

Tamil

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Intro

Rutul

Tamil

Plural

Allomorphy

- (1) a. bat-e-v-i (I hit, past)
 b. sint-i-v-i (I heared)

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(44) LEXICALIZATION TABLE OF BATI AND SINTÎ, 2PL PRS

STATE	PROC	INIT	ASP	MOOD	IND	T	#	PL	π	PART
bat				e			is			
sint			i				is			

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STATE	PROC	INIT	ASP	MOOD	IND	T	#	PL	π	PART
bat				e			is			
sint			i				is			

- ▶ The adjacency condition on allomorphy follows from this setup

Adjacency Condition on allomorphy

- (2) In the sequence $\alpha \dots \beta \dots \gamma$
morpheme α cannot influence γ across β (and vice versa)

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Khakas (3.)

	SG
NOM	ol
ACC	a-ni
DAT	a-ya

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Khakas (3.)

	SG	PL
NOM	ol	ol-ar
ACC	a-ni	ol-ar-ni
DAT	a-ya	ol-ar-ya

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	SG	PL
NOM	ol	ol-ar
ACC	a-ni	ol-ar-ni
DAT	a-ya	ol-ar-ya

Tamil (1)

	SG
NOM	naan
OBL	en-Ø
DAT	en-akku

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	SG	PL
NOM	ol	ol-ar
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DAT	a-ya	ol-ar-ya

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	SG	PL
NOM	naan	naan-gal
OBL	en-Ø	en-gal-Ø
DAT	en-akku	en-gal-ukku

Today

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- ▶ Complex-Left-Branch trees (Blix 2022)
- ▶ The subextracting algorithm (Starke 2021)
- ▶ Root ABA via pointers (Kasenov 2023)

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	SG	PL
NOM	ol	ol-ar
ACC	a-ni	ol-ar-ni
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Tamil (1)

	SG	PL
NOM	naan	naan-gal
OBL	en-Ø	en-gal-Ø
DAT	en-akku	en-gal-ukku

Rutul ('road')

	SG
NOM	raʔq
OBL	rɪʔGɪʔ-Ø
DAT	rɪʔGɪʔ-s

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DAT	en-akku	en-gal-ukku

Rutul ('road')

	SG	PL
NOM	raʔq	raʔq-bir
OBL	rɪʔGɪʔ-∅	rɪʔGɪʔ-mi-∅
DAT	rɪʔGɪʔ-s	rɪʔGɪʔ-mi-s

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Tamil (1)

	SG	PL
NOM	naan	naan-gal
OBL	en-∅	en-gal-∅
DAT	en-akku	en-gal-ukku

- (3) a. root - PL -case
b. root - PL -case

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	SG	PL
NOM	raʔq	raʔq-bir
OBL	rɪʔGɪʔ-∅	rɪʔGɪʔ-mi-∅
DAT	rɪʔGɪʔ-s	rɪʔGɪʔ-mi-s

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NOM	naan	naan-gal
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- (2) a. root - PL -case

b. root - PL -case

- (4) a. root - PL -case

b. root - PL -case

Rutul ('road')

	SG	PL
NOM	raʔq	raʔq-bir
OBL	rɪʔGɪʔ-∅	rɪʔGɪʔ-mi-∅
DAT	rɪʔGɪʔ-s	rɪʔGɪʔ-mi-s

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- (2) In the sequence $\alpha \dots \beta \dots \gamma$
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	SG	PL
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Tamil (1)

	SG	PL
NOM	naan	naan-gal
OBL	en-∅	en-gal-∅
DAT	en-akku	en-gal-ukku

- (2) a. root - PL -case

Rutul ('road')

- b. root - PL -case

SG PL

- (3) a. root - PL -case

NOM raʔq raʔq-bir

- b. root - PL -case

OBL riʔGiʔ-∅ riʔGiʔ-mi-∅

- (5) Tamil is like Rutul, plus it has syncretism between the two different plural markers.

Intro

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Plural

(6) Rutul ('road')

	SG	PL
NOM	ra? [?] q	ra? [?] q- bır
ACC	ri? [?] gi? [?] -∅	ri? [?] gi? [?] - mi -∅
DAT	ri? [?] gi? [?] -s	ri? [?] gi? [?] - mi -s

(7) Rutul ('nose')

	SG	PL
NOM	xex	xex - bır
OBL	xex-i-∅	xex-i- mi -∅
DAT	xex-i-s	xex-i- mi -s

(6) Rutul ('road')

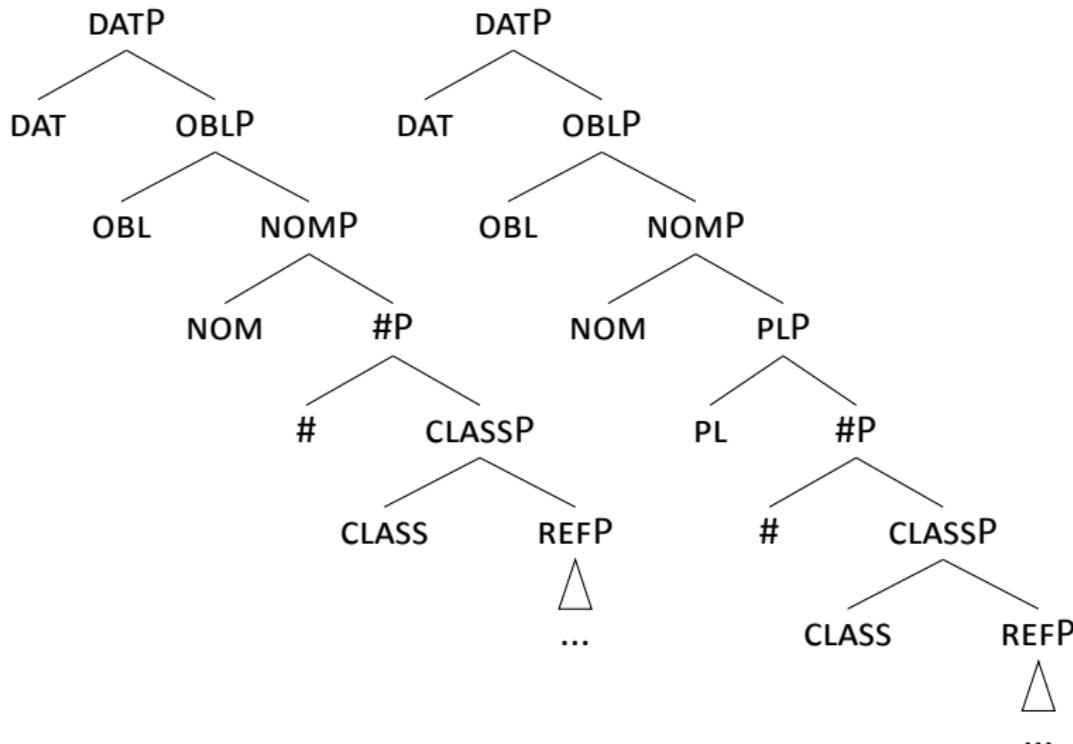
	SG	PL
NOM	ra? [?] q	ra? [?] q- bır
ACC	ri? [?] gi? [?] -Ø	ri? [?] gi? [?] -mi-Ø
DAT	ri? [?] gi? [?] -s	ri? [?] gi? [?] -mi-s

(7) Rutul ('nose')

	SG	PL
NOM	xex	xex - bır
OBL	xex-i-Ø	xex-i-mi-Ø
DAT	xex-i-s	xex-i-mi-s

(8) Kibrik

xex		xex- <i>bır</i>	
NOM.SG	←	ROOT	→ NOM.PL
	↓		
OBL.SG	←	OBL	→ OBL.PL
xex- <i>i</i> -...		xex- <i>i</i>	xex- <i>i</i> - <i>mi</i> -...



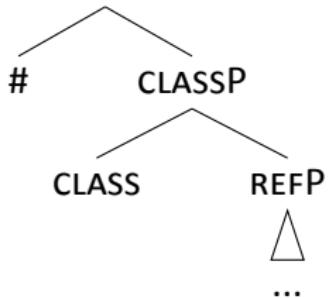
(9) Rutul ('nose')

	SG	PL
NOM	xex	xex -bir
ACC	xex-i-∅	xex-i-mi-∅
DAT	xex-i-s	xex-i-mi-s

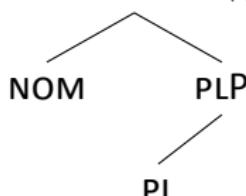
	REFP	CLASS	#	PL	NOM	OBL	DAT
NOM	xex-bir	xex			bir		
OBL	xex-i-mi	xex	i		mi		
DAT	xex-i-mi-l	xex	i		mi		l

		REFP	CLASS	#	PL	NOM	OBL	DAT
NOM	<i>xex-b<small>i</small>r</i>	xex	xex			b <small>i</small> r		
OBL	<i>xex-i-m<small>i</small></i>	xex	i			m <small>i</small>		
DAT	<i>xex-i-m<small>i</small>-l</i>	xex	i			m <small>i</small>		l

a. $\#P \Leftrightarrow xex$

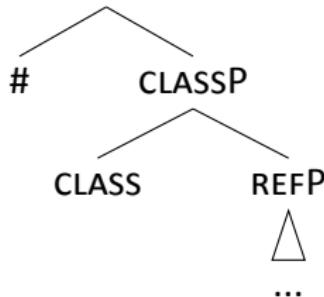


b. $NOMP \Leftrightarrow bir$

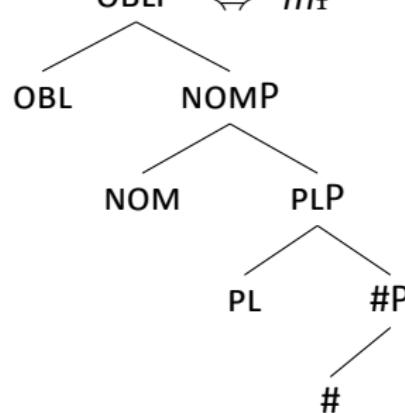


		REFP	CLASS	#	PL	NOM	OBL	DAT
NOM	<i>xex-bır</i>		xex			bır		
OBL	<i>xex-i-mi</i>	xex	i			mi		
DAT	<i>xex-i-mi-l</i>	xex	i			mi		l

