Syntactically underspecified Voice: Evidence from the causative alternation in Choctaw

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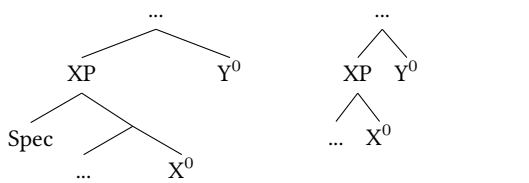
1 Introduction

Some fragments of syntax we often see:

(1) a. X^0 with specifier b. X^0 without specifier



Some common expressions in syntax:

(2) a. "X^0 can take a specifier"
b. "X^0 must have a specifier"
c. "nothing can merge as the specifier of X^0"

- A topic of much theorizing: What are the properties or features of X^0 which regulate whether Spec-XP can serve as a landing site for movement (**internal merge**)?

  → e.g. edge features (Chomsky 2000)

- We can ask the same question about **external merge**: what properties or features of X^0 regulate whether X^0 is a potential base-generation site of arguments?[1]

Today:

- What features of Voice (a.k.a. 'little *v*') regulate the (external) merge of (external) arguments in Spec-VoiceP?[2]

- Support for the proposal that there are **three** Voice heads (Kastner 2016, 2020; Nie 2020)
  - $\text{Voice}_{[+N]}$: requires a NP specifier.[3]
  - $\text{Voice}_{[-N]}$: bans an (NP) specifier.
  - $\text{Voice}_{[\,]}$: Voice places no syntactic restrictions on the presence/absence of a (NP) specifier.

- Evidence from argument structure in **Choctaw**

Roadmap:

2 Choctaw basics

2.1 The language

- Western Muskogean language, spoken in Mississippi (all ages) and Oklahoma (mainly elderly people).
- Data comes largely from fieldwork conducted in Pearl River, MS and Bogue Chitto, MS, 2017-2019. See my dissertation: Tyler (2020).
- Previous work on Choctaw:
  - Work by missionaries (Byington 1870, 1915)

1. See Adger (2003); Müller (2010) for some previous discussion of this issue.
2. Similar questions exist for internal arguments, which various frameworks take to be externally-merged as sister to *v* or the root. I do not tackle this question here, purely because Choctaw gives us more empirical purchase on external arguments and the features of Voice.
3. I assume Choctaw noun phrases are headed by n/N, but I do not engage with this issue here.

  - 20th-century work out of UCLA (Munro and Gordon 1982; Gordon and Munro 2017; Davies 1981, 1986; Ulrich 1986; Broadwell 1990)
  - ....including a lot of work on closely-related Chickasaw (Munro and Willmond 1994; Munro 1999, 2016)
  - 20th-century dissertations (Nicklas 1974; Haag 1996)
  - A detailed modern grammar (Broadwell 2006)

- Important orthographical note! Underlined vowels (a̲ i̲ o̲) are **nasalized** (/ã ĩ õ/).

2.2 Choctaw syntax

Fairly rigid SOV; NOM/OBL(ique) case-marking:[4]

(3) Alíkchi-**yat** alla-m-**a̲** masaali-ch-aachi̲-h.
doctor-**NOM** child-DEM-**OBL** heal-CAUS-FUT-TNS
'The doctor will heal that kid.'

Pervasive argument drop:

(4) *pro pro pro* Im-aa-tok.
DAT-give-PST
'She gave it to him.'

1st and 2nd-person arguments are indexed by verbal agreement—they show an **active**/agentive/semantic/split-S alignment:[5]

(5) a. **Ii**-taloow-aachi̲-h.
1PL.**ERG**-sing-FUT-TNS
'**We** will sing.'

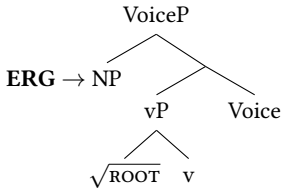
b. **Pi**-ll-aachi̲-h.
1PL.**ABS**-die-FUT-TNS
'**We** will die.'

c. Ohooyo-yat **pi**-pi̲sa-tok.
woman-NOM 1PL.**ABS**-see.NG-PST
'The woman saw **us**.'

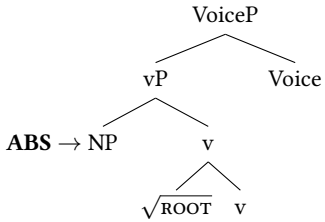
4. SOV is rigid for nominal arguments. Clausal arguments can be preposed or extraposed much more freely.
5. See Mithun (1991) for discussion of the proliferation of terminology around active alignment. See Davies (1981, 1986); Broadwell (1988, 2006); Broadwell and Martin (1993); Tyler (2019a, 2019b, 2020) for discussion of agreement/clitic-doubling in Choctaw.

Simplified analysis of agreement: it diagnoses **internal vs. external** argument position:[6]

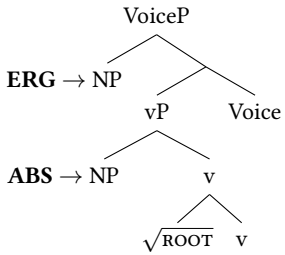
(6) a. Unergative



b. Unaccusative



(7) Transitive



2.3 The verb complex

Suffixes realize 1SG ergative agreement(!), mood, tense, clause-type, evidentiality, switch-reference a.o.:

(8) ano̲poli -l -aachi̲ -ho -km -a̲
speak -1SG.ERG -FUT -TNS -if -DS
'if I'm going to speak...'

Some aspectual information is realized by morphophonological templates, which apply to the verb stem.

→ These are called '**grades**' in the Muskogean literature (see Nicklas 1974; Ulrich 1986; Broadwell 2006 for in-depth discussion):

6. See Davies (1981, 1986); Nicklas (1974); Heath (1977); Payne (1982); Foley and Van Valin Jr. (1984); Broadwell (1988, 1990).

