on this idea:

(110) c. Hermione hung a left in five minutes. (telic) ← singular count DP object
d. Harry hung fire for/#in a week. (atelic) ← mass DP object

→ Compare the non-idiomatic sentences with the same structural properties:

(111) e. Hermione hung a picture in five minutes. (telic)
f. Harry hung pictures/laundry for/#in an hour. (atelic)

4. Some possible counterexamples, and why they're not:

(112) a. The mouse stopped getting the cheese. (accomplishment)
b. #The cat stopped getting Harry's tongue. (achievement)

→ (b) is not equivalent to (a). But it's a different kind of *get* in (b) — non-agentive (in fact stative, I think). A non-idiomatic sentence using the same kind of *get*, as in (c), does have the right aspectual qualities:

(113) c. #The teacher stopped getting Harry's homework. (achievement)

→ Similarly:

(114) d. On her doctor's advice, Hermione took a powder for several weeks.
(iterative *taking*, non-idiom)
e. When the ogre arrived, Hermione took a powder for an hour.
(non-iterative *taking*, idiom)

Again, the iterative use is available only with agentive *take*. Non-idiomatic non-agentive *take* in (f) behaves like (e), not (d); (d) doesn't argue against the hypothesis because (e) is built on the *take* in (f), not (d)

(115) f. When the class ended, Hermione took a break for an hour.

5. Pragmatic effects:

→ some idioms don't allow readings that their non-idiomatic counterparts allow:

(116) a. The dog bit my leg for an hour. (iterative reading avail)
b. #Hermione bit the dust for an hour. (no iterative reading avail)

→ problem here is that world knowledge tells us you can only bite the dust (or kick the bucket) once.

→ restriction goes away in a suitable context.

(117) a. The phoenix kicked (the bucket) every five hundred years for millennia.
b. The phoenix bit the dust for three days, then rose again from its ashes.

→ Take-home message: Aspectual info is not subject to idiomatization. (The point should extend, of course — other kinds of structural info aren't idiomatizable either -- tense, mood, etc.) Structural info can be *fixed* in an idiom (#hang a fire, #kick the buckets), but it has to mean what it means — it has to contribute its regular, compositional meaning to the meaning of the clause containing it.

8. Identity criteria: How are roots individuated in the syntactic lexicon?

8.1 Phonological identity?

→ No: Root suppletion exists.

(118) English:

a.	go ~ wen-	'GO ~ GO.pst'
b.	bad ~ worse	'BAD ~ BAD.compar'
c.	person ~ people	'PERSON.sg ~ PERSON.pl'
d.	good~bet-	'GOOD ~ GOOD.compar'

(119) Hiaki:

a.	vuite~tenne	'run.sg~run.pl'
b.	siika~saka	'go.sg~go.pl'
c.	weama~rehte	'wander.sg~wander.pl'
d.	kivake~kiime	'enter.sg~enter.pl'
e.	vo'e~to'e	'lie.sg~lie.pl'
f.	weye ~ kaate	'walk.sg~walk.pl';
g.	mea ~ sua	'kill.sg0 ~ kill.pl0'

...plus a few others. This is a typical Uto-Aztecan pattern

→ Hence Hiaki √RUN, √WANDER, English √GO, √BAD etc. are not mentally stored with a phonological identifier.

→ How to implement this? Suppletive exponents of roots compete for insertion in the same way that suppletive exponents of functional heads do — *contra* Harley and Noyer 2000.

(120) Hiaki competition for √WANDER

√WANDER ←→ *weama* / [[___] [DP_{+sg}]]

←→ *rehte* elsewhere

→ Marantz 1995, 1997 observes that it is conceptually problematic for roots to exhibit suppletion, in particular with respect to acquisition.

→ Children exhibit a *mutual exclusivity* bias in word learning. If two lexemes have distinct phonetic signatures, they must refer to distinct concepts. Suppletion in roots, in particular, could be nigh-unlearnable. Suppletion in functional heads is less problematic, assuming that the set of functional heads is finite and at least partially provided by UG; the child can deduce the presence of the functional head and make

appropriate assumptions about contextual allomorphy in different contexts (e.g. *dog-**s*** vs *child-**ren***) given enough repetitions.

→ Marantz's proposal: all true suppletion is a realization of functional heads, including 'light' lexical categories—v, a, n, etc.

→ Very plausible for English.

→ Less plausible for Hiaki and Uto-Aztecan….