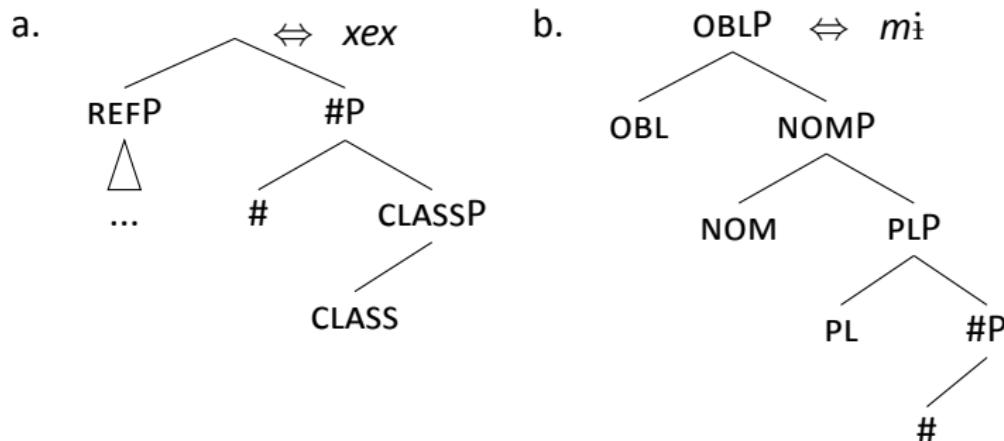
a. $\#P \Leftrightarrow xex$



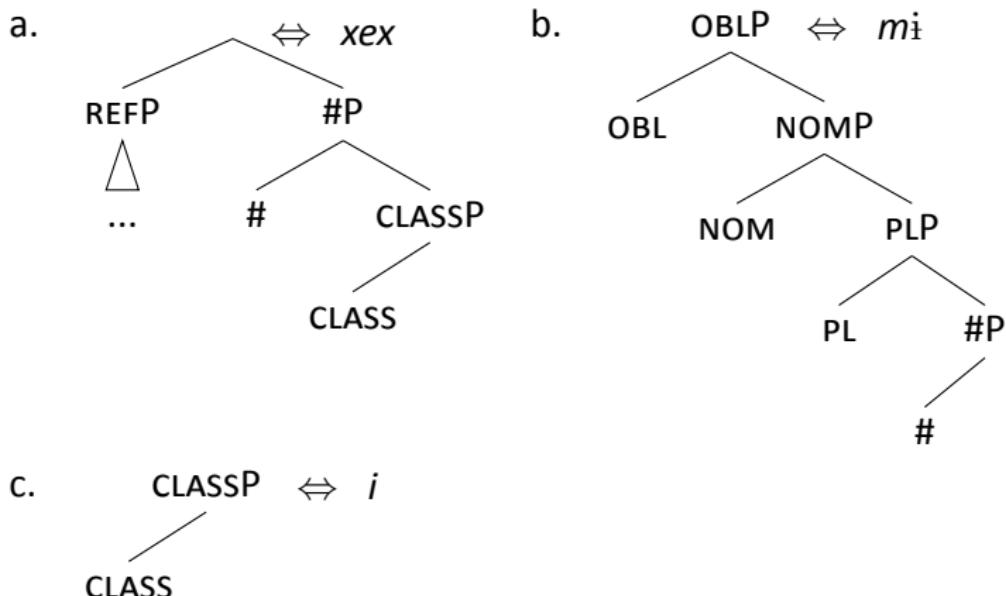
b. $OBLP \Leftrightarrow mi$



		REFP	CLASS	#	PL	NOM	OBL	DAT
NOM	<i>xex-bır</i>		xex			bır		
OBL	<i>xex-i-mi</i>	xex	i			mi		
DAT	<i>xex-i-mi-l</i>	xex	i			mi	l	

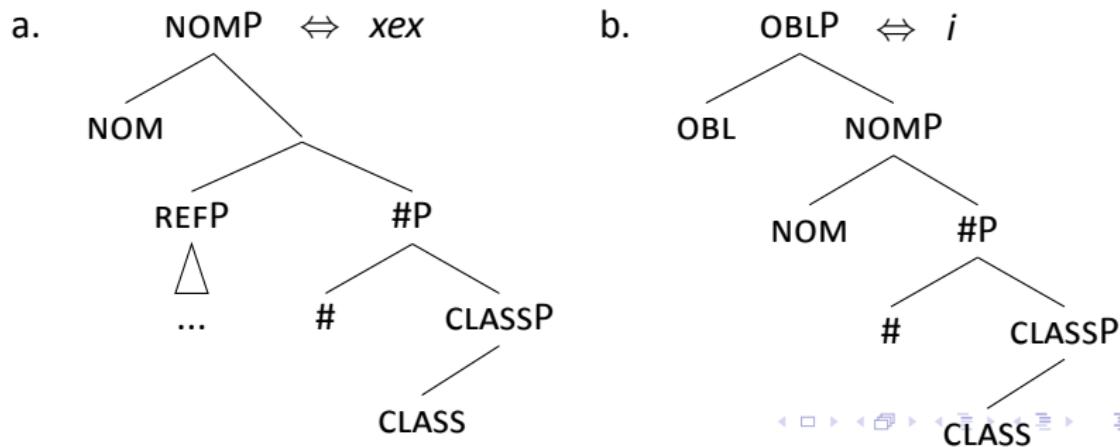


		REFP	CLASS	#	PL	NOM	OBL	DAT
NOM	<i>xex-bir</i>	xex		bir				
OBL	<i>xex-i-mi</i>	xex	i			mi		
DAT	<i>xex-i-mi-l</i>	xex	i			mi		l



		REFP	CLASS	#	NOM	OBL	DAT
NOM.SG	<i>xex</i>		xex				
OB.SGL	<i>xex-i</i>	xex		i			
DAT.SG	<i>xex-i-l</i>	xex		i		l	

		REFP	CLASS	#	PL	NOM	OBL	DAT
NOM.PL	<i>xex-bir</i>	xex			bir			
OBL.PL	<i>xex-i-mi</i>	xex	i		mi			
DAT.PL	<i>xex-i-mi-l</i>	xex	i		mi		l	



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(10) Rutul ('nose')

	SG	PL
NOM	xex	xex -bir
ACC	xex-i-∅	xex-i-mi-∅
DAT	xex-i-s	xex-i-mi-s

(11) Tamil (1)

	SG	PL
NOM	naan	naan-gal
ACC	en-∅	en-gal-∅
DAT	en-akku	en-gal-ukku

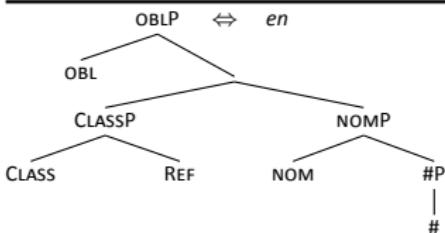
		REFP	CLASS	#	NOM	OBL	DAT	
NOM.SG	<i>xex</i>		xex					
OB.SGL	<i>xex-i</i>	xex		i				
DAT.SG	<i>xex-i-l</i>	xex		i			l	
		REFP	CLASS	#	PL	NOM	OBL	DAT
NOM.PL	<i>xex-bir</i>	xex		bir				
OBL.PL	<i>xex-i-mi</i>	xex	i	mi				
DAT.PL	<i>xex-i-mi-l</i>	xex	i	mi				l
		REFP	CLASS	#	NOM	OBL	DAT	
NOM.SG	<i>naan</i>		naan					
OB.SGL	<i>en</i>	en		Ø				
DAT.SG	<i>en-akku</i>	en		Ø			akku	
		REFP	CLASS	#	PL	NOM	OBL	DAT
NOM.PL	<i>naan-gal</i>		naan		gal ₁			
OBL.PL	<i>en-gal</i>	en	Ø	gal ₂				
DAT.PL	<i>en-gal-ukku</i>	en	Ø	gal ₂			ukku	

	REFP	CLASS	#	NOM	OBL	DAT	
NOM.SG	<i>xex</i>	xex					
OB.SGL	<i>xex-i</i>	xex	i				
DAT.SG	<i>xex-i-l</i>	xex	i			l	
	REFP	CLASS	#	PL	NOM	OBL	DAT
NOM.PL	<i>xex-bir</i>	xex		bir			
OBL.PL	<i>xex-i-mi</i>	xex	i	mi			
DAT.PL	<i>xex-i-mi-l</i>	xex	i	mi			l
	REFP	CLASS	#	NOM	OBL	DAT	
NOM.SG	<i>naan</i>	naan					
OB.SGL	<i>en</i>	en		Ø			
DAT.SG	<i>en-akku</i>	en		Ø		akku	
	REFP	CLASS	#	PL	NOM	OBL	DAT
NOM.PL	<i>naan-gal</i>	naan		gal ₁			
OBL.PL	<i>en-gal</i>	en		gal ₂			
DAT.PL	<i>en-gal-ukku</i>	en		gal ₂		ukku	

		REFP	CLASS	#	NOM	OBL	DAT	
NOM.SG	<i>xex</i>		xex					
OB.SGL	<i>xex-i</i>	xex		i				
DAT.SG	<i>xex-i-l</i>	xex		i			l	
		REFP	CLASS	#	PL	NOM	OBL	DAT
NOM.PL	<i>xex-bir</i>	xex		bir				
OBL.PL	<i>xex-i-mi</i>	xex	i	mi				
DAT.PL	<i>xex-i-mi-l</i>	xex	i	mi				l
		REFP	CLASS	#	NOM	OBL	DAT	
NOM.SG	<i>naan</i>		naan					
OB.SGL	<i>en</i>		en					
DAT.SG	<i>en-akku</i>		en			akku		
		REFP	CLASS	#	PL	NOM	OBL	DAT
NOM.PL	<i>naan-gal</i>	naan		gal ₁				
OBL.PL	<i>en-gal</i>	en		gal ₂				
DAT.PL	<i>en-gal-ukku</i>	en		gal ₂			ukku	

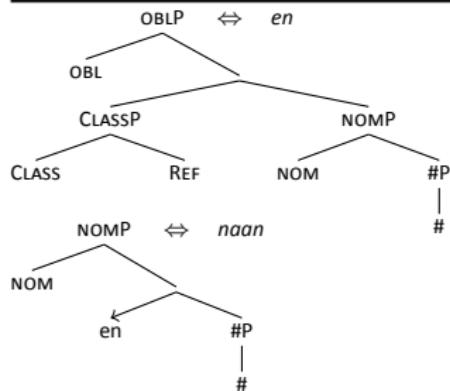
	REFP	CLASS	#	NOM	OBL	DAT
NOM.SG	naan					
OB.SGL		en				
DAT.SG		en				akku

	REFP	CLASS	#	PL	NOM	OBL	DAT
NOM.PL	naan			gal ₁			
OBL.PL	en			gal ₂			
DAT.PL	en			gal ₂			ukku



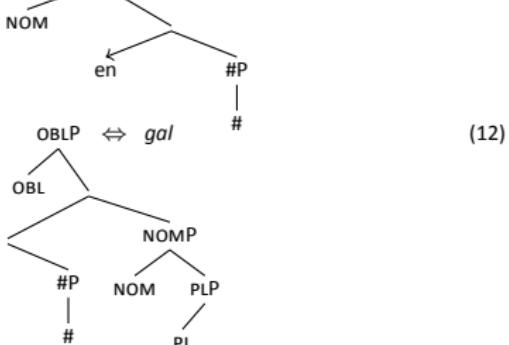
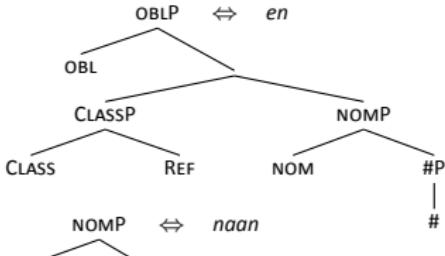
	REFP	CLASS	#	NOM	OBL	DAT
NOM.SG	naan					
OB.SGL		en				
DAT.SG		en				akku

	REFP	CLASS	#	PL	NOM	OBL	DAT
NOM.PL	naan			gal ₁			
OB.L.PL	en			gal ₂			
DAT.PL	en			gal ₂			ukku



	REFP	CLASS	#	NOM	OBL	DAT
NOM.SG	naan					
OB.SGL		en				
DAT.SG		en				akku

	REFP	CLASS	#	PL	NOM	OBL	DAT
NOM.PL	naan			gal ₁			
OBLS.PL	en			gal ₂			
DAT.PL	en			gal ₂			ukku



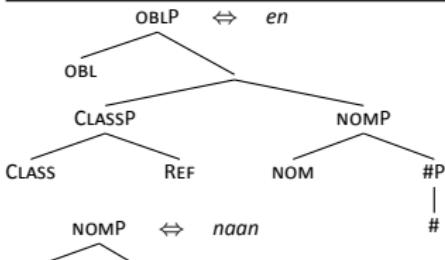
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Merge F

