Complex Left Branches in Frisian Verbs

Fenna Bergsma (Fryske Akademy)
Jan Don (Open Universiteit, Heerlen)
Anne Merkuur (Fryske Akademy, Rijksuniversiteit Groningen)
Meg Smith (KU Leuven)

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Introduction

- Verbal paradigms in Frisian
  - All problems: more features, less phonology (somewhat simplified)

- Deriving the paradigms requires complex left branches (Blix 2022)

Frisian verbal inflection (Merkuur 2021)

Strong and irregular verbs

		class I regular *bakke* ‘to bake’	**class II regular** *wurkje* ‘to work’	**class I Wechselflexion** *sizze* ‘to say’	**class II Wechselflexion** *meitsje* ‘to make’
PRS	3SG	*bak-t*	*ʊœrk-ə-t*	*sai-t*	*mak-ə-t*
	2SG	*bak-st*	*ʊœrk-ə-st*	*sai-st*	*mak-ə-st*
	1SG	*bak*	*ʊœrk-jə*	*sɪs*	*maits-jə*
	PL	*bak-ə*	*ʊœrk-jə*	*sɪz-ə*	*maits-jə*
PST	3SG	*bak-tə*	*ʊœrk-ə*	*sai*	*mak-ə*
	2SG	*bak-tə-st*	*ʊœrk-ə-st*	*sai-st*	*mak-ə-st*
	1SG	*bak-tə*	*ʊœrk-ə*	*sai*	*mak-ə*
	PL	*bak-tə-n*	*ʊœrk-ə-n*	*sai-nə*	*mak-ə-n*

Problem 1: unmarked 1SG

PRS *bakke* ‘to bake’
regular class I

3SG	*bak-t*
2SG	*bak-st*
1SG	*bak*
PL	*bak-ə*

Problem 2: Wechselflexion

PRS *meitsje* ‘to make’
Wechselflexion class II

3SG	*mak-ə-t*
2SG	*mak-ə-st*
1SG	*maits-jə*
PL	*maits-jə*

Problem 1 + problem 2 = problem 3: unmarked 1SG + Wechselflexion

PRS *sizze* ‘to say’

Wechselflexion class I

3SG	*saɪ-t*
2SG	*saɪ-st*
1SG	*sɪs*
PL	*sɪz-ə*

Assumptions

- Feature hierachy: 3 < 2 < 1 (Harley & Ritter 2002)
- No zero morphemes
- Only spell out labeled nodes

Main message

Cannot derive paradigms without CLBs

Problem 1: unmarked 1SG

bakke ‘to bake’ PRS
regular class I

3SG	*bak-t*
2SG	*bak-st*
1SG	*bak*

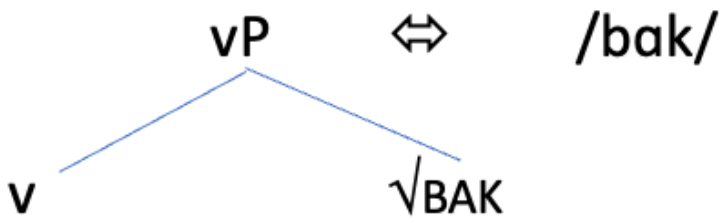
more features, less morphology

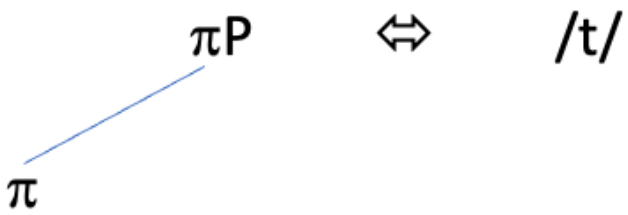
Lexicalization table *bakke* SG

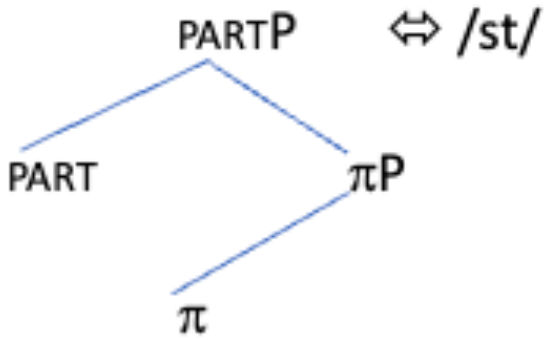
		√	v	π	PART	SP
bak-t	3SG	bak		-t		
bak-st	2SG	bak		-st		
bak	1SG	bak				

! not possible without CLB

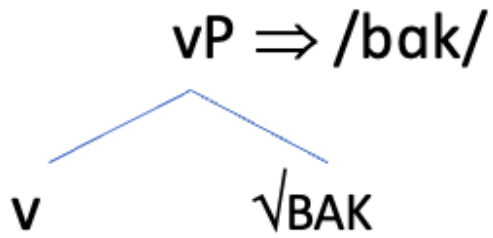
Lexical entries 3/2SG *bakke*



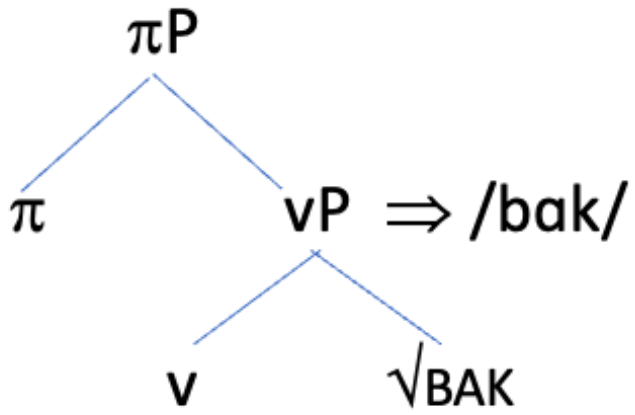




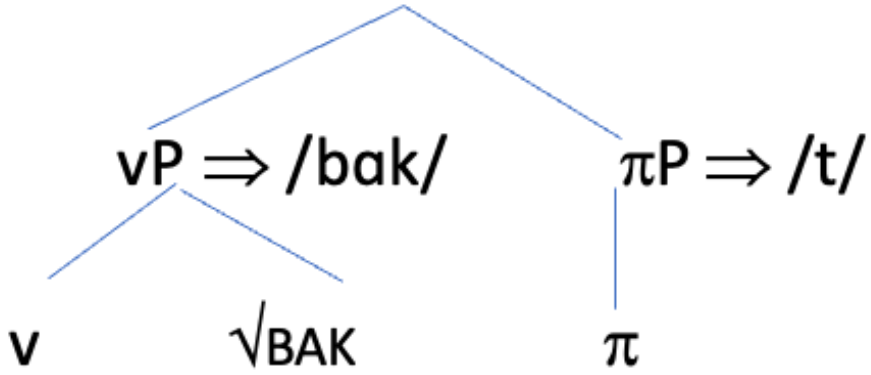
Derivation 3SG *bakke* (1)