(9)

alhkama-h	it closed	
alhkáma-h	it is closed (result state)	*n-grade*
alhkáhma-h	it suddenly closed	*h-grade*
alhkáàma-h	it finally closed	*y-grade*
alhkahą́ma-h	it kept on closing	*hn-grade*

Simplified verb template:

(10) CLITICS=-AGR.ERG-AGR.DAT/ABS-$\underbrace{\textbf{STEM}}_{\text{ASP}}$-1SG.ERG-MOD-TNS-C-SR/CASE/EVID

Today: we will mostly look inside the **stem**, which corresponds to **VoiceP**.

3 The puzzle: morphology in the causative alternation

Morphologically-unmarked causative alternation in English:

(11) a. Suzie smashed the cup.
b. The cup smashed.

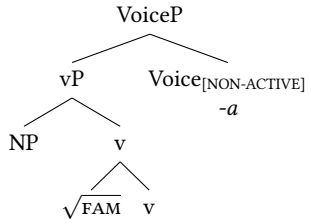
Morphologically-marked causative alternation in Choctaw:[7]

(12)

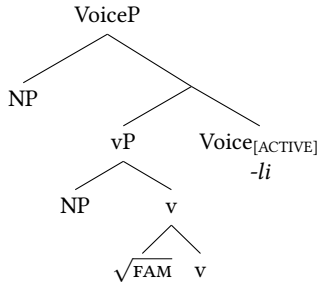
a.	fakooh-**a**	it peeled off	**[non-active]**
	fakoh-**li**	she peeled it off	**[active]**
b.	fam-**a**	he was whipped	
	fam-**mi**	she whipped him	

Plausible analysis:

(13) a. *fam-a-h* 'he was whipped'



b. *fam-mi-h* 'she whipped him'



7. The range of interpretations of Choctaw non-actives is much larger than that of English alternating intransitives like (11b). Choctaw non-actives may be interpreted as passives (e.g. (12b)) or reflexives (not shown). See Alexiadou and Doron (2012) for analysis of a similar range of interpretations for non-actives in Greek and Hebrew.

– This follows the *common base* approach to the causative alternation (Pylkkänen 2002, 2008; Alexiadou et al. 2006, 2015; Schäfer 2009).

- Support comes from agreement properties of active/non-active alternants:

(14) a. **Sa-** faam-a-tok.
1SG.**ABS**-√WHIP-NACT-PST
'I was whipped.'

b. **Is-** **sa-** fam-mi-tok.
2SG.**ERG**-1SG.**ABS**-√WHIP-ACT-PST
'You whipped me.'

- Are these two Voice heads—Voice$_{[\text{ACTIVE}]}$ and Voice$_{[\text{NON-ACTIVE}]}$—sufficient?

→ Doesn't seem so.

Observation #1: there's a lot of allomorphy in the active/non-active forms

(15)

a.	i.	*bash-a*	'it got cut'	
	ii.	*bash-li*	'she cut it'	[*-a*/*-li*]
b.	i.	*apissa-Ø*	'it is straight'	
	ii.	*apissa-li*	'she straightened it'	[*-Ø*/*-li*]
c.	i.	*haloppa-Ø*	'it is sharp'	
	ii.	*haloppa-chi*	'she sharpened it'	[*-Ø*/*-chi*]
d.	i.	*takaa-li*	'it hung (sg.)'	
	ii.	*takaa-chi*	'she hung it (sg.)'	[*-li*/*-chi*]
e.	i.	*a<h>chifa*	'it got washed'	
	ii.	*achiifa-Ø*	'she washed it'	[*<l>*/*-Ø*]
f.	i.	*a<l>wash-a*	'it (got) fried'	
	ii.	*awash-li*	'she fried it'	[*<l>*+*-a*/*-li*]
g.	i.	*lhipii-ya*	'it overturned'	
	ii.	*lhipii-chi*	'she overturned it'	[*-a*/*-chi*]

Observation #2: the suffix *-li* gets re-used to form both **non-actives** and **actives**—cf. (15a) vs. (15d).

Three patterns (collapsing *-a/<l>* and excluding Øs):

(16)

non-active	active	example root
-a/<l>	*-li*	√BASH 'cut' (cf. 15a)
-li	*-chi*	√TAKA 'hang' (cf. 15d)
-a/<l>	*-chi*	√LHIPI 'overturn' (cf. 15g)

Generalizations:

(17) a. *-a/<l>* only forms non-actives

b. *-chi* only forms actives

c. *-li* forms actives that alternate with *-a*, and non-actives that alternate with *-chi*

Organized another way:

(18)

	-a/<l> (non-active)	***-li*** (non-active/active)	***-chi*** (active)
√FAM	*fam-a* 'was whipped'	*fam-mi* 'whipped'	–
√BASH	*bash-a* 'was cut'	*bash-li* 'cut'	–
√AWASH	*a<l>wash-a* '(was) fried'	*awash-li* 'fried' (tr.)	–
√TAKA	–	*takaa-li* 'hung' (intr.)	*takaa-chi* 'hung' (tr.)
√SHALA	–	*shalal-li* 'slipped/slid'	*shalaa-chi* 'dragged'
√MOSHO	–	*moshoo-li* 'went out'	*moshoo-chi* 'doused/turned off'
√LHIPI	*lhipiiy-a* 'overturned' (intr.)	(%*lhipii-li*)	*lhipii-chi* 'overturned' (tr.)