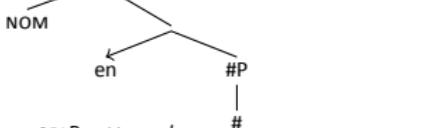
- a. spell out FP
- b. Evacuate the closest non-remnant XP
- c. Pied-Pipe
- d. Backtrack

	REFP	CLASS	#	NOM	OBL	DAT
NOM.SG	naan					
OB.SGL		en				
DAT.SG		en				akku

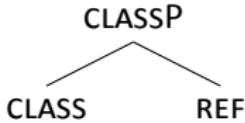
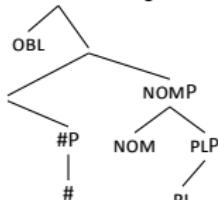
	REFP	CLASS	#	PL	NOM	OBL	DAT
NOM.PL	naan			gal ₁			
OBLS.PL	en			gal ₂			
DAT.PL	en			gal ₂			ukku



NOMP \Leftrightarrow naan



OBLP \Leftrightarrow gal



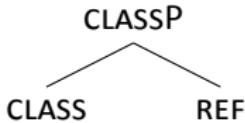
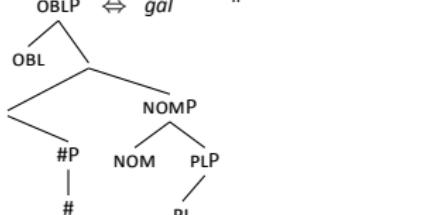
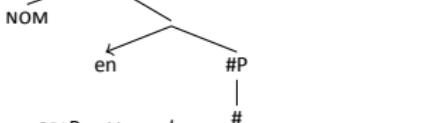
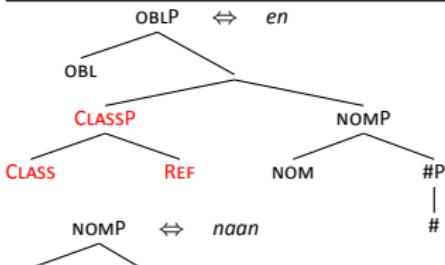
(13)

Merge F

- a. spell out FP
- b. Evacuate the closest non-remnant XP
- c. Pied-Pipe
- d. Backtrack

	REFP	CLASS	#	NOM	OBL	DAT
NOM.SG	naan					
OB.SGL		en				
DAT.SG		en				akku

	REFP	CLASS	#	PL	NOM	OBL	DAT
NOM.PL	naan			gal ₁			
OBLS.PL	en			gal ₂			
DAT.PL	en			gal ₂			ukku



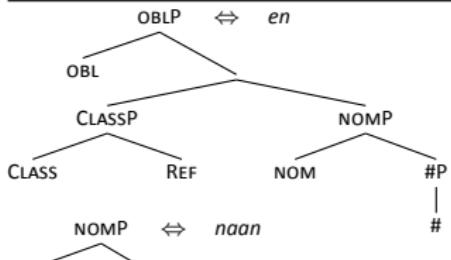
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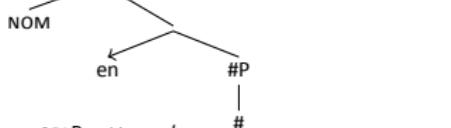
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	REFP	CLASS	#	NOM	OBL	DAT
NOM.SG	naan					
OB.SGL		en				
DAT.SG		en				akku

	REFP	CLASS	#	PL	NOM	OBL	DAT
NOM.PL	naan			gal ₁			
OB.L.PL	en			gal ₂			
DAT.PL	en			gal ₂			ukku



NOMP \Leftrightarrow naan



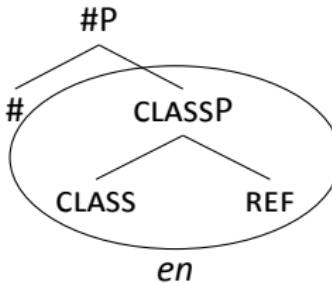
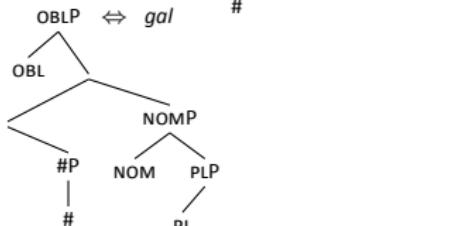
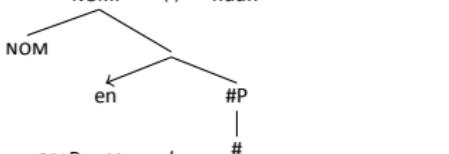
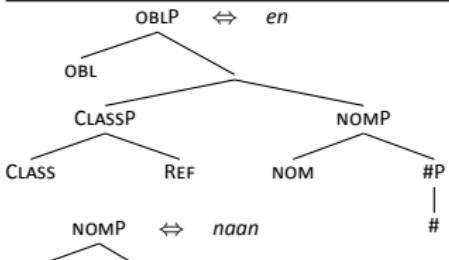
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- a. spell out FP
- b. Evacuate the closest non-remnant XP
- c. Pied-Pipe
- d. Backtrack

	REFP	CLASS	#	NOM	OBL	DAT
NOM.SG	naan					
OB.SGL		en				
DAT.SG	en					akku

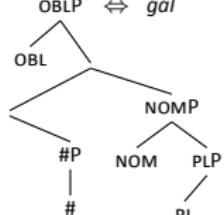
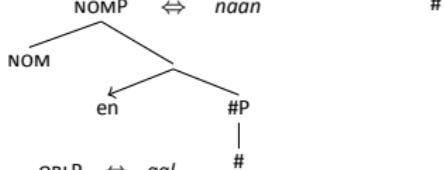
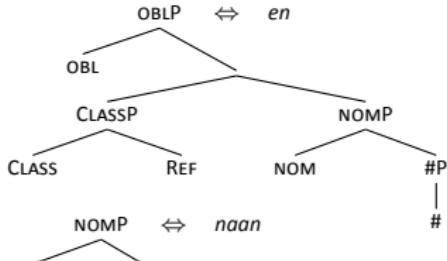
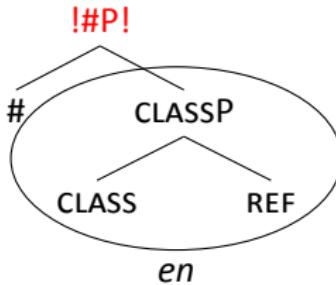
	REFP	CLASS	#	PL	NOM	OBL	DAT
NOM.PL	naan			gal ₁			
OB.L.PL	en			gal ₂			
DAT.PL	en			gal ₂			ukku



(13) Merge F

- a. spell out FP
- b. Evacuate the closest non-remnant XP
- c. Pied-Pipe
- d. Backtrack

	REFP	CLASS	#	NOM	OBL	DAT
NOM.SG	naan					
OB.SGL	en					
DAT.SG	en					akku
	REFP	CLASS	#	PL	NOM	OBL
NOM.PL	naan			gal ₁		
OBLS.PL	en			gal ₂		
DAT.PL	en			gal ₂		ukku

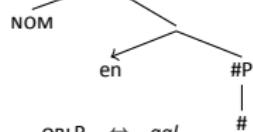
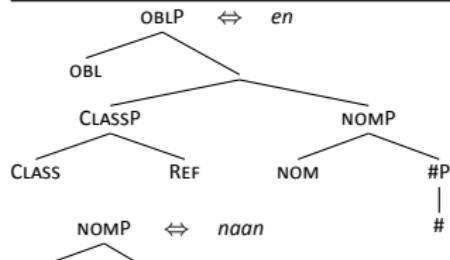
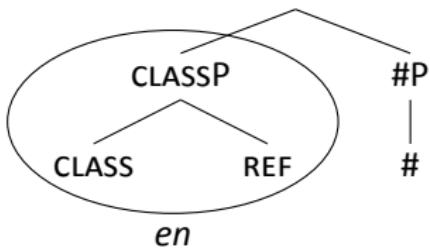


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Merge F

- a. spell out FP
- b. Evacuate the closest non-remnant XP
- c. Pied-Pipe
- d. Backtrack

	REFP	CLASS	#	NOM	OBL	DAT
NOM.SG	naan					
OB.SGL	en					
DAT.SG	en					akku
	REFP	CLASS	#	PL	NOM	OBL
NOM.PL	naan	gal ₁				
OBLS.PL	en	gal ₂				
DAT.PL	en	gal ₂				ukku



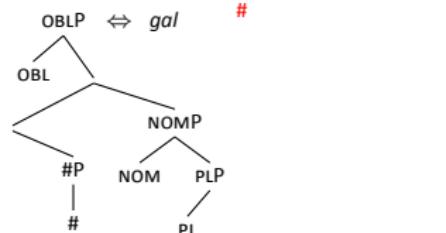
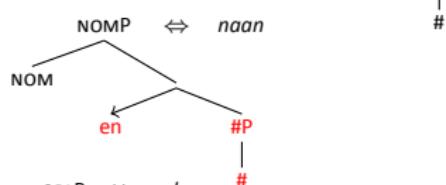
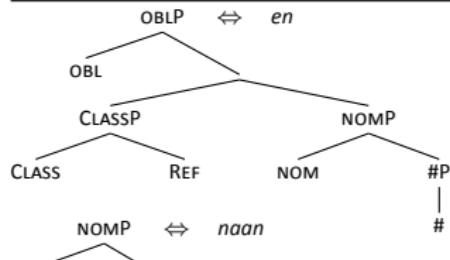
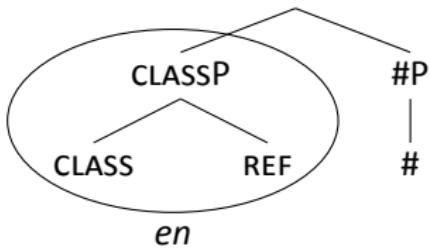
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Merge F

- a. spell out FP
- b. Evacuate the closest non-remnant XP
- c. Pied-Pipe
- d. Backtrack

	REFP	CLASS	#	NOM	OBL	DAT
NOM.SG	naan					
OB.SGL	en					
DAT.SG	en					akku

	REFP	CLASS	#	PL	NOM	OBL	DAT
NOM.PL	naan	gal ₁					
OB.PL	en	gal ₂					
DAT.PL	en	gal ₂					ukku



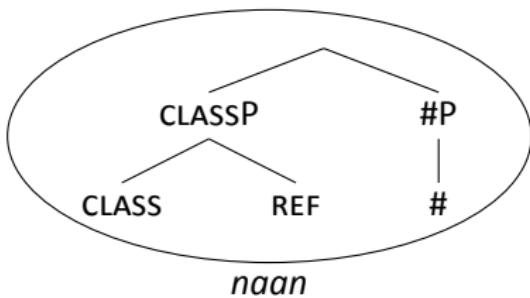
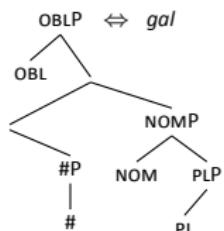
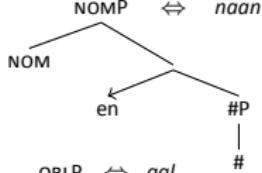
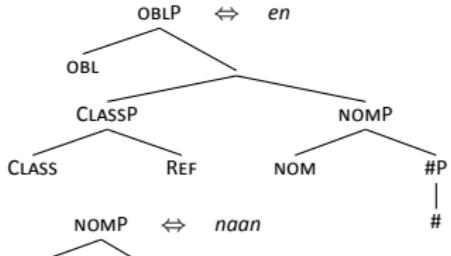
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Merge F