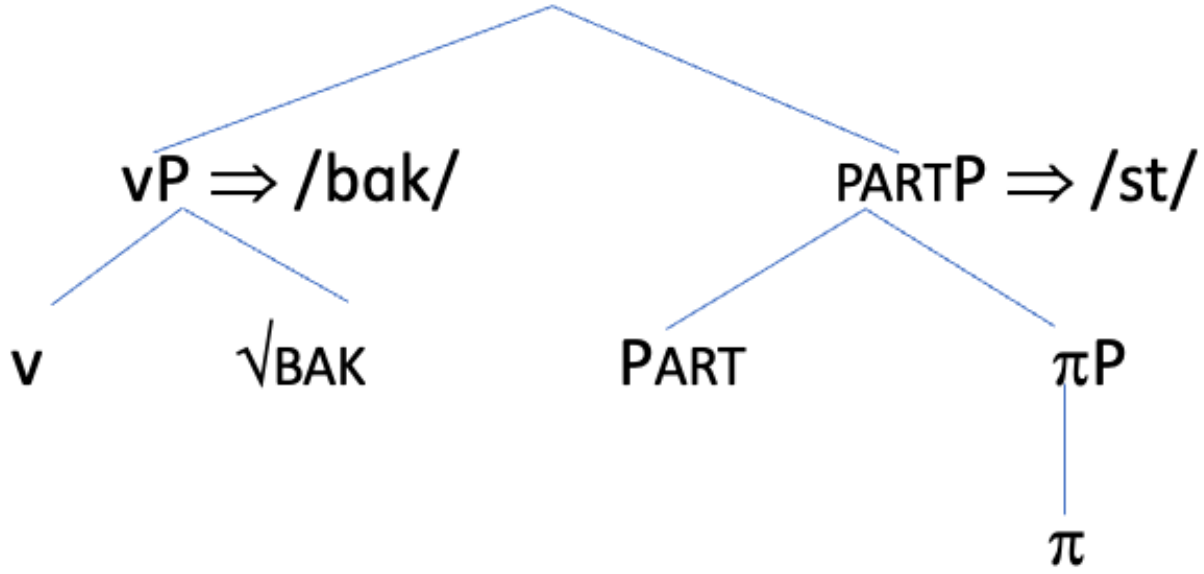
Derivation 3SG *bakke* (2)



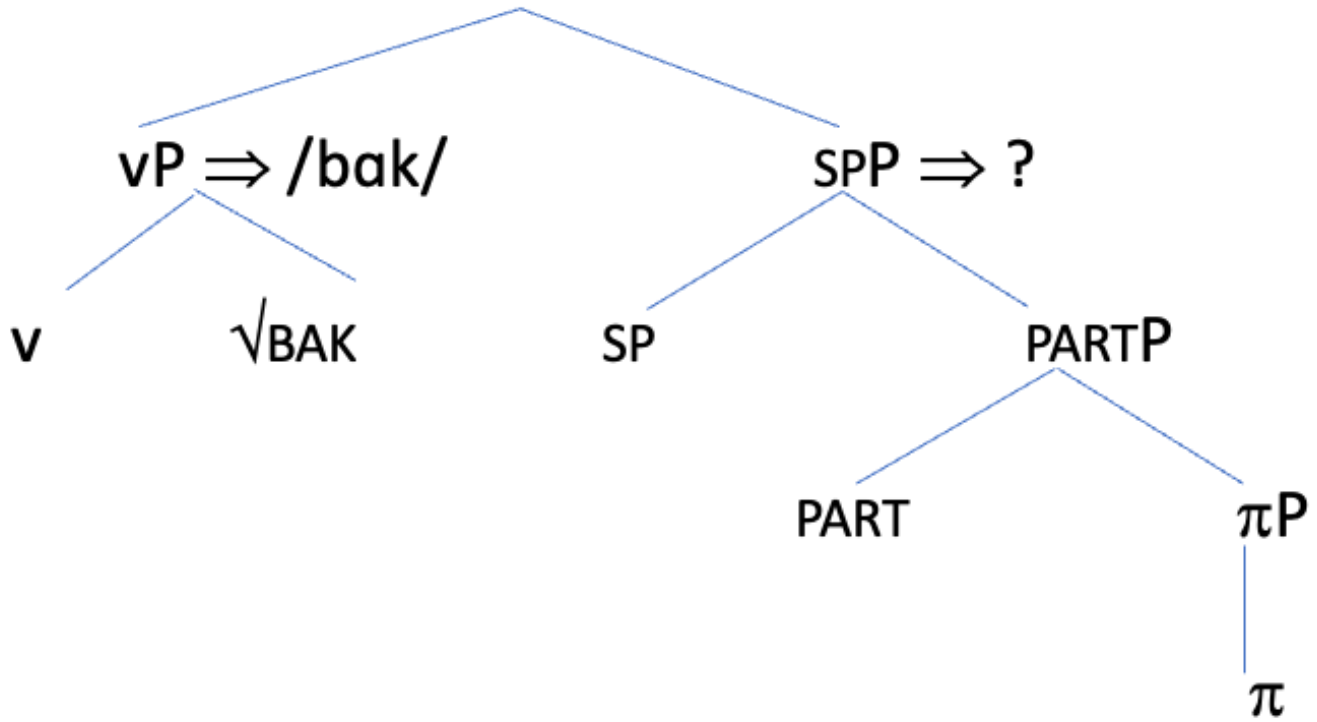
Derivation 3SG *bakke* (3)



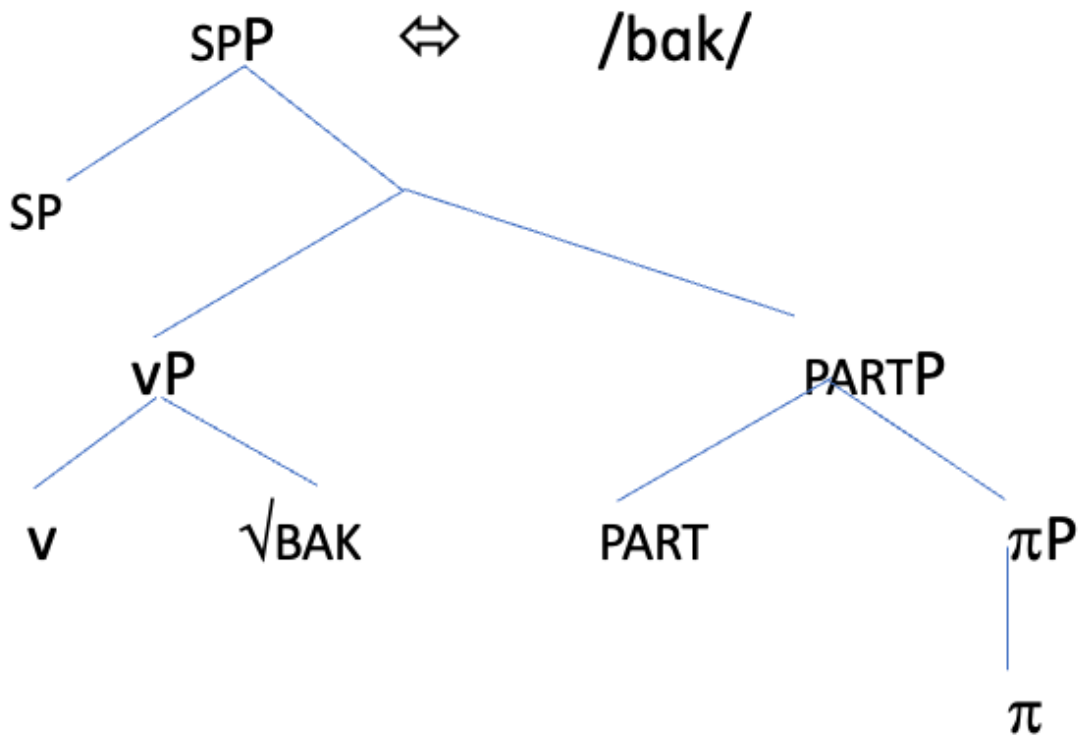
Derivation 2SG *bakke*



Derivation 1SG *bakke* (1)