- Possible analysis: **accidental homophony**.
  - $\text{Voice}_{\text{ACTIVE}}$ and $\text{Voice}_{\text{NON-ACTIVE}}$ both have an allomorph *-li*.
  - Let's take this as the hypothesis to beat.[8]

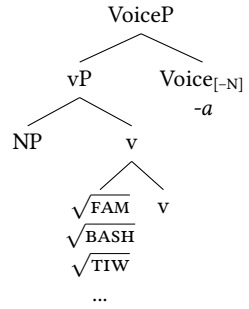
4 The basic proposal: syntactically-underspecified $\text{Voice}_{[\ ]}$

(19) *-li* = $\text{Voice}_{[\ ]}$

8. There's another alternative hypothesis, which is that *-li*/*-chi*-alternating roots are not true non-active/active pairs, but are instead unergative/causative-of-unergative pairs. See my dissertation (Tyler 2020) for evidence that *-chi* can form true lexical (rather than syntactic) causatives, and that alternating intransitive *-li* verbs truly have internal-argument subjects.

(20) *-a*/*-li* alternating verbs (cf. (15a))

a.



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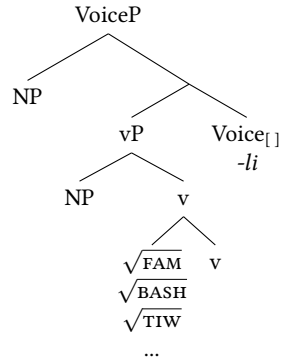
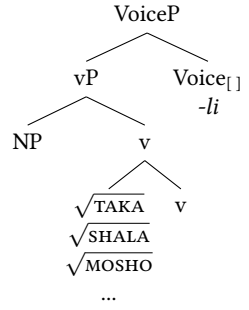
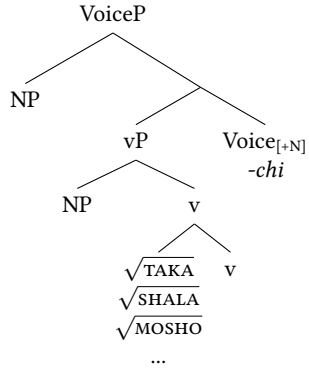


(21) *-li*/*-chi* alternating verbs (cf. (15d))

a.



b.



- The root determines which Voice heads it can merge with:
  - Some combination of $\text{Voice}_{[-N]}$, $\text{Voice}_{[+N]}$ and $\text{Voice}_{[\ ]}$
  - In the presence of $\text{Voice}_{[\ ]}$, the root *indirectly* determines whether $\text{Voice}_{[\ ]}$ has or lacks a specifier (§6.2).

The remainder of this section:

§4.1 Alternating triplets

§4.2 Evidence from morphosyntax that [non-active *-li* = active *-li*].

§4.3 $\text{Voice}_{[\ ]}$ (*-li*) outside the causative alternation.

4.1 Alternating triplets

If there are three Voice heads, at least some roots should be able to take all three, right?

(22)

	***-a*/<*l*>** (non-active)	***-li*** (non-active/active)	***-chi*** (active)
√APAKFOO	*apakfoow-a* 'was wrapped'	*apakfoh-li* 'wrapped' (tr.)	*apakfoo-chi* 'wrapped tightly' (tr.)
√APISSA	*apissa-Ø* 'is straight'	*apissa-li* 'straightened' (tr.)	*apissa-chi* 'focused on' (tr.)
√CHITO	*chito-Ø* 'is big'	*chitoo-li* 'loudened' (tr.)	*chitoo-chi* 'enlarged' (tr.)

- *N.B.* Slight complication: there aren't many clear *-a*/*-li*/*-chi* triplets.

  → See Hebrew and Tagalog for better examples (§5).

4.2 The common syntactic behavior of *-li*

Various authors (Nicklas 1974:258, Ulrich 1986:270-276, Broadwell 2006:130,219-220) note that *-li* is 'optionally deleted' before participial *-t*:

- Active (transitive) *-li* is deletable before *-t*:

(23) a. *kooli* 'smash.ACT'
aapísa **koo-t** ámmohmi-h
window √**SMASH-PTCP** do.excessively-TNS
'He really smashed the window.'

b. *pa̲shpoli* 'sweep.ACT'
shinok **pa̲shpo-t** tahli-hm-at ittahoobi-t ashaachi-tok
sand √**SWEEP-PTCP** finish.ACT-when-SS gather-PTCP put-PST
'When he finished sweeping the sand he piled it together.'

c. *shaali* 'carry'
shaa-t iya-tok
√**CARRY-PTCP** go-PST
'I carried it out.'

- Non-active (intransitive) *-li* is also deletable before *-t*:

(24) a. *biniili* 'sit'
issoba o̲-**binii-t** iya sa-nna-h,
horse SUP-√**SIT-PTCP** go 1SG.ABS-want-TNS
ak-íiyo-ki̲sha-h-aatok-o̲
1SG.IRR-go.NEG-yet-TNS-because-DS
'I want to ride a horse because I haven't done that before.'

b. *masaali* 'heal (intr.)'
masaa-t iyaa-li-tok
√**HEAL-PTCP** go-1SG.ERG-PST
'I was getting better.'

Upshot:

- *-li*-deletion before *-t* can target active and non-active *-li* (but not *-a* or *-chi*).[9]
  - This would be hard to account for under an 'accidental homophony' account.

4.3 Voice$_{[\ ]}$ (*-li*) outside the causative alteration

Voice$_{[\ ]}$ (*-li*) co-occurs with some non-alternating roots too.

- Three kinds of non-alternating verb formed with Voice$_{[\ ]}$ (*-li*):

§4.3.1 Non-alternating actives/transitives

§4.3.2 Non-alternating non-actives/unaccusatives

§4.3.3 Unergatives

4.3.1 Non-alternating transitives with *-li*

(25) a. *hab-a-h
hab-li-h she kicked/stepped on it

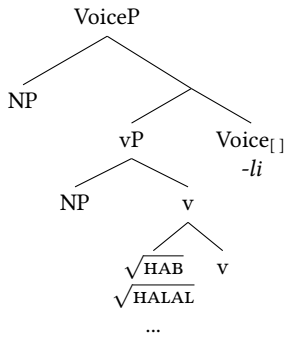
b. *halaal-a-h
halal-li-h she pulled it

c. *polh-a-h
polh-lhi-h she folded it

9. There is another kind of '*-li*-deletion', before the causative suffix *-chi*. In Tyler (2020) I proposed that this is a separate phenomenon whereby Voice$_{[+N]}$ (*-chi*) is merged in the syntax *in place of* Voice$_{[\ ]}$ (*-li*).