- a. spell out FP
- b. Evacuate the closest non-remnant XP
- c. Pied-Pipe
- d. Backtrack

	REFP	CLASS	#	NOM	OBL	DAT
NOM.SG	naan					
OB.SGL	en					
DAT.SG	en				akku	

	REFP	CLASS	#	PL	NOM	OBL	DAT
NOM.PL	naan	gal ₁					
OB.PL	en	gal ₂					
DAT.PL	en	gal ₂			ukku		

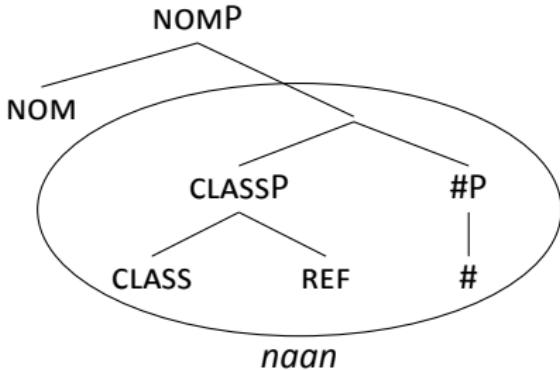
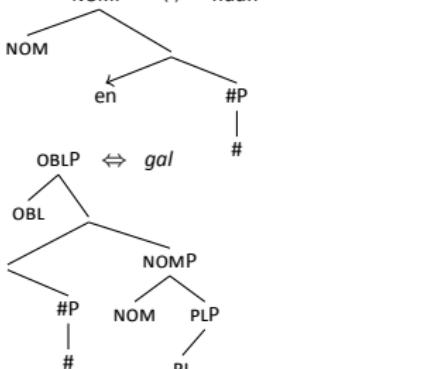
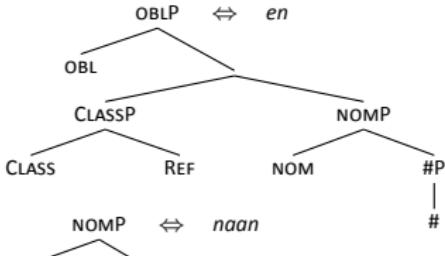


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Merge F

- a. spell out FP
- b. Evacuate the closest non-remnant XP
- c. Pied-Pipe
- d. Backtrack

	REFP	CLASS	#	NOM	OBL	DAT
NOM.SG	naan					
OB.SGL	en					
DAT.SG	en					akku
	REFP	CLASS	#	PL	NOM	OBL
NOM.PL	naan			gal ₁		
OBLS.PL	en			gal ₂		
DAT.PL	en			gal ₂		ukku

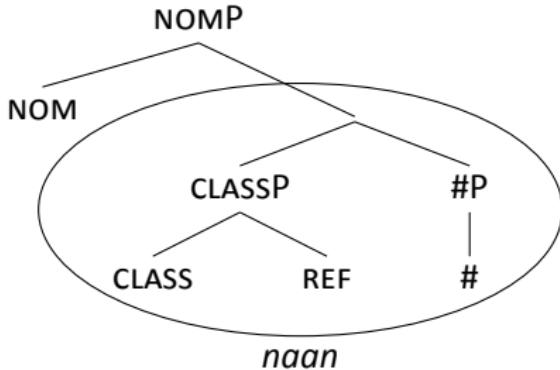
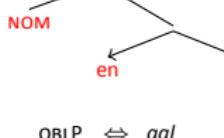
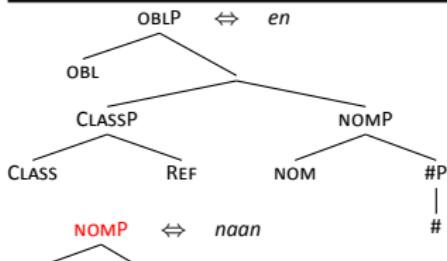


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Merge F

- a. spell out FP
- b. Evacuate the closest non-remnant XP
- c. Pied-Pipe
- d. Backtrack

	REFP	CLASS	#	NOM	OBL	DAT
NOM.SG	naan					
OB.SGL	en					
DAT.SG	en					akku
	REFP	CLASS	#	PL	NOM	OBL
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DAT.PL	en			gal ₂		ukku



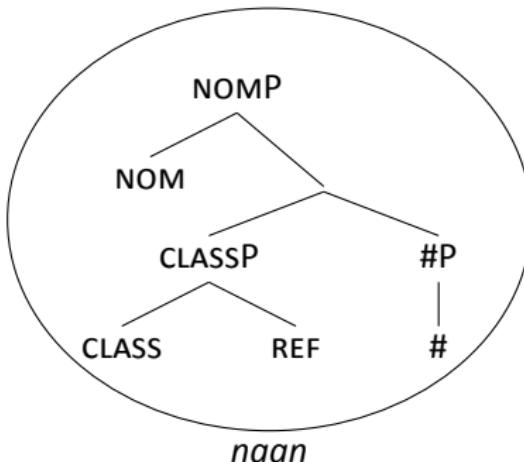
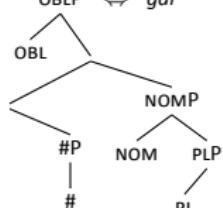
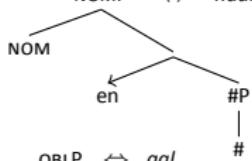
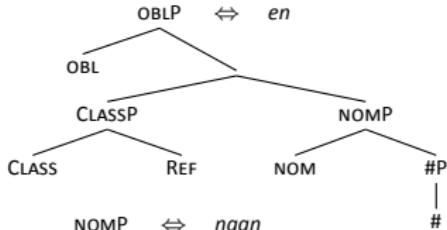
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Merge F

- a. spell out FP
- b. Evacuate the closest non-remnant XP
- c. Pied-Pipe
- d. Backtrack

	REFP	CLASS	#	NOM	OBL	DAT
NOM.SG	naan					
OB.SGL		en				
DAT.SG	en					akku

	REFP	CLASS	#	PL	NOM	OBL	DAT
NOM.PL	naan			gal ₁			
OB.LPL	en			gal ₂			
DAT.PL	en			gal ₂			ukku



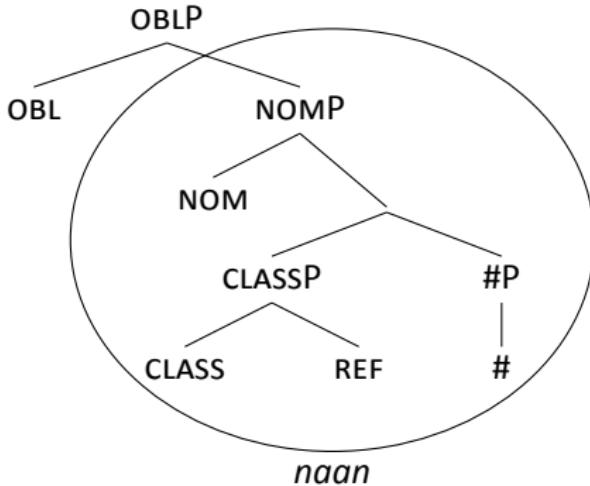
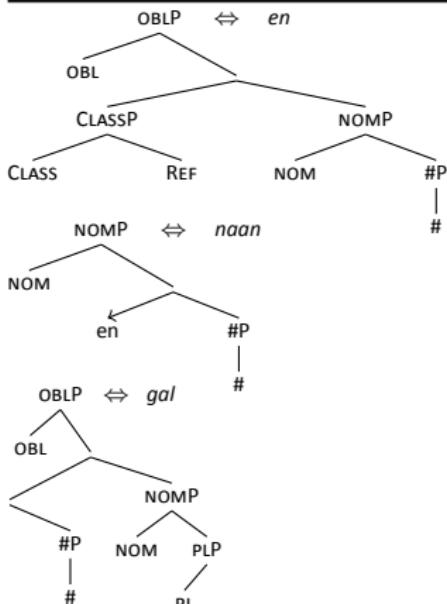
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Merge F

- a. spell out FP
- b. Evacuate the closest non-remnant XP
- c. Pied-Pipe
- d. Backtrack

	REFP	CLASS	#	NOM	OBL	DAT
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OB.SGL	en					
DAT.SG	en					akku

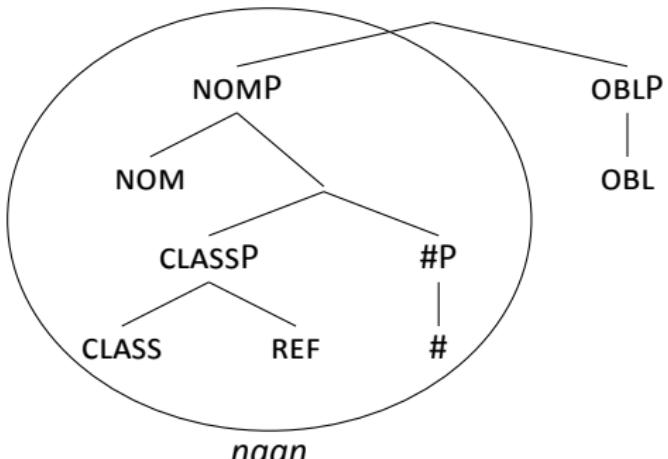
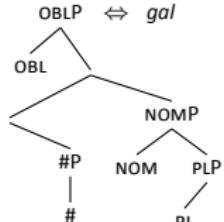
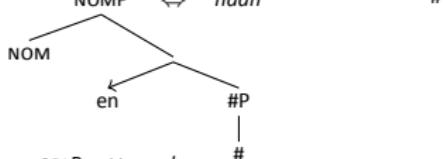
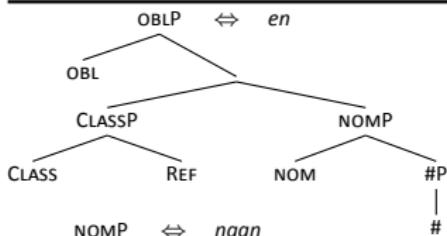
	REFP	CLASS	#	PL	NOM	OBL	DAT
NOM.PL	naan			gal ₁			
OB.PL	en			gal ₂			
DAT.PL	en			gal ₂			ukku



- a. spell out FP
- b. Evacuate the closest non-remnant XP
- c. Pied-Pipe
- d. Backtrack

	REFP	CLASS	#	NOM	OBL	DAT
NOM.SG	naan					
OB.SGL	en					
DAT.SG	en				akku	

	REFP	CLASS	#	PL	NOM	OBL	DAT
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DAT.PL	en			gal ₂		ukku	