Derivation 1SG *bakke* (2)



Problem 2: Wechselflexion

PRS *bakke* ‘to bake’
regular class I

3SG	*bak-t*
2SG	*bak-st*
1SG	*bak*
PL	*bakə*

PRS *wurkje* ‘to work’
regular class II

3SG	*ʊœrk-ə-t*
2SG	*ʊœrk-ə-st*
1SG	*ʊœrk-jə*
PL	*ʊœrk-jə*

PRS *meitsje* ‘to make’
Wechselflexion class II

3SG	*mak-ə-t*
2SG	*mak-ə-st*
1SG	*maits-jə*
PL	*maits-jə*

- two different stems: not phonology *(bakje kofje* ‘cup of coffee’), so morphology?

Lexicalization table *bakke* + *wurkje* 2/3SG (v1)

		√	v	π	PART	SP
bak-t	3SG	bak		-t		
bak-st	2SG	bak		-st		
bak	1SG	bak				

		√	v	NUM	π	PART	SP
ʊœrk-ə-t	3SG	ʊœrk		-ə	-t		
ʊœrk-ə-st	2SG	ʊœrk		-ə	-st		

Lexicalization table *bakke* + *wurkje* 2/3SG (v2)

		√	v	NUM	π	PART	SP
bak-t	3SG	bɑk			-t		
bak-st	2SG	bɑk			-st		
bak	1SG	bɑk					

		√	v	NUM	π	PART	SP
ʊœrk-ə-t	3SG	ʊœrk		-ə	-t		
ʊœrk-ə-st	2SG	ʊœrk		-ə	-st		

Lexicalization table *wurkje* SG (v2)

		√	v	NUM	π	PART	SP
ʊœrk-ə-t	3SG	ʊœrk		-ə	-t		
ʊœrk-ə-st	2SG	ʊœrk		-ə	-st		
ʊœrk-jə	1SG	ʊœrk		-jə			

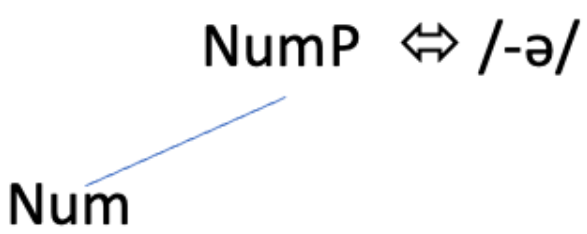
! inserts *-je* for all persons

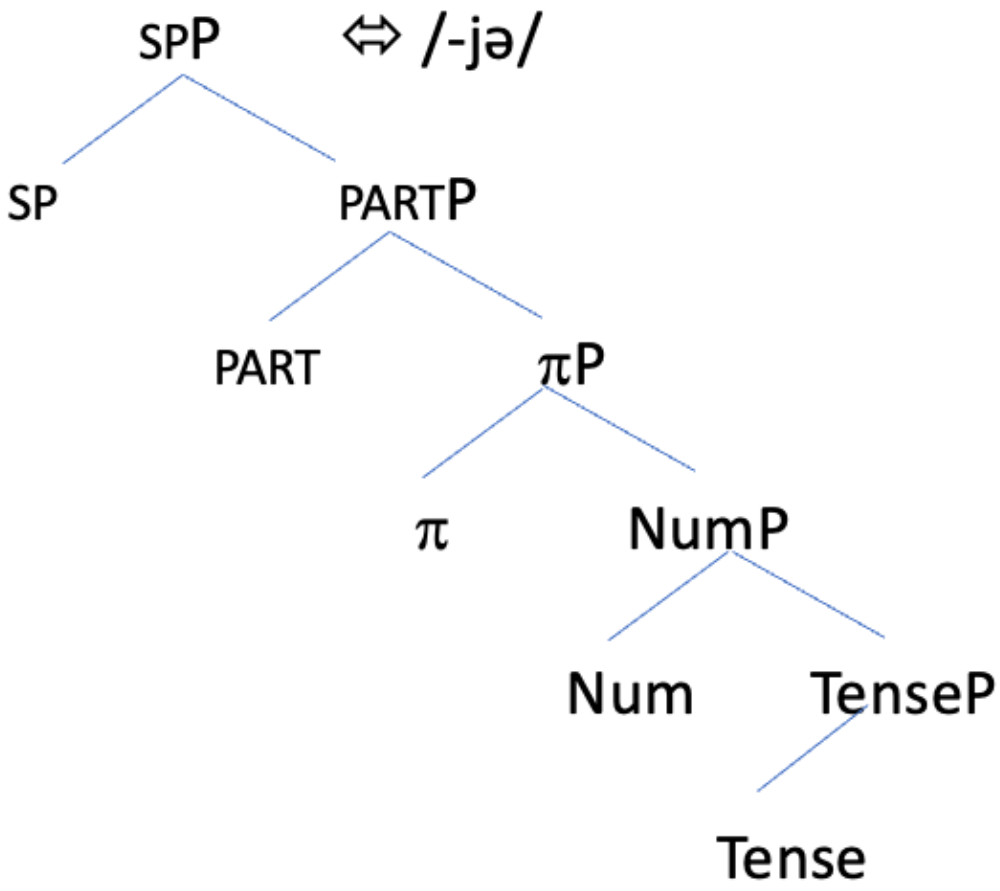
> *-je* needs lower foot

Lexicalization table *wurkje* SG (v3)