These roots only occurs with $\text{Voice}_{[\ ]}$, and not $\text{Voice}_{[-N]}$ or $\text{Voice}_{[+N]}$.

(26)



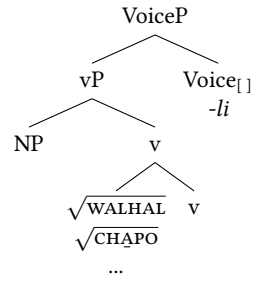
4.3.2 Non-alternating unaccusatives with *-li*

(27)

a.	walhal-li-h	it boiled (of water)
	*walhaa-chi	
b.	i̲tibal-li-h	she made a mistake/missed
	*i̲tibaa-chi	
c.	cha̲po-li-h	it is sweet/tasty
	*cha̲po-chi	

Again, these root only occurs with $\text{Voice}_{[\ ]}$ (and not $\text{Voice}_{[-N]}$ or $\text{Voice}_{[+N]}$).[10]

(28)



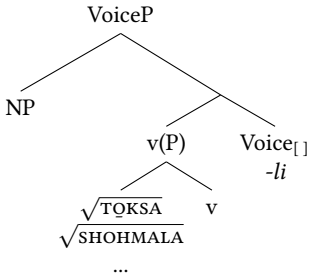
10. Interestingly there aren't many roots that form an unaccusative with *-li* and do *not* alternate with an active/transitive formed with *-chi*.

4.3.3 Unergatives with *-li*

(29)

a.	to̲ksa-li-h	she worked
b.	shohmalaa-li-h	it shone
c.	taklholaa-li-h	she yelled

(30)



And again, these root only occurs with $\text{Voice}_{[\ ]}$ (and not $\text{Voice}_{[-N]}$ or $\text{Voice}_{[+N]}$).

- See the appendix for unaccusativity diagnostics in Choctaw.

Is *-li* just part of the root?

Where *-li* does not alternate with *-a* or *-chi*, we can't rule out the possibility that *-li* is just part of the root.

- Some quick stats from the current iteration of Choctaw lexicon project (*very* W.I.P.):
  - 1328 verbs total
  - 233 verbs that end in the **string**
    - Of these, I count 131 that **do not alternate**
  - Comparison with other phonotactically-licit *-lV* endings:
    - 29 verbs that end in <la>
    - 16 verbs that end in <lo>

Tentatively: *-li* is a very common final suffix, speakers will decompose it even where it doesn't alternate.

N.B. I haven't counted what portion of assimilated *-li*'s alternate (<mmi>, <ffi>, <lhlhi>, etc)...

4.4 Interim summary: the distribution of Voice heads

Adding together the logical possibilities (and filling out some that we haven't seen yet)...

(31)

	***-a*/<*l*>** (non-active)	***-li*** (non-active/active)	***-chi*** (active)
$\sqrt{\text{CHAPO}}$	–	*chapo-li* 'be tasty' (intr.)	–
$\sqrt{\text{HAB}}$	–	*hab-li* 'kicked' (tr.)	–
$\sqrt{\text{ATAPA}}$	–	–	*ataapa-chi* 'stopped' (tr.)
$\sqrt{\text{CHAMAKA}}$	–	–	*chamaaka-chi* 'rang' (intr.)
$\sqrt{\text{FAM}}$	*fam-a* 'was whipped'	*fam-mi* 'whipped' (tr.)	–
$\sqrt{\text{TAKA}}$	–	*takaa-li* 'hung' (intr.)	*takaa-chi* 'hung' (tr.)
$\sqrt{\text{LHIPI}}$	*lhipiiy-a* 'overturned' (intr.)	– (%)	*lhipii-chi* 'overturned' (tr.)
$\sqrt{\text{APAKFOO}}$	*apakfoow-a* 'was wrapped'	*apakfoh-li* 'wrapped' (tr.)	*apakfoo-chi* 'wrapped tightly' (tr.)

5 Aside: underspecified Voice$_{[\ ]}$ in a cross-linguistic perspective

Kastner (2016, 2020) on Hebrew:

(32)

	niXYaZ (Voice$_{[\text{-D}]}$)	XaYaZ (Voice$_{[\ ]}$)	heXYiZ (Voice$_{[\text{+D}]}$)
$\sqrt{\text{ʃBR}}$	*niʃbar* 'was broken'	*ʃavar* 'broke' (tr.)	–
$\sqrt{\text{NFL}}$	–	*nafal* 'fell'	*hepil* 'dropped'
$\sqrt{\text{XLʃ}}$	*nexlaʃ* 'grew weak'	–	*hexliʃ* 'weakened' (tr.)
$\sqrt{\text{KTB}}$	*nixtav* 'was written'	*katav* 'wrote'	*hextiv* 'dictated'

Nie (2020:37ff.) on Tagalog:

(33)

	ma- (Voice$_{[\text{-D}]}$)	<*um*> (Voice$_{[\ ]}$)	*mag-* (Voice$_{[\text{+D}]}$)
$\sqrt{\text{BASAG}}$	*na-basag* 'shattered' (intr.)	*b*<*um*>*asag* 'shattered' (tr.)	*nag-basag* 'shattered' (tr.)
$\sqrt{\text{BAGSAK}}$	–	*b*<*um*>*agsak* 'flunked' (intr.)	*nag-basak* 'flunked' (tr.)

See also Oseki and Kastner (2017) on Japanese.