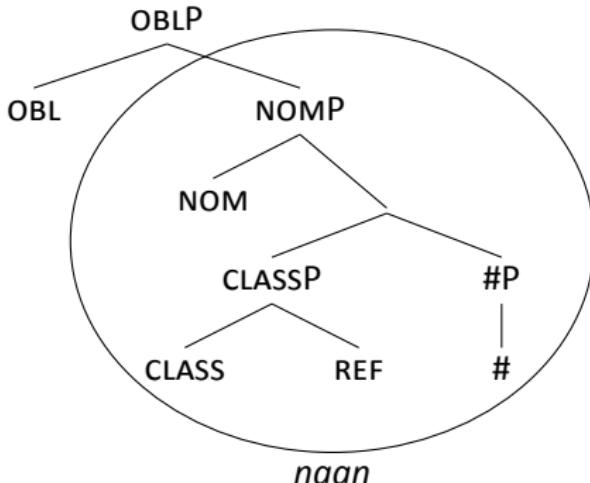
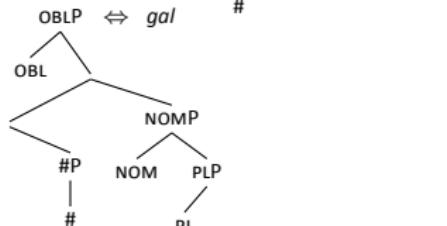
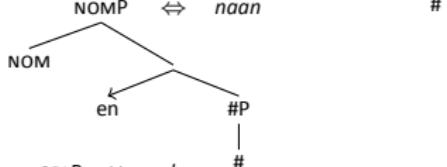
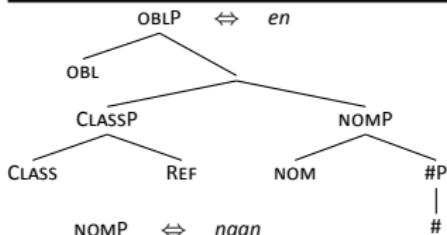
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Merge F

- a. spell out FP
- b. Evacuate the closest non-remnant XP
- c. Pied-Pipe
- d. Backtrack

	REFP	CLASS	#	NOM	OBL	DAT
NOM.SG	naan					
OB.SGL	en					
DAT.SG	en					akku

	REFP	CLASS	#	PL	NOM	OBL	DAT
NOM.PL	naan			gal ₁			
OBLS.PL	en			gal ₂			
DAT.PL	en			gal ₂			ukku

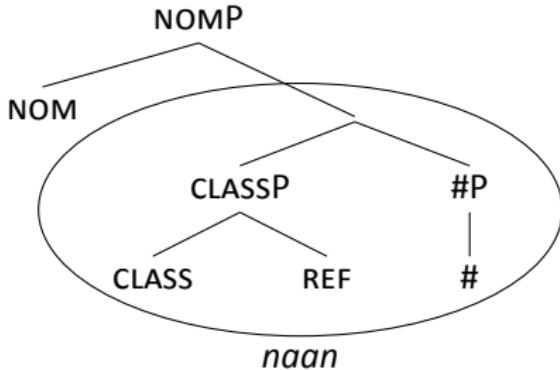
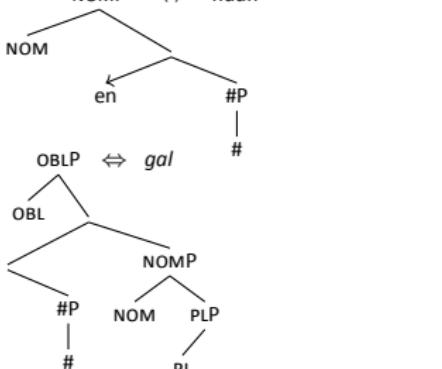
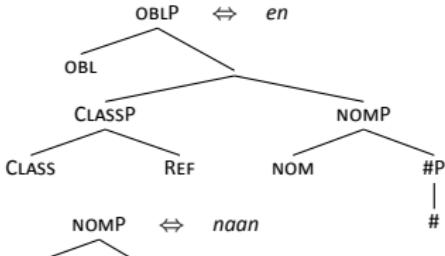


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Merge F

- a. spell out FP
- b. Evacuate the closest non-remnant XP
- c. Pied-Pipe
- d. Backtrack

	REFP	CLASS	#	NOM	OBL	DAT
NOM.SG	naan					
OB.SGL	en					
DAT.SG	en					akku
	REFP	CLASS	#	PL	NOM	OBL
NOM.PL	naan		gal ₁			
OBLS.PL	en		gal ₂			
DAT.PL	en		gal ₂			ukku

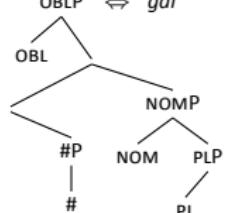
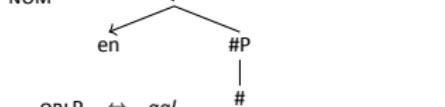
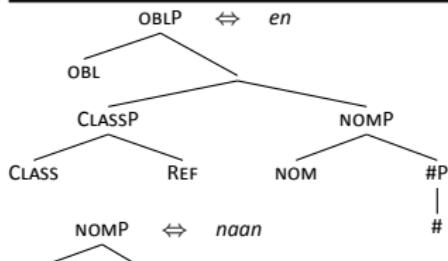
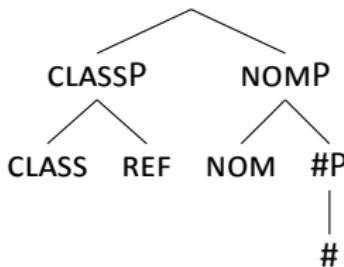


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Merge F

- a. spell out FP
- b. Evacuate the closest non-remnant XP
- c. Pied-Pipe
- d. Backtrack

	REFP	CLASS	#	NOM	OBL	DAT
NOM.SG	naan					
OB.SGL	en					
DAT.SG	en					akku
	REFP	CLASS	#	PL	NOM	OBL
NOM.PL	naan			gal ₁		
OBLS.PL	en			gal ₂		
DAT.PL	en			gal ₂		ukku



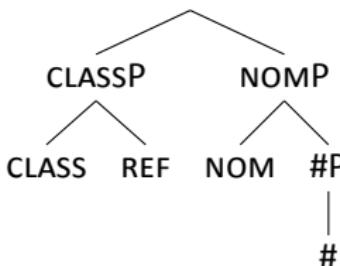
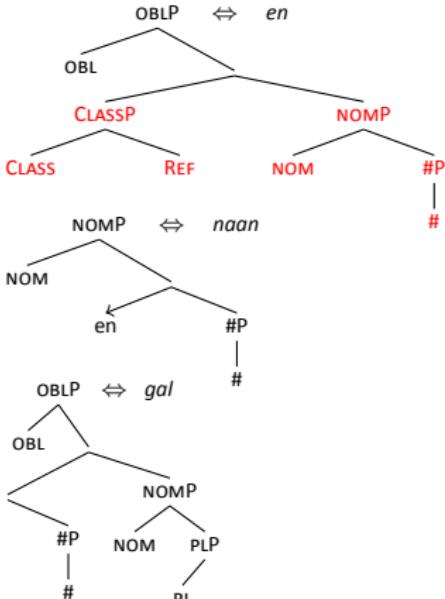
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Merge F

- a. spell out FP
- b. Evacuate the closest non-remnant XP
- c. Pied-Pipe
- d. Backtrack

	REFP	CLASS	#	NOM	OBL	DAT
NOM.SG	naan					
OB.SGL	en					
DAT.SG	en					akku

	REFP	CLASS	#	PL	NOM	OBL	DAT
NOM.PL	naan			gal ₁			
OBL.PL	en			gal ₂			
DAT.PL	en			gal ₂			ukku



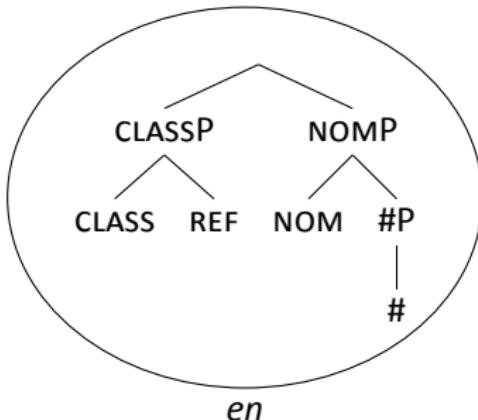
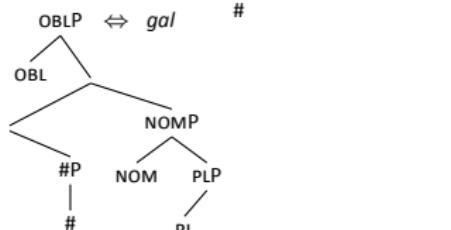
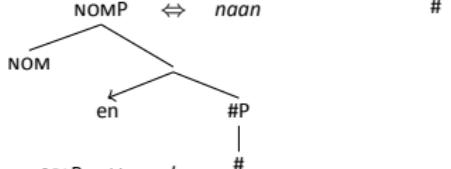
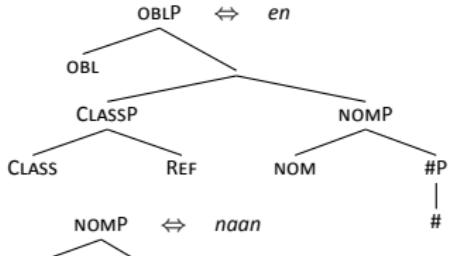
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Merge F

- a. spell out FP
- b. Evacuate the closest non-remnant XP
- c. Pied-Pipe
- d. Backtrack

	REFP	CLASS	#	NOM	OBL	DAT
NOM.SG	naan					
OB.SGL	en					
DAT.SG	en				akku	

	REFP	CLASS	#	PL	NOM	OBL	DAT
NOM.PL	naan			gal ₁			
OB.PL	en			gal ₂			
DAT.PL	en			gal ₂		ukku	



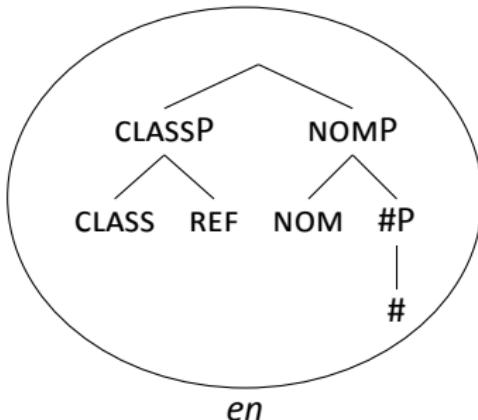
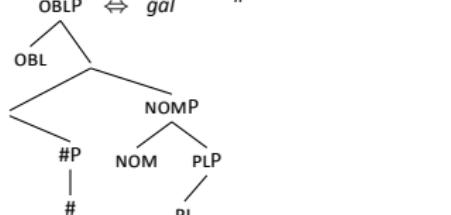
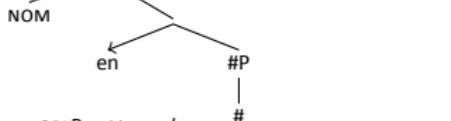
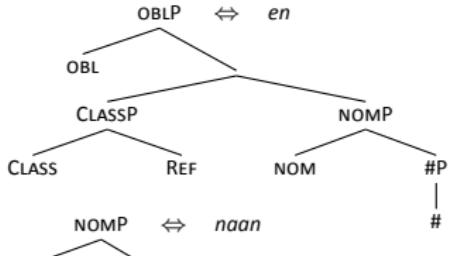
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Merge F

- a. spell out FP
- b. Evacuate the closest non-remnant XP
- c. Pied-Pipe
- d. Backtrack

	REFP	CLASS	#	NOM	OBL	DAT
NOM.SG	naan					
OB.SGL	en					
DAT.SG	en					akku

	REFP	CLASS	#	PL	NOM	OBL	DAT
NOM.PL	naan			gal ₁			
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DAT.PL	en			gal ₂			ukku