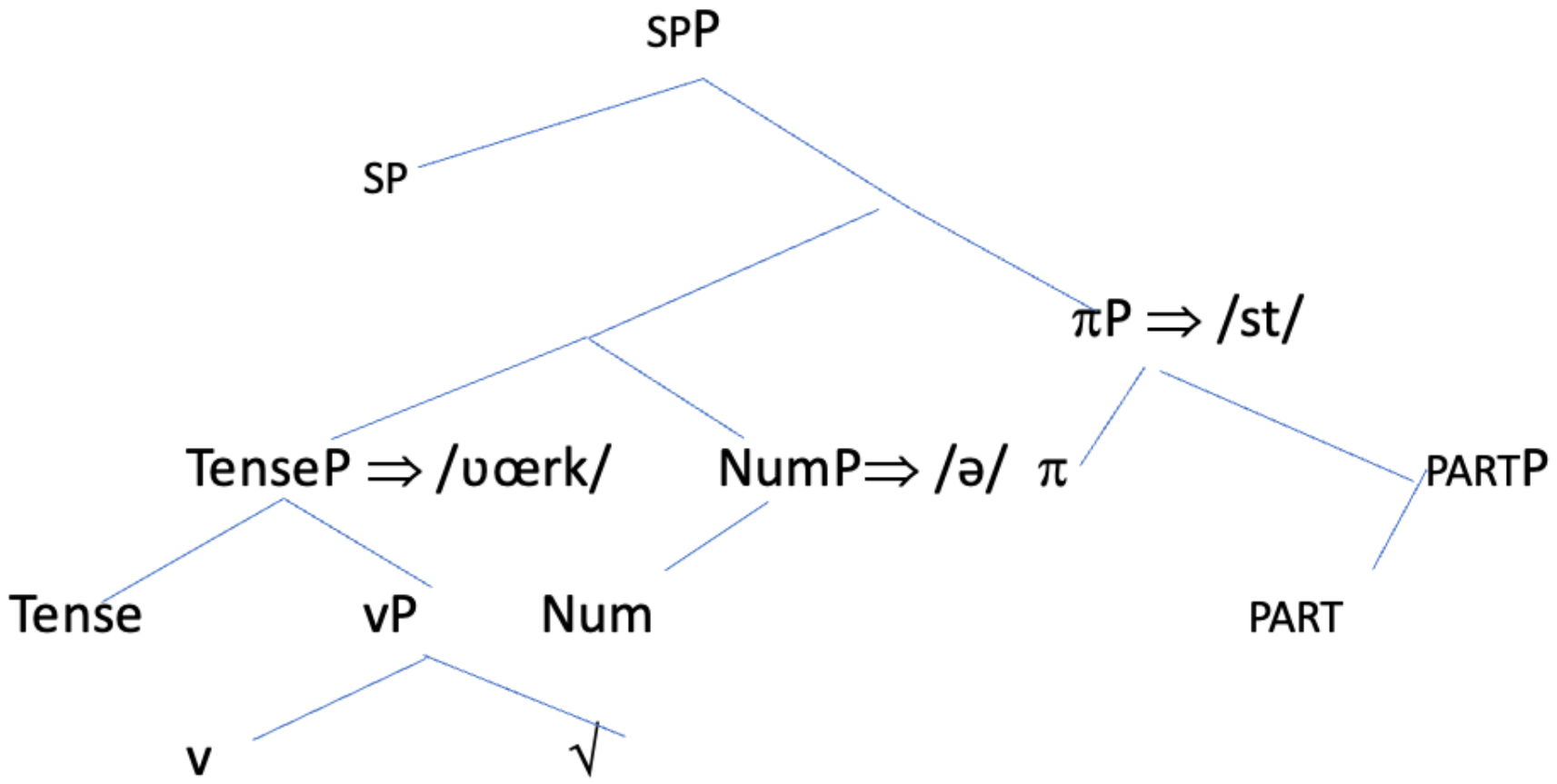
		√	v	TENSE	NUM	π	PART	SP
ʊœrk-ə-t	3SG	ʊœrk			-ə	-t		
ʊœrk-ə-st	2SG	ʊœrk			-ə	-st		
ʊœrk-jə	1SG	ʊœrk		-jə				

Lexical entries SG *wurkje*

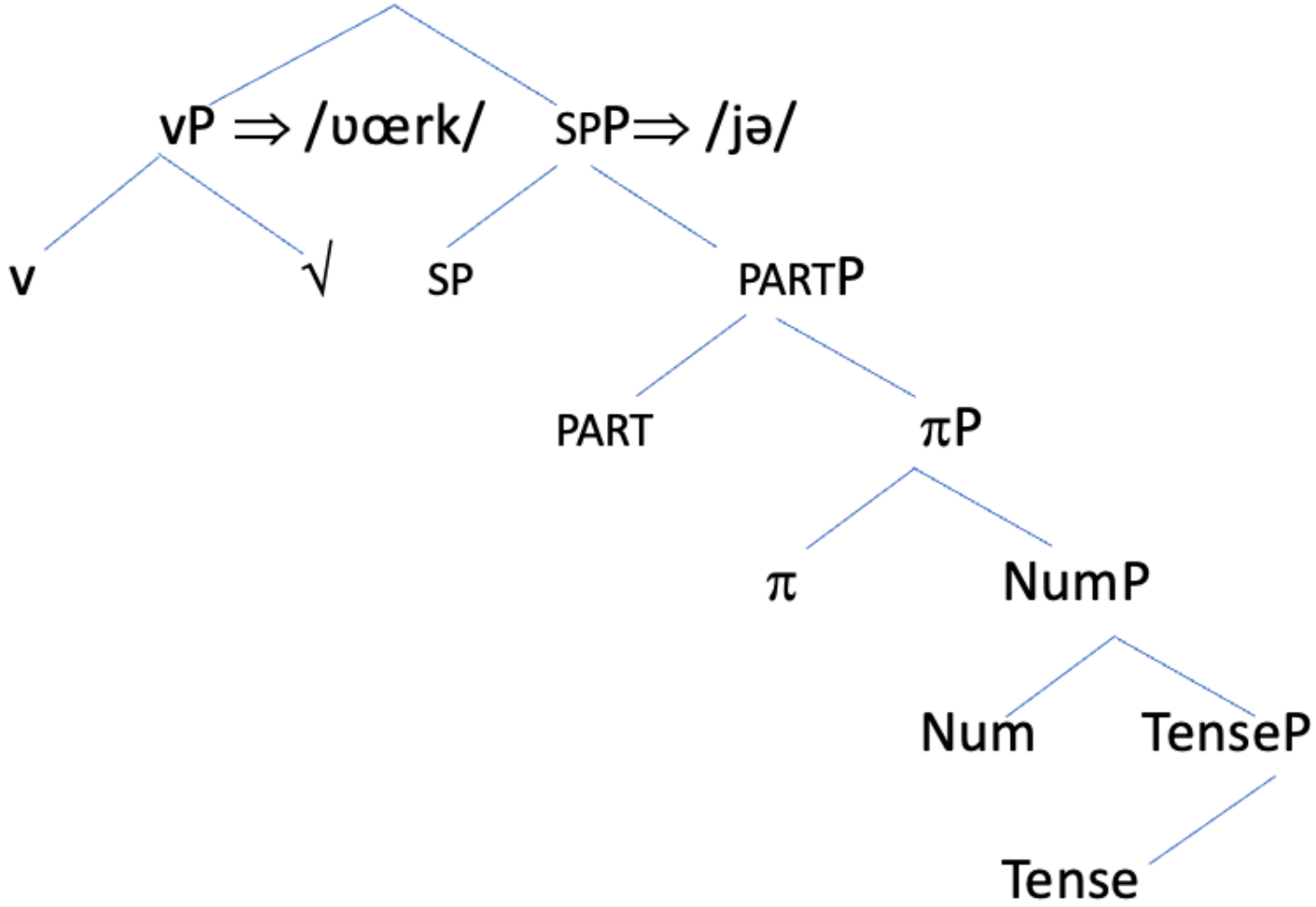




Derivation 1SG *wurkje* (1)



Derivation 1SG *wurkje* (2)