6 Two ways for a $\sqrt{\text{ROOT}}$ to constrain Voice

- How does a given $\sqrt{\text{ROOT}}$ ensure that Voice {does/doesn't/can} take an external argument in its specifier?

→ Two methods, each of which is **independently necessary**:

§6.1 $\sqrt{\text{ROOT}}$ *directly* controls its argument structure by $\sqrt{\text{ROOT}}$↔**Voice 'selection'**

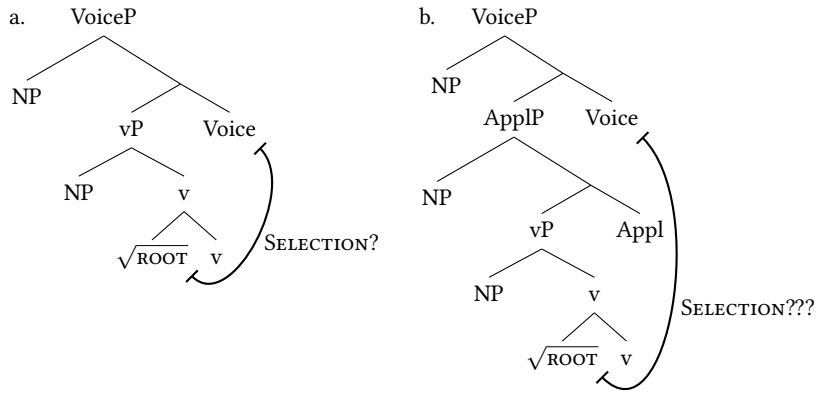
§6.2 $\sqrt{\text{ROOT}}$ *indirectly* controls its argument structure via **contextual allosemy**

6.1 Constraining the E.A.-taking properties of Voice by $\sqrt{\text{ROOT}}$↔Voice 'selection'

We know that roots can be choosy about their argument structure.

- The root has a say in what heads constitute its local functional sequence *up to Voice.*

(34)



→ 'Selection' may be the wrong term but I will continue to use it for now.[11]

11. See Arad (2003, 2005); Marantz (2007, 2013) and Harley (2008), among others, for discussion of the kinds of demands that roots can put on their immediate surrounding syntactic structure, which goes beyond 'simple' head-to-head selection. It is an open question what role there is for arbitrary syntactic selection here *at all*, if the semantic properties of certain roots *demand* syntactic manifestation: for instance, agentive roots like $\sqrt{\text{MURDER}}$ are illicit without sufficient functional structure to bring in agentive semantics.

A root may 'select' Voice heads with a specified E.A.-taking property:

- If a root selects **Voice**$_{[+N]}$, then that root can appear *with* an external argument.
- If a root selects **Voice**$_{[-N]}$, then that root can appear *without* an external argument.
- But syntactic selection doesn't constrain **Voice**$_{[\,]}$.

  → For that, we need something else...

6.2 Constraining the E.A.-taking properties of Voice via contextual allosemy

A recent line of work proposes that roots condition the interpretation of nearby functional heads.

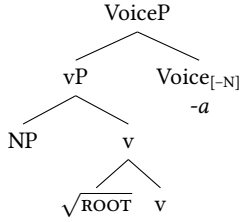
- I.e. the LF equivalent of contextual allomorphy.

  → *contextual allosemy*

6.2.1 What is contextual allosemy?

An example from Choctaw:

(35) Structure of non-active verb



- Tyler (2020): Choctaw non-actives with *-a* can be shown to be:[12]
  - inchoatives/statives — **no implicit agent**
  - lexical passives — **implicit agent**

(36)

	Implicit agent?	Example	Active alternant
lexical passive	+	*fam-a* 'he was whipped'	*fam-mi* 'she whipped him'
inchoative	−	*koow-a* 'it smashed'	*koo-li* 'she smashed it'
mediopassive	+/−	*alwash-a* 'it (was) fried'	*awash-li* 'she fried it'

- Analysis: Voice$_{[-N]}$ has at least two different *allosemes*:[13]

(37) a. **No implicit agent:**
$[\![\ \text{Voice}_{[-N]}\ ]\!] \leftrightarrow \lambda\tau.\tau$ (i.e. $[\![\text{Voice}_{[-N]}]\!]$ is an identity function)

b. **Implicit agent:**
$[\![\ \text{Voice}_{[-N]}\ ]\!] \leftrightarrow \lambda e.\exists x.\textsc{agent}(e, x)$
(i.e. $[\![\text{Voice}_{[-N]}]\!]$ introduces an existentially-bound agent role)

- Roots may condition which alloseme of Voice$_{[-N]}$ is inserted:

(38) a. $[\![\ \text{Voice}_{[-N]}\ ]\!] \leftrightarrow \lambda\tau.\tau\ /\ \{\sqrt{\textsc{koo}}, \sqrt{\textsc{kinaf}}, ...\}\ \_$

b. $[\![\ \text{Voice}_{[-N]}\ ]\!] \leftrightarrow \lambda e.\exists x.\textsc{agent}(x, e)\ /\ \{\sqrt{\textsc{fam}}, \sqrt{\textsc{kinaf}}, ...\}\ \_$

Upshot:

→ **Contextual allosemy is real**.

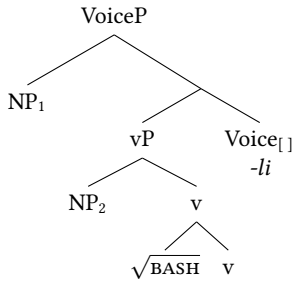
12. Some Choctaw non-actives also have a *reflexive* interpretation, but I set these aside here.

13. I assume Kratzer's (1996) model of Neo-Davidsonian event semantics, wherein thematic roles are two-place functions that relate individuals and events. For other authors' implementation of allosemy in a range of contexts, see Marantz (2013); Wood (2015); Myler (2016); Wood and Marantz (2017); Kastner (2020).