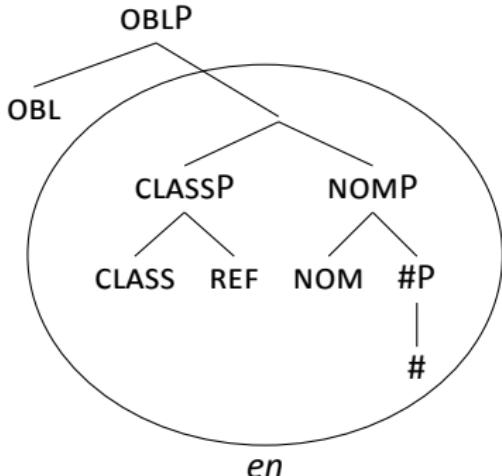
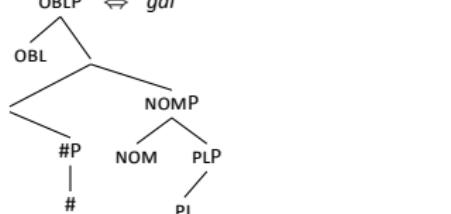
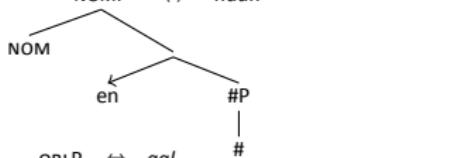
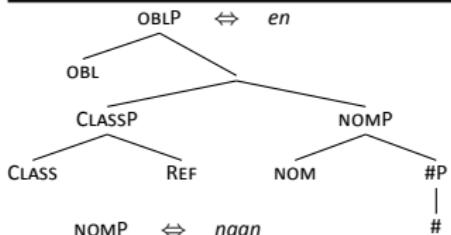
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Merge F

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- b. Evacuate the closest non-remnant XP
- c. Pied-Pipe
- d. Backtrack

	REFP	CLASS	#	NOM	OBL	DAT
NOM.SG	naan					
OB.SGL	en					
DAT.SG	en					akku

	REFP	CLASS	#	PL	NOM	OBL	DAT
NOM.PL	naan			gal ₁			
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DAT.PL	en			gal ₂			ukku



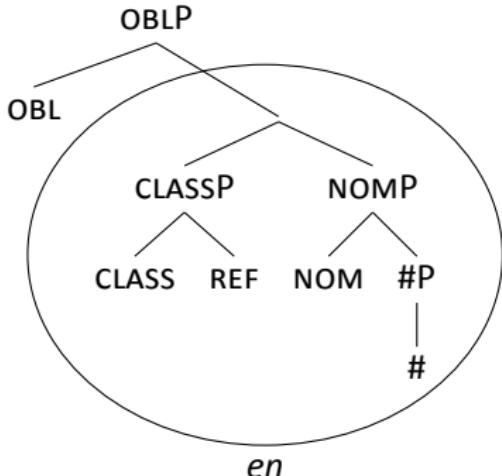
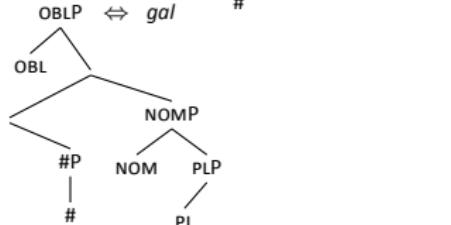
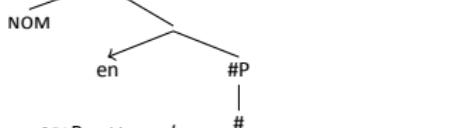
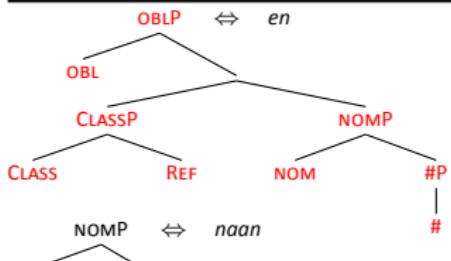
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Merge F

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- b. Evacuate the closest non-remnant XP
- c. Pied-Pipe
- d. Backtrack

	REFP	CLASS	#	NOM	OBL	DAT
NOM.SG	naan					
OB.SGL	en					
DAT.SG	en					akku

	REFP	CLASS	#	PL	NOM	OBL	DAT
NOM.PL	naan			gal ₁			
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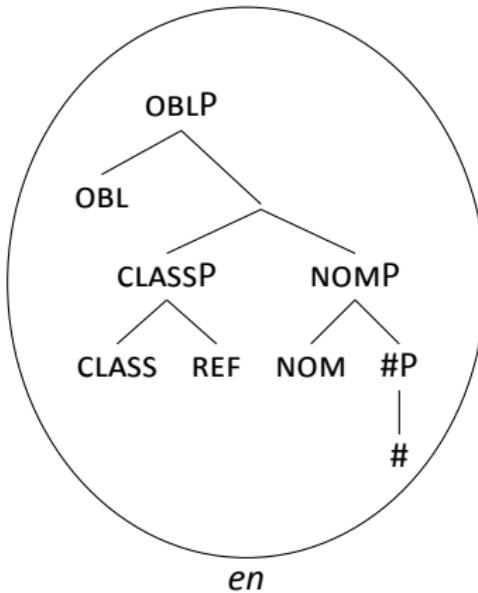
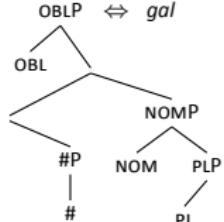
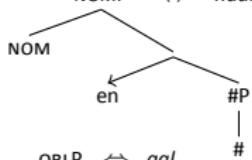
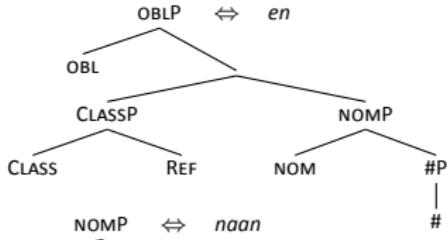
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Merge F

- a. spell out FP
- b. Evacuate the closest non-remnant XP
- c. Pied-Pipe
- d. Backtrack

	REFP	CLASS	#	NOM	OBL	DAT
NOM.SG	naan					
OB.SGL		en				
DAT.SG		en				akku

	REFP	CLASS	#	PL	NOM	OBL	DAT
NOM.PL	naan			gal ₁			
OB.LPL	en			gal ₂			
DAT.PL	en			gal ₂			ukku



(13)

Merge F

- a. spell out FP
- b. Evacuate the closest non-remnant XP
- c. Pied-Pipe
- d. Backtrack

Intro

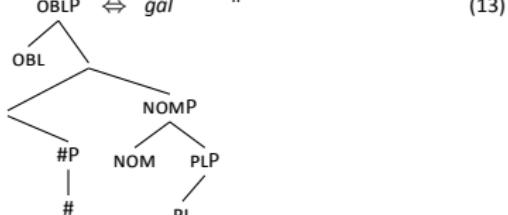
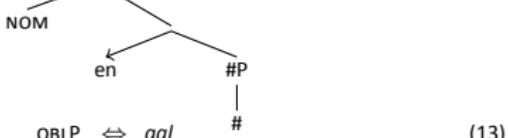
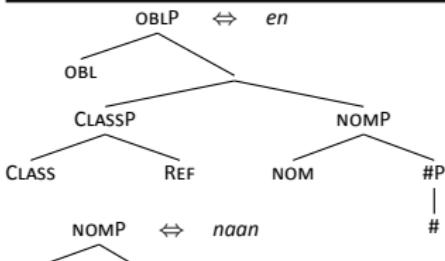
Rutul

Tamil

Plural

	REFP	CLASS	#	NOM	OBL	DAT
NOM.SG	naan					
OB.SGL	en					
DAT.SG	en					akku

	REFP	CLASS	#	PL	NOM	OBL	DAT
NOM.PL	naan			gal ₁			
OB.L.PL	en			gal ₂			
DAT.PL	en			gal ₂			ukku



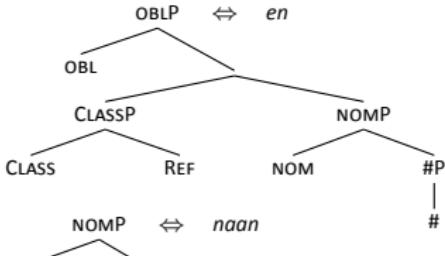
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Merge F

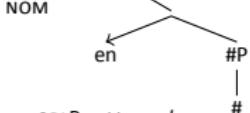
- a. spell out FP
- b. Evacuate the closest non-remnant XP
- c. Pied-Pipe
- d. Backtrack

	REFP	CLASS	#	NOM	OBL	DAT
NOM.SG	naan					
OB.SGL		en				
DAT.SG		en				akku

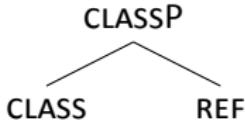
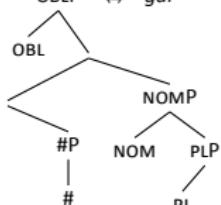
	REFP	CLASS	#	PL	NOM	OBL	DAT
NOM.PL	naan			gal ₁			
OBLS.PL	en			gal ₂			
DAT.PL	en			gal ₂			ukku



NOMP \Leftrightarrow naan



OBLP \Leftrightarrow gal



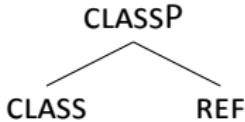
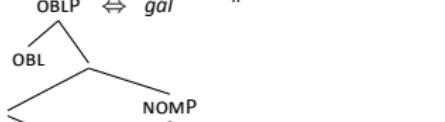
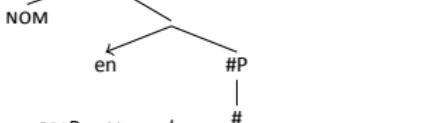
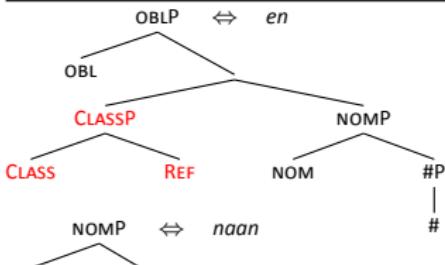
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Merge F

- a. spell out FP
- b. Evacuate the closest non-remnant XP
- c. Pied-Pipe
- d. Backtrack

	REFP	CLASS	#	NOM	OBL	DAT
NOM.SG	naan					
OB.SGL		en				
DAT.SG		en				akku

	REFP	CLASS	#	PL	NOM	OBL	DAT
NOM.PL	naan			gal ₁			
OBLS.PL	en			gal ₂			
DAT.PL	en			gal ₂			ukku



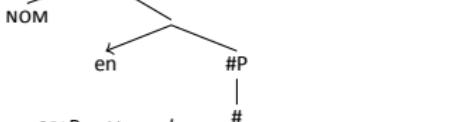
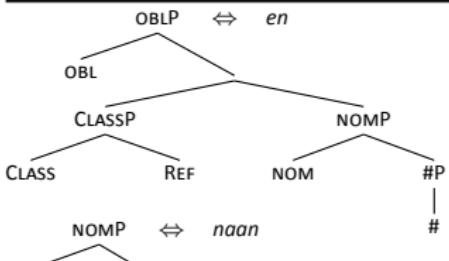
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Merge F

- a. spell out FP
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- c. Pied-Pipe
- d. Backtrack

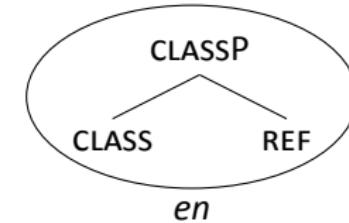
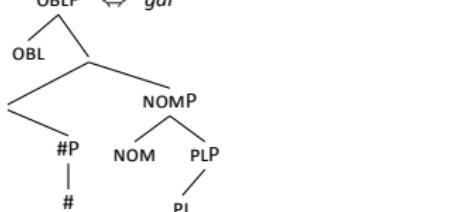
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OB.SGL		en				
DAT.SG		en				akku