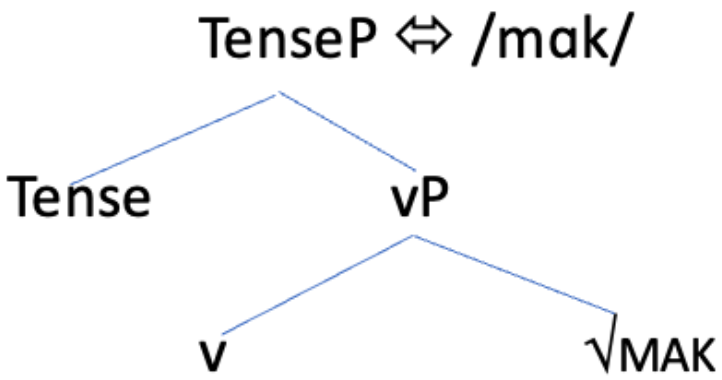


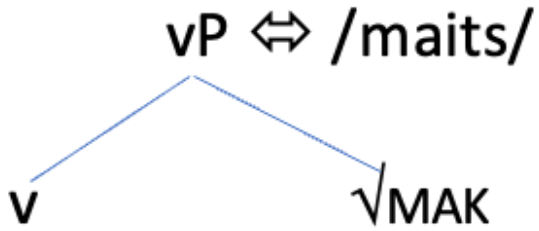
Lexicalization tables *wurkje* + *meitsje* SG

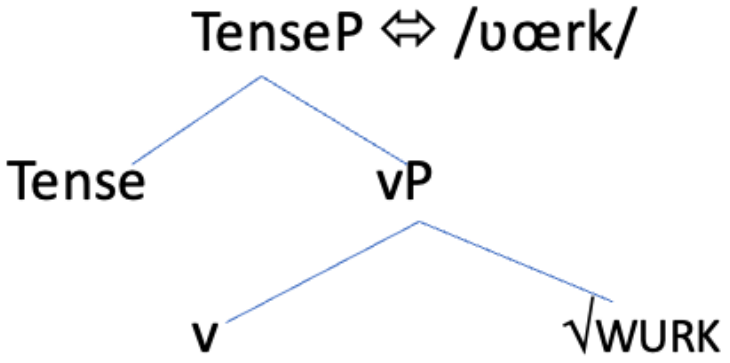
		√	v	TENSE	NUM	π	PART	SP
ʊœrk-ə-t	3SG	ʊœrk			-ə	-t		
ʊœrk-ə-st	2SG	ʊœrk			-ə	-st		
ʊœrk-jə	1SG	ʊœrk		-jə				

		√	v	TENSE	NUM	π	PART	SP
mɑk-ə-t	3SG	mɑk			-ə	-t		
mɑk-ə-t	2SG	mɑk			-ə	-st		
maits-jə	1SG	maits		-jə				

Verbal stems of different sizes







Turning to the Wechselflexion plural form

PRS *meitsje* ‘to make’
Wechselflexion class II

3SG	*mak-ə-t*
2SG	*mak-ə-st*
1SG	*maits-jə*
PL	*maits-jə*

Lexicalization table *meitsje* (v1)

		√	v	TENSE	NUM	PL	π	PART	SP
mak-ə-t	3SG	mak			-ə		-t		
mak-ə-st	2SG	mak			-ə		-st		
maits-jə	1SG	maits		-jə			..		
maits-jə	3PL	maits		-jə					
maits-jə	2PL	maits		-jə					
maits-jə	1PL	maits		-jə					

! *-jə* cannot be used for SG + PL

Compare *meitsje* and *bakke*

PRS *meitsje* ‘to make’
Wechselflexion class II

3SG	*mak-ə-t*
2SG	*mak-ə-st*
1SG	*maits-jə*
PL	*maits-jə*

PRS *bakke* ‘to bake’
regular class I

3SG	*bak-t*
2SG	*bak-st*
1SG	*bak*
PL	*bak-ə*

Compare *meitsje* and *bakke* (plural *-ə* added)

PRS *meitsje* ‘to make’
Wechselflexion class II

3SG	*mak-ə-t*
2SG	*mak-ə-st*
1SG	*maits-jə*
PL	*maits-jə-ə*

PRS *bakke* ‘to bake’
regular class I

3SG	*bak-t*
2SG	*bak-st*
1SG	*bak*
PL	*bak-ə*

Lexicalization table *bakke + meitsje* (v2)

		√	v	TENSE	NUM	PL	π	PART	SP
bak-t	3SG	bak					-t		
bak-st	2SG	bak					-st		
bak	1SG	bak					..		
bak-ə	3PL	bak				-ə			
bak-ə	2PL	bak				-ə			
bak-ə	1PL	bak				-ə			

		√	v	TENSE	NUM	PL	π	PART	SP
mak-ə-t	3SG	mak			-ə		-t		
mak-ə-st	2SG	mak			-ə		-st		
maits-jə	1SG	maits		-jə			..		
maits-jə	3PL	maits		-jə		-ə			
maits-jə	2PL	maits		-jə		-ə			
maits-jə	1PL	maits		-jə		-ə			

Lexicalization table *meitsje* (v2)

		√	v	TENSE	NUM	PL	π	PART	SP
mak-ə-t	3SG	mak			-ə		-t		
mak-ə-st	2SG	mak			-ə		-st		
maits-jə	1SG	maits		-jə			..		
maits-jə	3PL	maits		-jə		-ə			
maits-jə	2PL	maits		-jə		-ə			
maits-jə	1PL	maits		-jə		-ə			

! lexicalization of *mak* + *-ə* and *maits* + *-jə* by the same set of features is theoretically excluded

Solution with complex left branch in *mak*

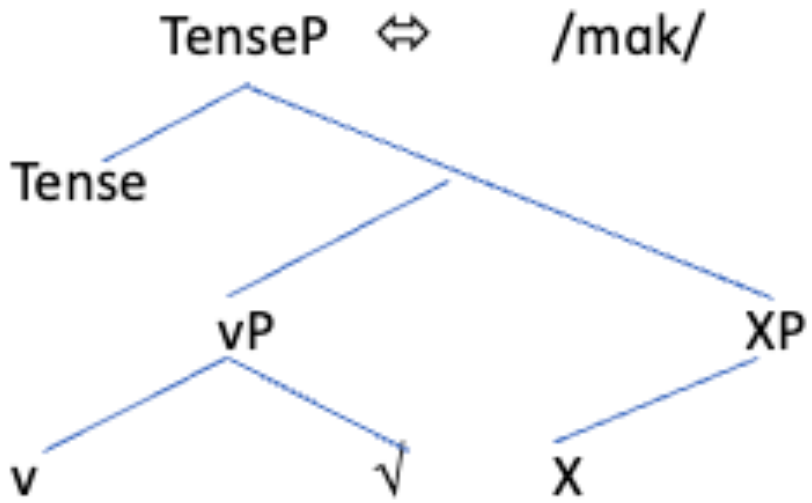
First two additional changes:

- *mak* + *-ə* and *maits* + *-jə* lexicalize different sets of features: plural morpheme *-ə* foots two features lower, in Tense
- Add feature X

		√	v	X	TENSE	NUM	PL	π	PART	SP
mak-ə-t	3SG	mak				-ə		-t		
mak-ə-st	2SG	mak				-ə		-st		
maits-jə	1SG	maits		-jə				..		
maits-jə	3PL	maits		-jə	-ə					
maits-jə	2PL	maits		-jə	-ə					
maits-jə	1PL	maits		-jə	-ə					

Lexicalization table *meitsje* + lexical entry *mak*

		√	v	X	TENSE	NUM	PL	π	PART	SP
mak-ə-t	3SG	mak				-ə		-t		
mak-ə-st	2SG	mak				-ə		-st		
maits-jə	1SG	maits		-jə				..		
maits-jə	3PL	maits		-jə	-ə					
maits-jə	2PL	maits		-jə	-ə					
maits-jə	1PL	maits		-jə	-ə					



cannot lexicalize vP + XP without Tense, requiring *maits* + *jə* in the plural

Problem 1 + problem 2 = problem 3: unmarked 1SG + Wechselflexion

PRS *sizze* ‘to say’

Wechselflexion class I

3SG	*sai-t*
2SG	*sai-st*
1SG	*sɪs*
PL	*sɪz-ə*

Both problems combined in one paradigm – does our solution hold?