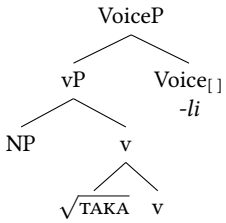
6.2.2 Using contextual allosemy to constrain the specifier-taking properties of Voice$_{[\,]}$

Let's take two *-li* verbs:

(39) a. *bash-li* 'cut'



b. *takaa-li* 'hang (intr.)'



Intuition:

- Voice$_{[\,]}$ in (39a) introduces an unsaturated thematic role.
  - → NP_1 saturates this role. Without this role, NP_1 would not compose successfully with Voice'.
- Voice$_{[\,]}$ in (39b) does *not* introduce an unsaturated thematic role.
  - → If an NP was merged in Spec-VoiceP, it would not compose successfully.

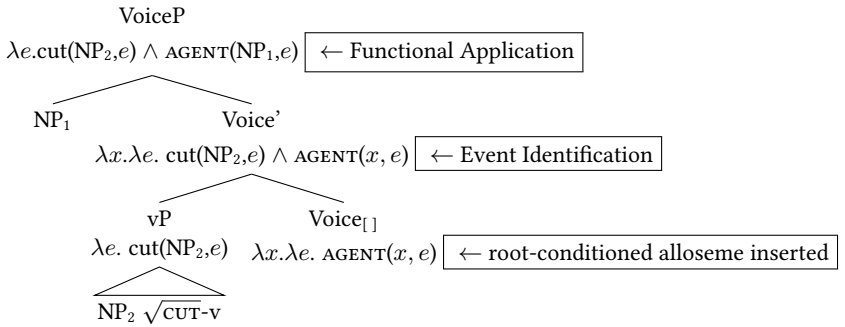
Two allosemes of underspecified Voice$_{[\,]}$

(40) a. $[\![\ \text{Voice}_{[\,]}\ ]\!] \leftrightarrow \lambda x.\lambda e.\textsc{agent}(x, e)\ /\ \{\sqrt{\textsc{bash}}, ...\}$

b. $[\![\ \text{Voice}_{[\,]}\ ]\!] \leftrightarrow \lambda \tau.\tau\ /\ \{\sqrt{\textsc{taka}}, ...\}\ \_$

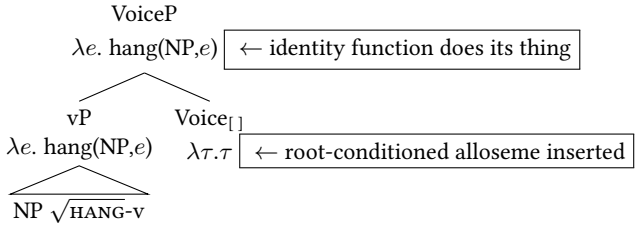
Successful composition tree for (39a):

(41)



Successful composition tree for (39b):

(42)



Upshot:

- The $\sqrt{\textsc{root}}$ conditions which alloseme is inserted at Voice$_{[\,]}$.
- The choice of Voice$_{[\,]}$ alloseme determines whether Voice$_{[\,]}$ can successfully compose with or without a specifier.

→ Thus the $\sqrt{\textsc{root}}$ *indirectly* determines whether Voice$_{[\,]}$ takes a specifier.

Section summary:

- The $\sqrt{\textsc{root}}$ can control the specifier-taking properties of Voice by:
  - direct selection of Voice$_{[-N]}$ or Voice$_{[+N]}$.
  - selection of Voice$_{[\,]}$ + conditioning alloseme insertion at Voice$_{[\,]}$.

7 Doing things with underspecified Voice$_{[\ ]}$: non-valency-increasing causatives

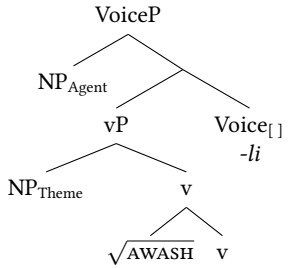
Regular causativization: the suffix *-chi* (i.e. Voice$_{[+N]}$) can productively causativize virtually all verbs:

(43) a. Akaka ish- awash-l-aachi-h-o?
chicken 2SG.ERG-√FRY-ACT-FUT-TNS-Q
'Are you going to fry the chicken?'

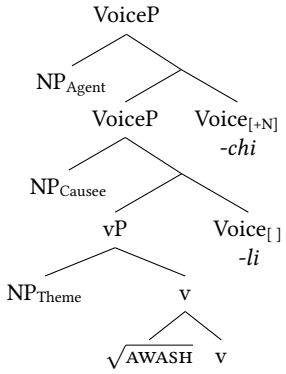
b. Akaka chi- aawash-li-**chi**-l-aachi-h.
chicken 2SG.ABS-√FRY-ACT-**CAUS**-1SG.ERG-FUT-TNS
'I'm going to make you fry the chicken.'

Analysis (following Miyagawa 1980, 1984; Harley 2008): **v/Voice-recursion**

(44) a. *awash-li* 'he fried it'



b. *awash-li-chi* 'she made him fry it'



- There are various questions relating to this structure (mono- vs. bi-eventiveness, agreement, the thematic role of the causee...), which I set aside here.

A curious phenomenon: **non-valency-increasing** causativization:[14]

(45) a. John-at ashan-ni-tok.
John-NOM √TWIST-ACT-PST
'John twisted it.'

b. John-at ashan-ni-**chi**-tok.
John-NOM √TWIST-ACT-**CAUS**-PST
'John twisted it hard.'
'John twisted it with difficulty.'
'John twisted it and it broke.' (Broadwell 2006:130-131)

(46) a. Kocha aapísa-m-a tiw-wi-h.
outide window-DEM-OBL √OPEN-ACT-TNS
'She opened the window.'

b. A-bahta tiw-wi-**chi**-tok.
1SG.DAT-bag √OPEN-ACT-**CAUS**-PST
'She opened up my bag (and made a mess of it).'