	REFP	CLASS	#	PL	NOM	OBL	DAT
NOM.PL	naan			gal ₁			
OB.LPL	en			gal ₂			
DAT.PL	en			gal ₂			ukku



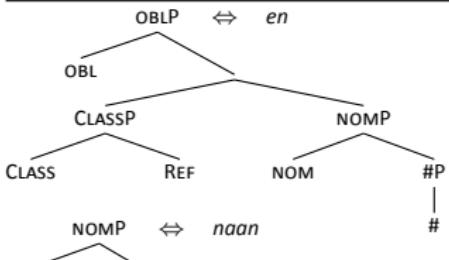
(13) Merge F

- a. spell out FP
- b. Evacuate the closest non-remnant XP
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- d. Backtrack

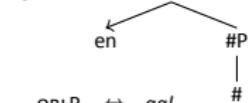


	REFP	CLASS	#	NOM	OBL	DAT
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OB.SGL		en				
DAT.SG		en				akku

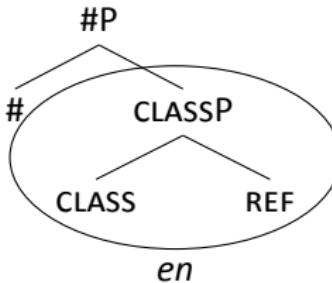
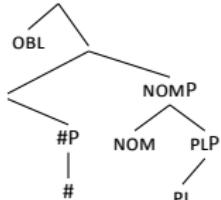
	REFP	CLASS	#	PL	NOM	OBL	DAT
NOM.PL	naan			gal ₁			
OBLS.PL	en			gal ₂			
DAT.PL	en			gal ₂			ukku



NOMP \Leftrightarrow naan



OBLP \Leftrightarrow gal



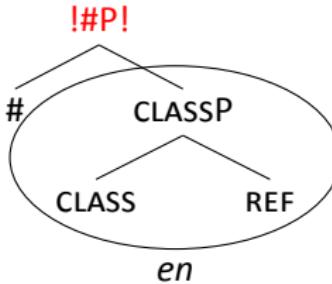
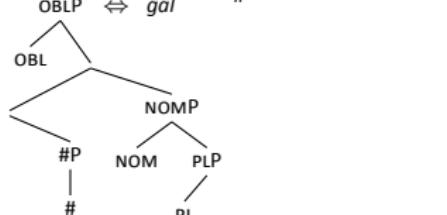
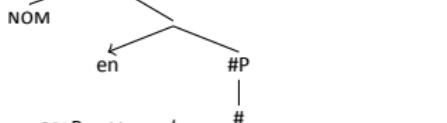
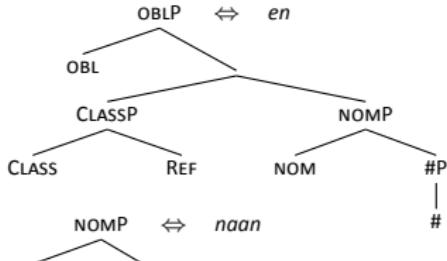
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Merge F

- a. spell out FP
- b. Evacuate the closest non-remnant XP
- c. Pied-Pipe
- d. Backtrack

	REFP	CLASS	#	NOM	OBL	DAT
NOM.SG	naan					
OB.SGL	en					
DAT.SG	en					akku

	REFP	CLASS	#	PL	NOM	OBL	DAT
NOM.PL	naan	gal ₁					
OB.PL	en	gal ₂					
DAT.PL	en	gal ₂					ukku

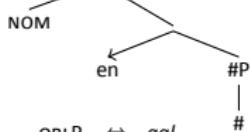
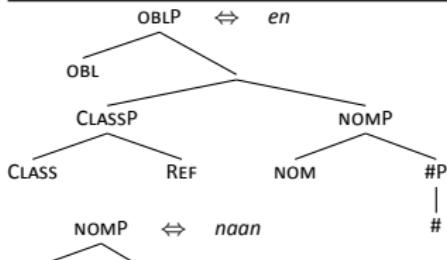
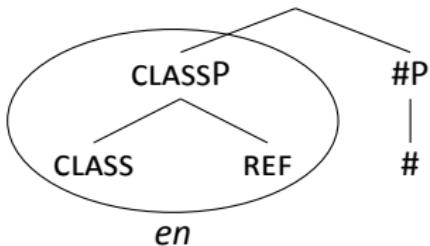


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Merge F

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- c. Pied-Pipe
- d. Backtrack

	REFP	CLASS	#	NOM	OBL	DAT
NOM.SG	naan					
OB.SGL	en					
DAT.SG	en					akku
	REFP	CLASS	#	PL	NOM	OBL
NOM.PL	naan	gal ₁				
OBLS.PL	en	gal ₂				
DAT.PL	en	gal ₂				ukku

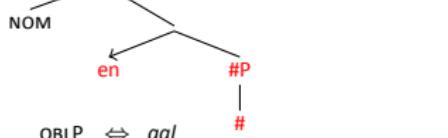
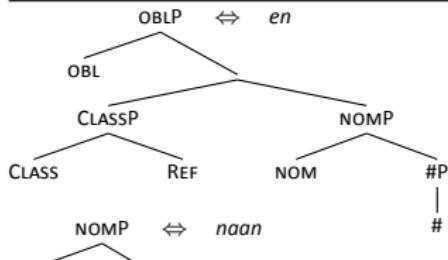
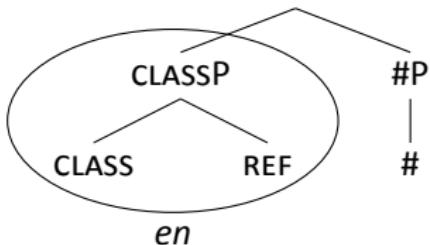


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Merge F

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- c. Pied-Pipe
- d. Backtrack

	REFP	CLASS	#	NOM	OBL	DAT
NOM.SG	naan					
OB.SGL	en					
DAT.SG	en					akku
	REFP	CLASS	#	PL	NOM	OBL
NOM.PL	naan	gal ₁				
OBLS.PL	en	gal ₂				
DAT.PL	en	gal ₂				ukku



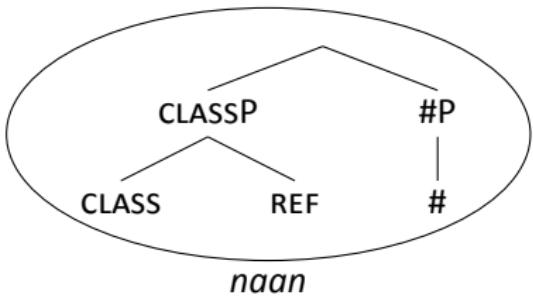
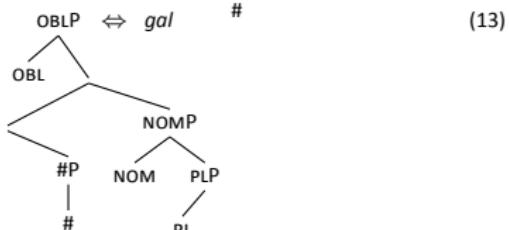
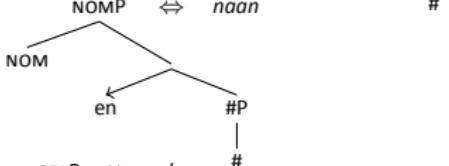
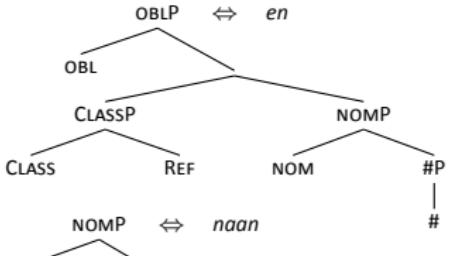
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Merge F

- a. spell out FP
- b. Evacuate the closest non-remnant XP
- c. Pied-Pipe
- d. Backtrack

	REFP	CLASS	#	NOM	OBL	DAT
NOM.SG	naan					
OB.SGL	en					
DAT.SG	en				akku	

	REFP	CLASS	#	PL	NOM	OBL	DAT
NOM.PL	naan	gal ₁					
OB.PL	en	gal ₂					
DAT.PL	en	gal ₂			ukku		

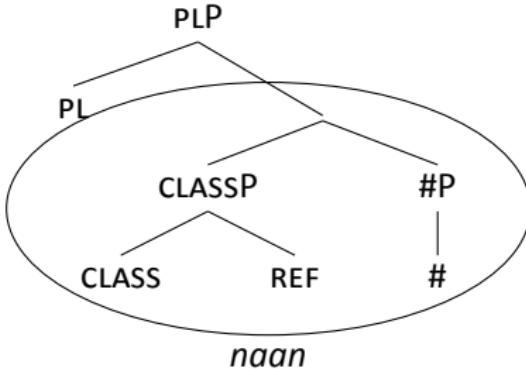
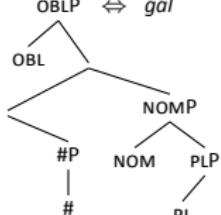
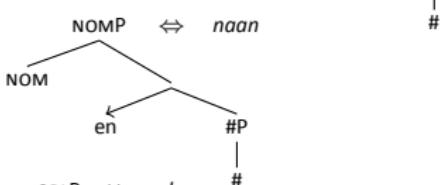
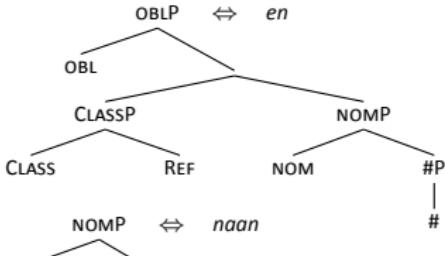


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Merge F

- a. spell out FP
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- c. Pied-Pipe
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	REFP	CLASS	#	NOM	OBL	DAT	
NOM.SG	naan						
OB.SGL	en						
DAT.SG	en					akku	
	REFP	CLASS	#	PL	NOM	OBL	DAT
NOM.PL	naan	gal ₁					
OB.PL	en	gal ₂	gal ₂				
DAT.PL	en						ukku

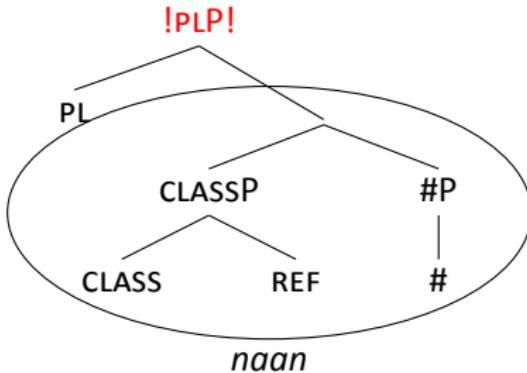
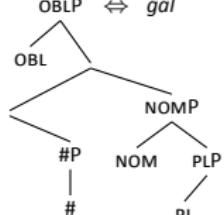
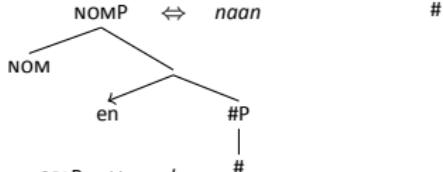
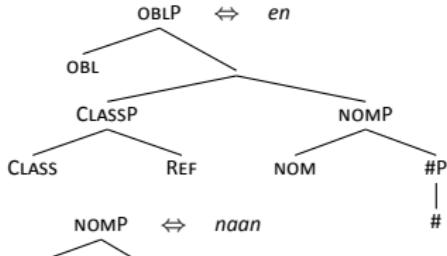