Lexicalization table *bakke* + *sizze* (v1)

		√P	v	X	TENSE	NUM	PL	π	PART	SP
bak-t	3SG	bak						-t		
bak-st	2SG	bak						-st		
bak	1SG	bak						..		
bak-ə	3PL	bak			-ə					
bak-ə	2PL	bak			-ə					
bak-ə	1PL	bak			-ə					

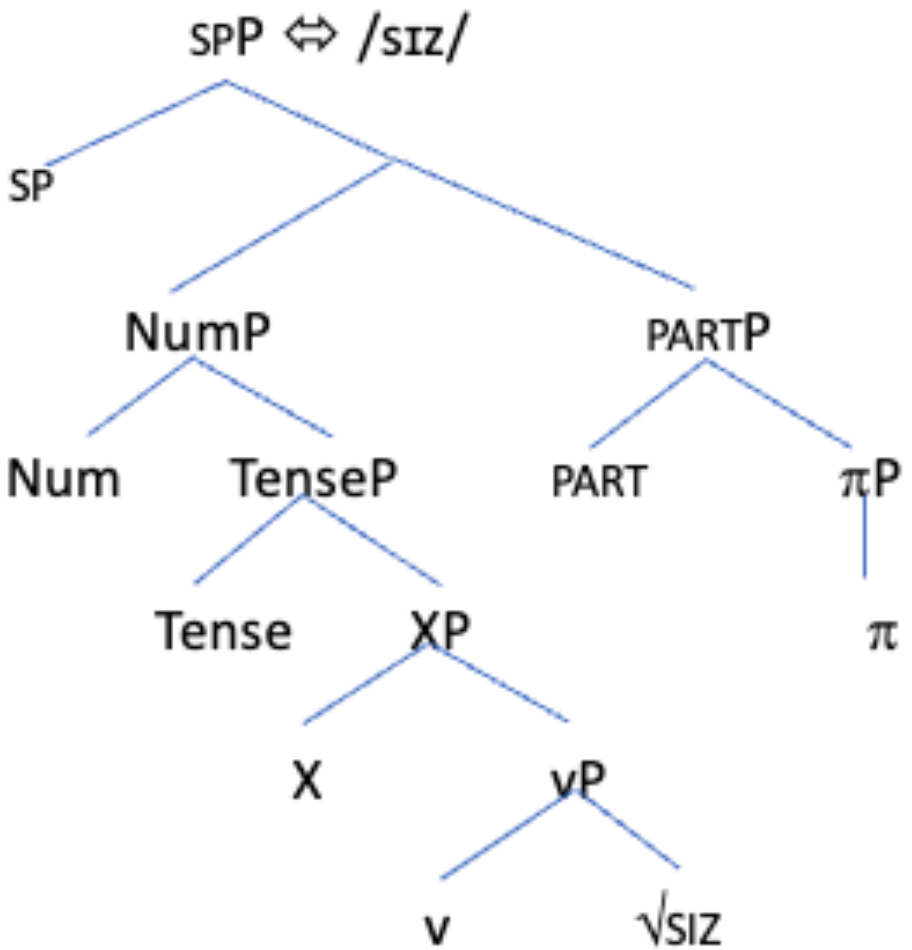
		√P	v	X	TENSE	NUM	PL	π	PART	SP
sai-t	3SG	sai						-t		
sai-st	2SG	sai						-st		
sɪs	1SG	SIZ						..		
sɪz-ə	3PL	SIZ			-ə					
sɪz-ə	2PL	SIZ			-ə					
sɪz-ə	1PL	SIZ			-ə					

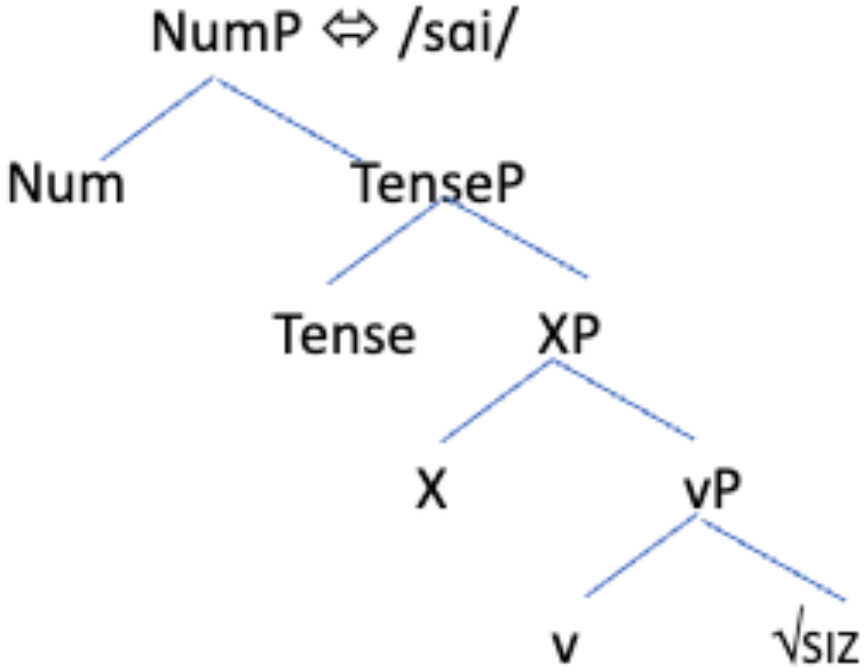
Lexicalization table *sizze* (v1)

		√P	v	X	TENSE	NUM	PL	π	PART	SP
sai-t	3SG	sɑi						-t		
sai-st	2SG	sɑi						-st		
sɪs	1SG	SIZ						..		
sɪz-ə	3PL	SIZ			-ə					
sɪz-ə	2PL	SIZ			-ə					
sɪz-ə	1PL	SIZ			-ə					

! CLB needed for 1SG so *sɪz* is not used in 2/3SG (just like *bak*)