(47) a. Tanapo tokaf-fi-li-tok.
gun √FIRE-ACT-1SG.ERG-PST
'I fired the gun.'

b. Palammi-h-o tokaf-fi-**chii**-li-tok.
struggle-TNS-DS √FIRE-ACT-**CAUS**-1SG.ERG-PST
'I had a hard time making it fire.'

- **Observation #1**: non-valency-increasing causatives always involve *extra effort* or a *lack of full control* on the part of the agent.
- **Observation #2**: non-valency-increasing causativization is possible *only* when the causativized predicate is a transitive *-li* verb.

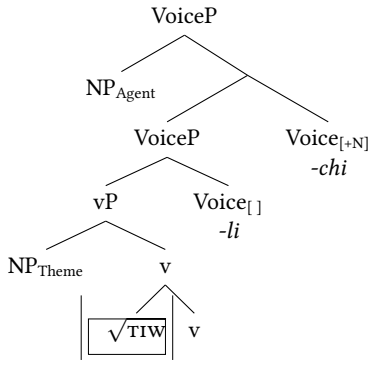
→ ...i.e. when the causativized VoiceP is headed by syntactically-underspecified **Voice**$_{[\ ]}$.

14. See Broadwell (1994, 1997, 2006:130-134). For interestingly similar constructions in Norwegian and Statimcets, see Taraldsen (2010).

Intuitive version of analysis:

- Syntactic structure of non-valency-increasing causative in (46b):

(48)



- $\sqrt{\text{TIW}}$ conditions Voice$_{[\,]}$ (*-li*) to introduce an unsaturated agent role, as usual.

  → It's actually a *causee* role here but let's set that aside for now.

- And while *usually*, this is enough to force an NP to merge in Spec-VoiceP (§6.2.2), here this does not happen.

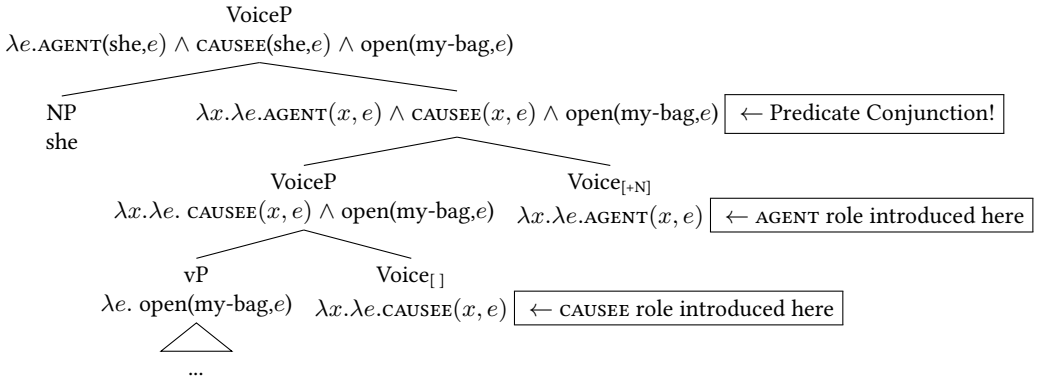
- Instead, the AGENT and CAUSEE roles introduced by the Voice heads both get passed to the NP in Spec-VoiceP

  → AGENT vs. CAUSEE correspond to the sentient/intentional vs. physical/implementational components of agency.[15]

  → Splitting the agent role and then linking both roles to the same individual is what leads to the 'out of control' reading.

Mechanical implementation:[16]

(49)



- Lower VoiceP merges with Voice$_{[+N]}$ and they semantically combine by **Predicate Conjunction** (Kratzer 2009; Wood 2015).[17]

Section conclusion:

- Non-valency-increasing causatives exploit the syntactic flexibility of Voice$_{[\,]}$.

8 More on $\sqrt{\text{ROOT}}$↔Voice selection: the pluractional alternation

Many verbs in Choctaw show the following cross-cutting pluractional/causative quadruplet:

(50) $\sqrt{\text{KALA}}$ 'scratch'

kalaa-[f-a]-h 'it was scratched (once)'	kala-[h-li]-h 'it was scratched (lots)'
kala-[f-fi]-h 'she scratched it (once)'	kala-[h-chi]-h 'she scratched it (lots)'

15. See Lundin (2003); Sigurðsson and Wood (2020) on the notion of 'agent splitting', by which the traditional agent role is decomposed into an *initiator*, who sentiently and knowingly makes the event happen, and the *doer*, who is physically responsible for making it happen. Lundin and Sigurðsson and Wood are concerned with constructions in which these two (sub-)roles are occupied by different referents, but I propose that the particular 'out of control' reading attested here is the result of them being occupied by the same referent (perhaps by pragmatic reasoning).

16. In (49), the lower Voice head introduces a CAUSEE role and the higher Voice head an AGENT role. An alternative analysis would hold that both Voice heads introduce agent roles, and each agent role is predicated of a different event—the lower Voice head introduce an agent for the *caused* event, and the high Voice head introduces an agent for the *causing* event. See Tyler (2020) for discussion of the choice of analysis.

17. Predicate Conjunction is a generalized version of Heim and Kratzer's (1998) Predicate Modification rule. It takes two functions of the same type and conjoins them.

(51) $\sqrt{\text{TOKA}}$ 'fire'

tokaa-[f-a]-h
'it fired (once)'

toka-[h-li]-h
'it/they fired (many times)'

toka-[f-fi]-h
'she fired it (once)'

toka-[h-chi]-h
'she fired it/them (many times)'

Generalizations:

- Singulactionals ($\sqrt{\text{ROOT}}$ + *-f*) mark the causative alternation with *-a* vs. *-li*.
- Pluractionals ($\sqrt{\text{ROOT}}$ + *-h*) mark the causative alternation with *-li* vs. *-chi*.