(121) "Lexical type table" with glosses for suppletive verbs conditioned by number given in Veselinova (2003: 222-224), a survey of suppletion in 193 languages. Arrows mine:

Table 4. *Verbal number pais: lexemic groups and verb meanings*
No Number of languages where the a verbal number pair for a certain sense is observed

Leximic group	*Verb meaning*	*No*	*%*	*Weight values*	*% of total weight values sum*
MOTION (intransitive)	go	14	8	6.619	8
	fall	7	4	4.455	5
	come	4	2	3.036	4
	run	4	2	1.965	2
Leximic group	*Verb meaning*	*No*	*%*	*Weight values*	*% of total weight values sum*
	arrive	3	2	0.452	1
	enter	3	2	1.243	1
	start	3	2	0.830	1
	get up	2	1	0.625	1
	return	2	1	0.423	0
	rise	2	1	1.000	1
	walk	2	1	0.625	1
	fall in water	1	1	0.5	1
	fly	1	1	0.083	0
	go about	1	1	1.000	1
	go along doing X	1	1	0.167	0
	go around something out of sight	1	1	0.167	0
	jump	1	1	0.330	0
	move	1	1	1.000	1
	stampede	1	1	0.33	0
	swim	1	1	0.5	1
	visit	1	1	0.125	0
	walk, do while walking	1	1	0.5	1

MOTION (transitive)	put	5	3	3.830	4
	throw	5	3	3.840	4
	take	3	2	2.5	3
	give	2	1	0.840	1
	drive something out	1	1	0.083	0
	get, take	1	1	0.17	0
	grasp	1	1	0.125	0
	pick up	1	1	0.330	0
	pull out	2	1	0.84	1
	release	1	1	1.000	1
	remove	1	1	0.083	0
	take out	1	1	0.5	1
POSITION	sit	13	7	7.538	10
	lie	11	6	4.576	6
	stand	8	5	4.538	5
	hold	1	1	1.000	1
	hold, carry	1	1	0.083	0
	lie, exist, be	1	1	0.167	0
	sit, dwell	1	1	0.5	1
	sit, lie	1	1	0.34	0
	store	1	1	0.5	1
DIE / INJURE	die	11	6	3.753	4
	kill	9	5	3.958	5
	break	2	1	1.000	1
	hit	2	1	1.340	2

Leximic group	*Verb meaning*	*No*	*%*	*Weight values*	*% of total weight values sum*
	beat	1	1	0.10	0
	bite off	1	1	0.340	0
	cut	1	1	1.000	1
	die of old age / hunger	1	1	0.5	1
	injure	1	1	0.340	0
STATIVE VERBS	sleep	6	3	2.336	3
	big	3	2	1.840	2
	small	2	1	1.340	2
	be LOC	1	1	0.5	1
	be lost	1	1	1.00	1
	be, exist	1	1	1.00	1
	long	1	1	1.000	1
	short	1	1	1.000	1
OTHER	eat	3	2	0.997	1
	belong to	1	1	0.5	1
	bet	1	1	0.125	0
	come out (in quality)	1	1	0.500	1
	make netbag	1	1	0.330	0
	make noise	1	1	1.000	1
	not like	1	1	0.330	0
	say	1	1	0.083	0

→ The equivalent table for tense/aspect-conditioned suppletion lists the following lexical meanings, emphasis mine:

(122) come/go, be/exist, say/speak, do, take, see/watch, eat, give/lay, put, die, become, sit, stand, stay, carry, **catch**, get, have, **hear**, throw, **beat**, **become cold**, become, happen, go cry, **drink**, fall, live/move, run, stay/continue, wake up, walk

→ Probably goes without saying that these are high-token-frequency items, else unlearnable. But (in the languages that I know about) their suppletion is not sensitive to whether they have a 'light' verb function or not. It could be that I just don't know enough about Hiaki to establish that these verbs all have a light verb function… though just as a thought experiment it's hard to imagine a light verb function for, e.g. *stampede*.

→ It is perfectly clear that when they're used as 'main' verbs, in their 'literal' sense, they are still suppletive; if in their literal sense they are still realizations of v°, containing no √, their argument structure syntax would prob be radically different from regular main verbs of the same adicity and with the same morphosyntactic properties (passivization etc.) Either they have a null √, in which case the same acquisition problem arises, or they do not have the same kind of argument structure syntax…. or they are themselves proper √s.

→ All this in support of the not-too-controversial assertion that the cognitive identity criteria for roots is not inherently phonological, though of course most roots can be fairly unambiguously identified phonologically.

→ Idea is that you have some abstract entity, say √WANDER in the syntax of Hiaki, which is realized with the VI *weama* or *rehte* depending on the number of its argument.