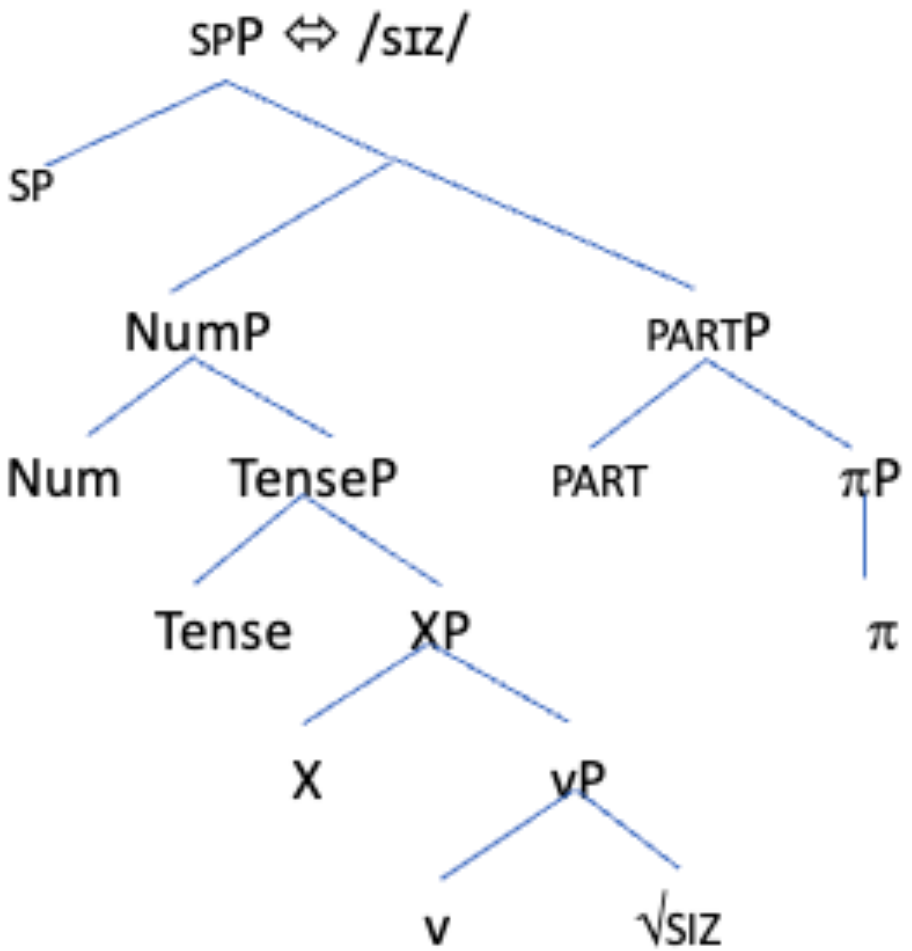
Lexical entries *siz* (v1) + *sai* (v1) wrt SG

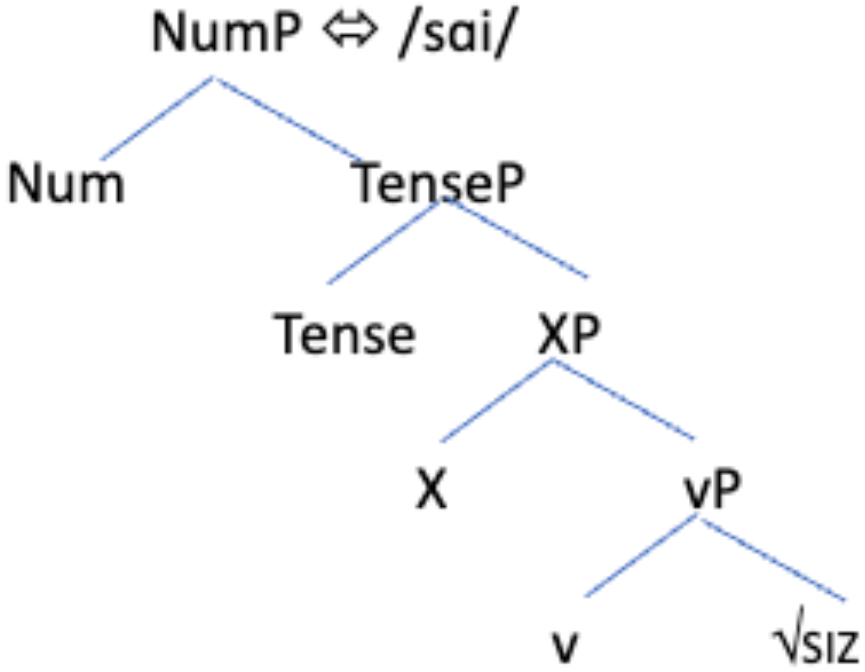




1SG vs. 2/3SG = ok

Lexical entries *siz* (v1) + *sai* (v1) wrt PL





! *sai* is wrongly inserted in PL (Elsewhere Condition)

Puzzle

sɪz needs to lexicalize both more and fewer features than *sai*:

- more in 1SG
- fewer in PL

		√P	v	X	TENSE	NUM	PL	π	PART	SP
sai-t	3SG	saɪ						-t		
sai-st	2SG	saɪ						-st		
sɪs	1SG	SIZ						..		
sɪz-ə	3PL	SIZ			-ə					
sɪz-ə	2PL	SIZ			-ə					
sɪz-ə	1PL	SIZ			-ə					