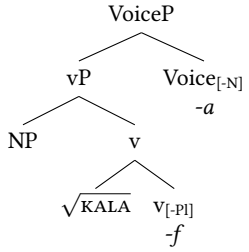
Or to lay it out differently:

(52)

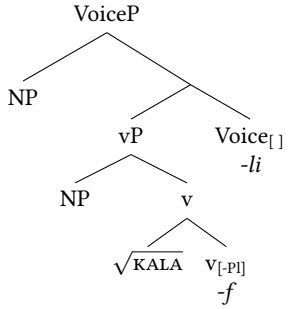
	-a (Voice$_{[-N]}$)	*-li* (Voice$_{[\,]}$)	*-chi* (Voice$_{[+N]}$)
$\sqrt{\text{KALA}}$ + *-f* (sg.)	*kalaa-f-**a***	*kala-f-**fi*** (tr.)	–
$\sqrt{\text{KALA}}$ + *-h* (pl.)	–	*kala-h-**li*** (intr.)	*kala-h-**chi***

Analysis:

(53) a. *kalaa-f-a-h* 'it was scratched (once)'



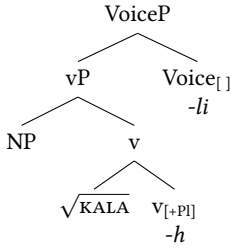
b. *kala-f-fi-h* 'she scratched it (once)'



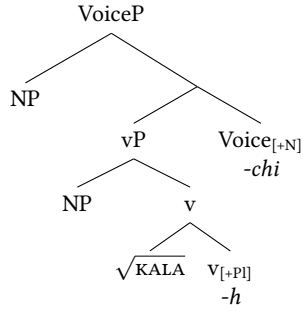
Importantly:

- The $\sqrt{\text{ROOT}}$+v *together* determine:
  - which Voice head(s) can merge with vP.
  - the alloseme inserted at Voice$_{[\,]}$.

(54) a. *kala-h-li-h* 'it was scratched (lots)'



b. *kala-h-chi-h* 'she scratched it (lots)'



9 Conclusion

- It's worth thinking about what features of a functional head F regulate External Merge into Spec-FP.
- I provided support for a **trivalent** system of E.M.-regulating features on Voice (following pioneering work by Kastner 2016, 2020):
  - Voice$_{[-N]}$, Voice$_{[\,]}$, Voice$_{[+N]}$
  - → We expect that at least some languages should show this feature typology if syntactic features can be both **privative** and **bivalent**.[18]
- $\sqrt{\text{ROOT}}$s can choose ('select'?) for some number of these Voice heads.
  - The choice of Voice head may also be determined by [$\sqrt{\text{ROOT}}$ + v].
- The $\sqrt{\text{ROOT}}$ regulates whether or not underspecified Voice$_{[\,]}$ takes a specifier via *contextual allosemy*.

Further issues and open questions:

- The phasal limit on conditioning allomorphy/allosemy
  - Does it line up with the limit on $\sqrt{\text{ROOT}}$ selection?
  - → For evidence that they *do* line up, see Tyler (2020)
- E.M.-regulating features on v? Appl? the root?

18. (Harbour 2011) makes a similar argument for trivalent features as a consequence of bivalency + privativity.

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Appendix: unaccusativity in Choctaw

N.B. 'Unaccusative' here describes any verb whose subject is not an external argument.

Diagnostics:[19]

- **Agreement** (cf. (6)): ERG agreement indexes external arguments; ABS/DAT agreement indexes internal arguments. So intransitive verbs with ABS/DAT-indexed subjects are unaccusative.
- **Pluractional allomorphy** (see §8): intransitive verbs that exhibit pluractional allomorphy are unaccusative.[20]
- **Causative alternation**: intransitive verbs with transitive alternants (where the transitive morphology replaces rather than adds to the intransitive morphology) are unaccusative.
- **Auxiliary selection**: intransitive verbs that reject the perfective auxiliary *tahli* are unaccusative:

(55) a. Sa-faam-a-t taha / *tahli.
1SG.ABS-$\sqrt{\text{WHIP}}$-PTCP finish.NACT / finish.ACT
'I have been whipped.'

b. Is-sa-fam-mi-t #taha / tahli.
2SG.ERG-1SG.ABS-$\sqrt{\text{WHIP}}$-ACT-PTCP finish.NACT / finish.ACT
'You have whipped me.'

- **Compatibility with applied subjects**: verbs that accept applied DAT-indexed subjects are unaccusative (Davies 1981, 1986; Tyler 2020):

19. Choctaw has a special role to play in the development of the theory of unaccusativity. Its active agreement system has been analyzed by various authors to straightforwardly diagnose whether a given argument is an external or internal argument (Nicklas 1974; Heath 1977; Payne 1982; Davies 1981, 1986; Foley and Van Valin Jr. 1984; Broadwell 1988, 1990). Other authors have problematized this assumption (Munro and Gordon 1982; Broadwell 2006; Tyler 2019a, 2020, to appear).
20. See Durie (1987); Harley (2014); Bobaljik (2015); Bobaljik and Harley (2017) on the connection between internal arguments and root suppletion.

(56) a. Chi-holisso-at ittola-tok
2SG.DAT-book-NOM fall-PST
'Your book fell down.'

b. ***pro***$_{1SG}$ Chi-holisso **am**-ittola-tok
2SG.DAT-book **1SG.DAT**-fall-PST
'**I** dropped your book.'

(57) a. Hoshi-t taloowa-tok.
bird-NOM sing-PST
The bird sang.'

b. * ***pro***$_{1SG}$ Hoshi **a**-taloowa-tok.
bird **1SG.DAT**-sing-PST
('My bird sang.')