8.2 Semantic identity?

→ No: Roots have different meanings in different morpho-syntactic environments; sometimes so different as to suggest that the roots themselves are completely meaningless (see also Baeskow 2006; Harley 2008)

(123) a. *-ceive*
deceive, receive, conceive, perceive
b. *-here*
adhere, inhere
c. *-port*
comport, deport, report, import, support
d. *-pose*
suppose, depose, compose, repose, propose

…etc. These are clearly diagnosable as roots, however, by an acquiring child or linguist, as they exhibit contextual allomorphy and morphological selectional restrictions regardless of the lexical item they appear in, and would do so productively in a nonce-form containing the root:

(124) a. *-ceive~-cept + ion*
deception, reception, conception, perception
b. *-pose ~ -pos + ition* (not *–ation* or *–ion*…)
composition, supposition, proposition, deposition
(*reposition blocked by nominal *repose*)
(…though this is not a thorough survey…)

8.3 Identity criteria: Nonsemantic, nonphonological (Aronoff 1994)

→ Roots must have individuation criteria — say, indices — that do not depend on semantic or phonological identity

→ Vocabulary item competition is defined w/r to these indices, as is semantic interpretation—which probably works a lot like vocabulary item competition. Production and parsing are mirror images of each other, working forwards from a semantic or phonological representation.

(125) $\sqrt{}_{683}$ ←→ *cept* / [...[____] n_{event}]
←→ *ceive* elsewhere

(126) $\sqrt{}_{683}$ ←→ "think" / [con [___]] (predicate of events, as in *think up* – 'con' contributes its (telic) content compositionally—cf. McGinnis)
←→ "fake" / [de [___]] (predicate of events as in *fake out* — 'de' contributes its telic content compositionally)
(There may be no elsewhere meaning)

8.4 Speech errors, roots, and the model

→ Pfau 2000, 2009: Speech error evidence suggests that semantic representations precede Numeration selection: Garrett/Levelt model meshes well with DM assumptions

→ Two points of selection; at first one, semantic neighborhood substitution errors are possible; in the second, phonological neighborhood substitutions:

(127) *semantic*:

a.	Alkohol	for	Kalorien
	alcohol		calories
b.	belt	for	collar

phonological:

c.	Urwald	for	Urlaub
	jungle		holiday
d.	apartment	for	appointment

→ Patterns of accomodation (adjustments to gender of substituted N, e.g.) suggest that semantic substitutions precede syntax; phonological ones follow it:

Examples:

(5) a. *Meaning-based substitution, with accommodation*
aber du musst **die** Tür dann festhalten, Quatch, <u>das</u> Fenster
but you must the.f door.f then hold, nonsense, the.n window.n

b. *Form-based substitution, no accomodation*
oh, **ein neuer** Luft, äh, <u>Duft</u>

ah, a.m new.m air.f, ah, fragrance.m

→ Pfau has 36 cases of noun substitution in his corpus where a) accommodation would be possible and visible, i.e. the nouns differ in a gender feature that triggers overt agreement and b) it's possible to be sure whether the substitution was phonological or semantic. Here's how the accommodation breaks down:

(6)

Noun Error Type	Accommodation?	
	Yes	No
meaning-based	21	1
form-based	2	11

→ In other words, the facts are exactly as DM/Levelt would predict (except the three).

8.4.1 Acategorial roots

→ Pfau adopts the H&N idea that the closest thing to 'category' a root has are licensing features that say where it's insertable

→ he takes care of adjectives by assuming that adjectives are licensed by a Deg° head (this head is what is selected/modified in comparative & superlative constructions)

→ his story would carry over well to a little a / little n categorizing heads view.

→ there are errors where you see roots inserted into the wrong category-licenser

(7) The gardener has to **die** the **pull**ed**-up** flowers.
← The gardener has to <u>pull up</u> the <u>dea</u>**d** flowers

(8)

Ich	hab-e	ein-en	**Wurf**	ge-blick-**t**
I	have-1sg	a-m.acc	throw.NOM.m	ppl-glance-ppl
←	ein-en	Blick	ge-<u>worf</u>-<u>en</u>	
	a-m.acc	glance.m	ppl-throw(v)-ppl	

(9)

der	**Sprung**,	äh,	der	Funke	<u>spring</u>-t	über
the.m	jump.NOM	uh	the.m	spark.m	jump(v)-3sg	over

→ in such errors, you see accommodation to the new category (e.g. vowel change or lack therof) or accommodation of the licensing environment to the new root.

→ only explainable if roots are inherently category-less (otherwise such errors should *never* occur at the lemma level, rather than just being less frequent).

→ the above was a switch where accommodation to the new environment was on the root

→ here the affixes change (as well as antepenult shortening applying):

(10) People still see Libya as a nation**al** danger
← …as a danger**ous** nation

→ So exchange of acategorial roots is possible, particularly if the root is licensed in more than one environment, and happens before syntax (or at least before Vocab Insertion)

→ The licensing requirements explains Garrett's category-based effect — roots will tend to be exchanged in environments where they can both satisfy their licensing requirements.