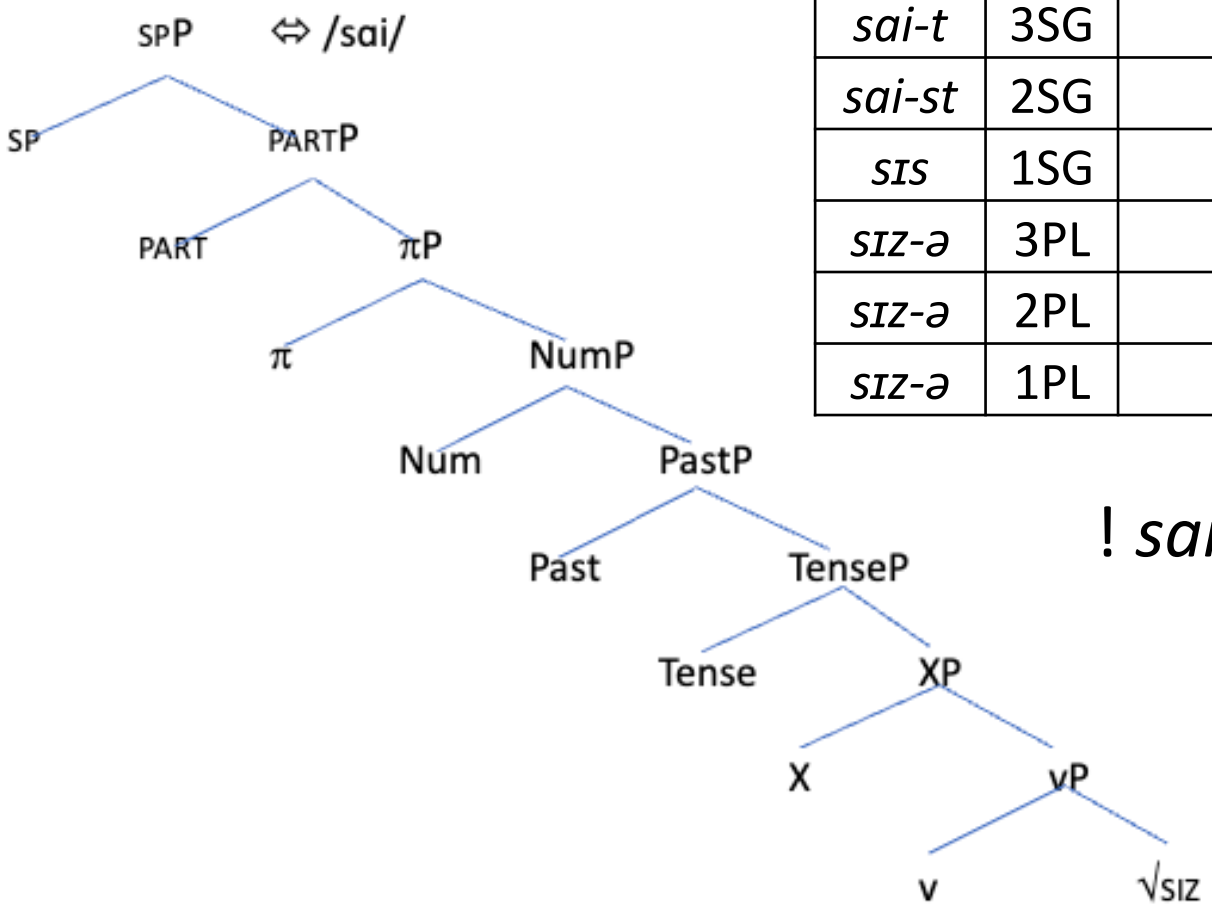
Solution with CLB in *sɪz*

1. *sai* lexicalizes more features than *sɪz*: *sai* = 1SG.PAST
2. problem arises > foot of *-t* and *-st* is lower
3. *sɪz* is not a candidate for 2/3SG: CLB in *sɪz*

sizze ‘to say’
Wechselflexion class I

	PRS	PST
3SG	*sai-t*	*sai*
2SG	*sai-st*	*sai-st*
1SG	*sɪs*	*sai*
PL	*sɪz-ə*	*sai-ne*

Lexical entry *sai* (v2)



		√P	v	X	TENSE	NUM	PL	π	PART	SP
saɪ-t	3SG	saɪ						-t		
saɪ-st	2SG	saɪ						-st		
sɪs	1SG	sɪz						..		
sɪz-ə	3PL	sɪz			-ə					
sɪz-ə	2PL	sɪz			-ə					
sɪz-ə	1PL	sɪz			-ə					

! *saɪ-t/-st* can no longer lexicalize 3/2SG

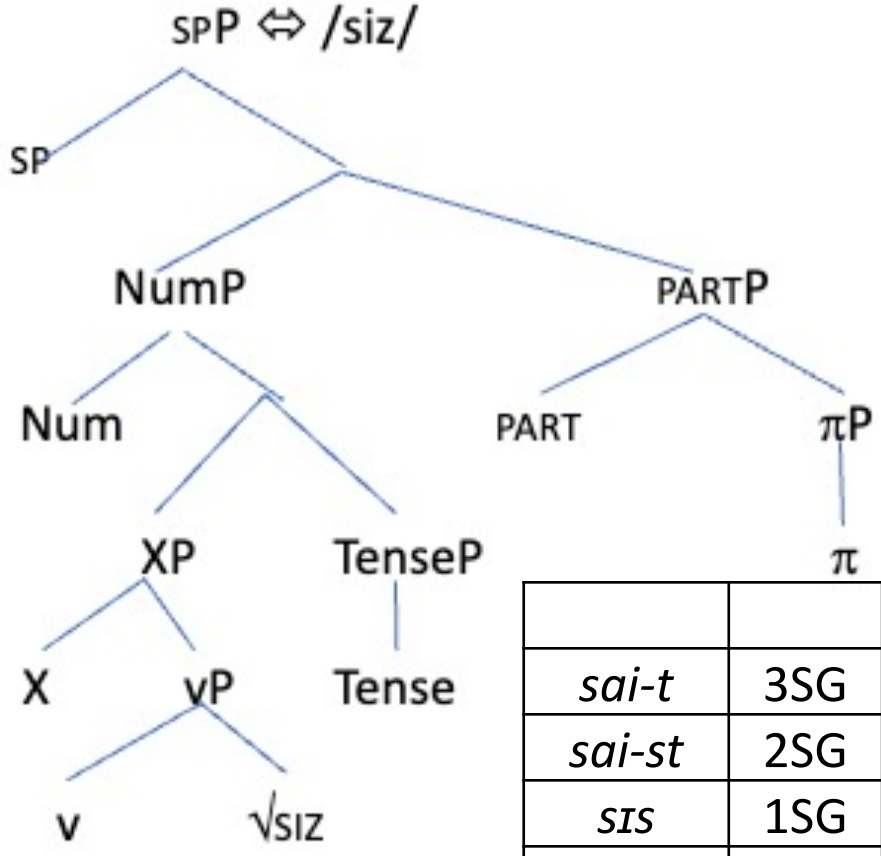
Lexicalization table *sizze* (v2)

		√P	v	X	TENSE	NUM	PL	π	PART	SP
sɑi-t	3SG	sɑi				-t		..		
sɑi-st	2SG	sɑi				-st		..		
sɪs	1SG	sɪz						..		
sɪz-ə	3PL	sɪz			-ə					
sɪz-ə	2PL	sɪz			-ə					
sɪz-ə	1PL	sɪz			-ə					

! *sɪz* is a better candidate than *sɑi* to lexicalize TenseP

(! *-ə* lexicalized NUM in class II paradigms)

Lexical entry *siz* (v2)



no labeled node that lexicalizes XP + TenseP

		√P	v	X	TENSE	NUM	PL	π	PART	SP
sai-t	3SG	sai				-t		..		
sai-st	2SG	sai				-st		..		
sɪs	1SG	sɪz						..		
sɪz-ə	3PL	sɪz			-ə					
sɪz-ə	2PL	sɪz			-ə					
sɪz-ə	1PL	sɪz			-ə					

Consequences involving NUM

		√P	v	X	TENSE	NUM	PL	π	PART	SP
sai-t	3SG	sai				-t		..		
sai-st	2SG	sai				-st		..		
sɪs	1SG	sɪz						..		
sɪz-ə	3PL	sɪz			-ə					
sɪz-ə	2PL	sɪz			-ə					
sɪz-ə	1PL	sɪz			-ə					

		√	v	X	TENSE	NUM	PL	π	PART	SP
mak-ə-t	3SG	mak				-ə		-t		
mak-ə-st	2SG	mak				-ə		-st		
maits-jə	1SG	maits		-jə				..		
maits-jə	3PL	maits	-jə		-ə					
maits-jə	2PL	maits	-jə		-ə					
maits-jə	1PL	maits	-jə		-ə					

Lexicalization tables *meitsje* + *sizze*

		√P	v	X	TENSE	Y	NUM	PL	π	PART	SP
sai-t	3SG	sai					-t		..		
sai-st	2SG	sai					-st		..		
sɪs	1SG	sɪz							..		
sɪz-ə	3PL	sɪz			-ə						
sɪz-ə	2PL	sɪz			-ə						
sɪz-ə	1PL	sɪz			-ə						

		√	v	X	TENSE	Y	NUM	PL	π	PART	SP
mak-ə-t	3SG	mak				-ə	-t		-t		
mak-ə-st	2SG	mak				-ə	-st		-st		
maits-jə	1SG	maits		-jə					..		
maits-jə	3PL	maits		-jə	-ə						
maits-jə	2PL	maits		-jə	-ə						
maits-jə	1PL	maits		-jə	-ə						

Conclusion

Problem 1: unmarked 1SG

Problem 2: Wechselflexion

Problem 3: unmarked 1SG + Wechselflexion

All patterns can be derived using CLB

regular vs. less regular verbs

Solving problem 1 and 2 did not immediately solve problem 3

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