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Merge F

- a. spell out FP
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	REFP	CLASS	#	NOM	OBL	DAT
NOM.SG	naan					
OB.SGL	en					
DAT.SG	en					akku
	REFP	CLASS	#	PL	NOM	OBL
NOM.PL	naan	gal ₁				
OB.PL	en	gal ₂	gal ₂			
DAT.PL	en					ukku



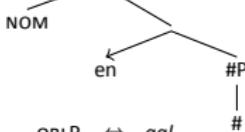
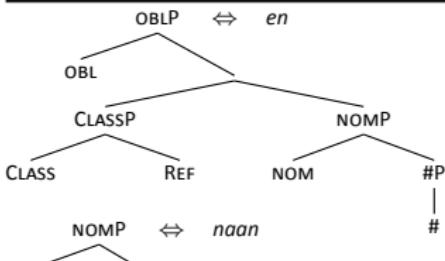
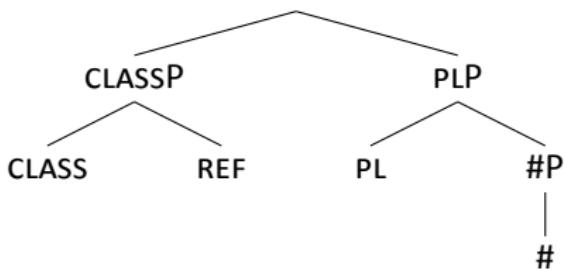
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Merge F

- a. spell out FP
- b. Evacuate the closest non-remnant XP
- c. Pied-Pipe
- d. Backtrack

REFP	CLASS	#	NOM	OBL	DAT
NOM.SG	naan				
OB.SGL	en				
DAT.SG	en				akku

REFP	CLASS	#	PL	NOM	OBL	DAT
NOM.PL	naan		gal ₁			
OBL.PL	en		gal ₂			
DAT.PL	en		gal ₂			ukku

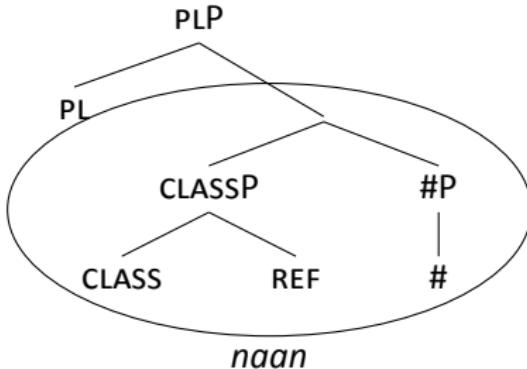
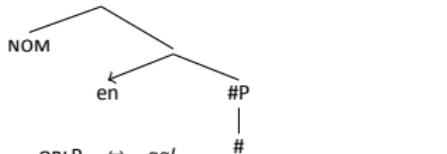
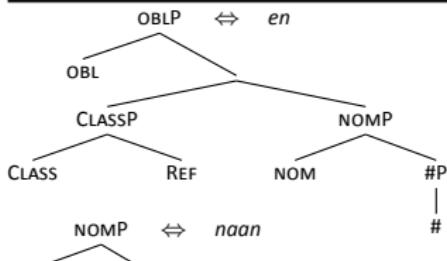


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Merge F

- a. spell out FP
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- c. Pied-Pipe
- d. Backtrack

	REFP	CLASS	#	NOM	OBL	DAT	
NOM.SG	naan						
OB.SGL	en						
DAT.SG	en					akku	
	REFP	CLASS	#	PL	NOM	OBL	DAT
NOM.PL	naan	gal ₁					
OB.PL	en	gal ₂	gal ₂				
DAT.PL	en						ukku



(13)

Merge F

- a. spell out FP
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	REFP	CLASS	#	NOM	OBL	DAT
NOM.SG	naan					
OB.SGL	en					
DAT.SG	en				akku	
	REFP	CLASS	#	PL	NOM	OBL
NOM.PL	naan	gal ₁				
OB.L.PL	en	gal ₂				
DAT.PL	en	gal ₂		ukku		

OB_{LP} ⇔ en

```

graph TD
    OBLP[OBLP] --> OBL
    OBLP --> CLASSP
    OBL --> CLASS
    OBL --> REF
    CLASSP --> NOMP
    CLASSP --> "#P"
    NOMP --> NOM
    NOMP --> "#P"
    NOM --> en1[en]
    NOM --> "#P"
    "#P" --> "#"
    en1 --- gal1[gal1]
    gal1 --- gal2[gal2]
    gal2 --- ukku[ukku]
    
```

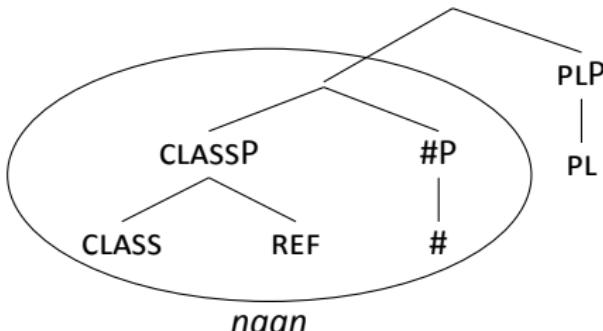
NOMP ⇔ naan

#P ⇔ #

OB_{LP} ⇔ gal

#P ⇔ #

#P ⇔ PL



(13)

Merge F

- a. spell out FP
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- d. Backtrack

	REFP	CLASS	#	NOM	OBL	DAT
NOM.SG	naan					
OB.SGL	en					
DAT.SG	en				akku	
	REFP	CLASS	#	PL	NOM	OBL
NOM.PL	naan	gal ₁				
OB.L.PL	en	gal ₂				
DAT.PL	en	gal ₂		ukku		

OB_LP ⇔ en

```

graph TD
    OBL1[OBL] --- OBL2[OBL]
    OBL1 --- CLASSP1[CLASSP]
    OBL2 --- CLASS1[CLASS]
    OBL2 --- REF1[REF]
    CLASSP1 --- NOM1[NOMP]
    CLASSP1 --- NP1[#P]
    NOM1 --- NOM2[NOMP]
    NOM1 --- NP2[#P]
    NOM2 --- en1[en]
    NP2 --- NP3[#P]
    NP3 --- NP4[#]
    NP4 --- gal1[gal]
    
```

NOM_P ⇔ naan

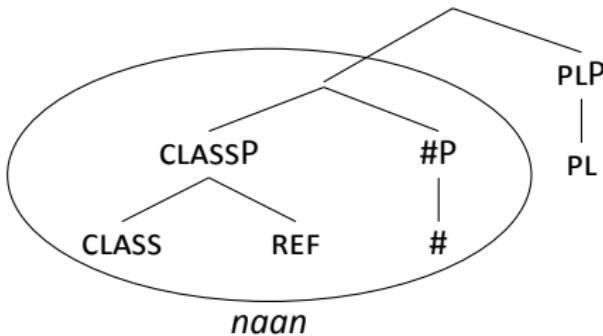
```

graph TD
    NOM1[NOMP] --- NOM2[NOMP]
    NOM1 --- NP1[#P]
    NOM2 --- en1[en]
    NP1 --- NP2[#P]
    NP2 --- NP3[#]
    
```

OB_LP ⇔ gal

```

graph TD
    OBL1[OBL] --- OBL2[OBL]
    OBL1 --- NOMP1[NOMP]
    OBL2 --- NP1[#P]
    NOMP1 --- NOM2[NOMP]
    NOMP1 --- PLP1[PLP]
    NOM2 --- gal1[gal]
    
```

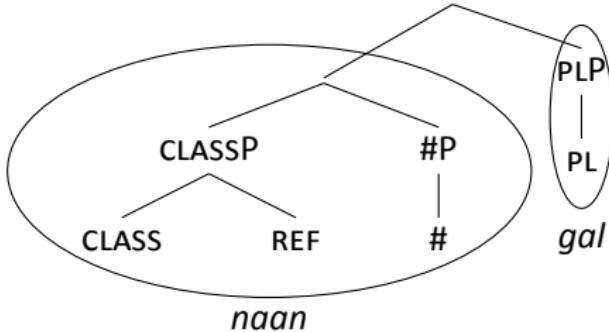
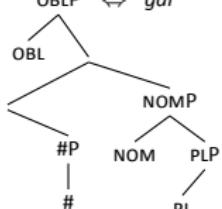
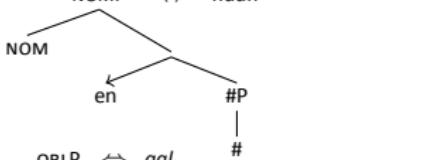
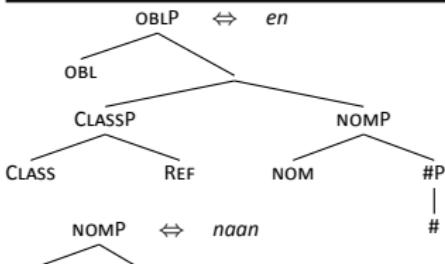


(13)

Merge F

- a. spell out FP
- b. Evacuate the closest non-remnant XP
- c. Pied-Pipe
- d. Backtrack

	REFP	CLASS	#	NOM	OBL	DAT
NOM.SG	naan					
OB.SGL	en					
DAT.SG	en				akku	
	REFP	CLASS	#	PL	NOM	OBL
NOM.PL	naan	gal ₁				
OB.LPL	en	gal ₂				
DAT.PL	en	gal ₂		ukku		



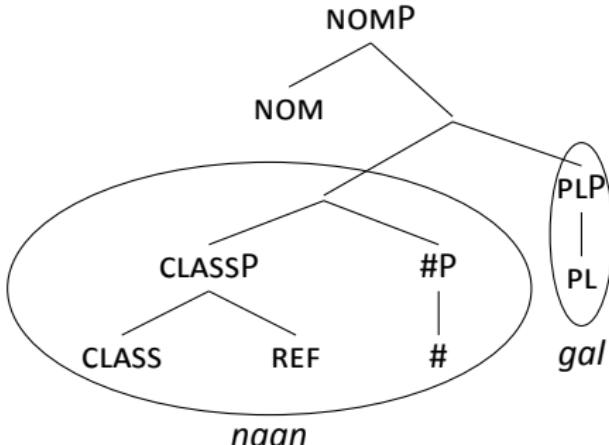
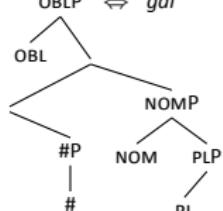
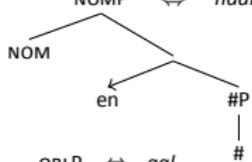
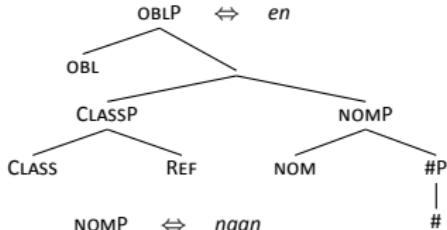
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Merge F

- a. spell out FP
- b. Evacuate the closest non-remnant XP
- c. Pied-Pipe
- d. Backtrack

	REFP	CLASS	#	NOM	OBL	DAT
NOM.SG	naan					
OB.SGL	en					
DAT.SG	en					akku

	REFP	CLASS	#	PL	NOM	OBL	DAT
NOM.PL	naan			gal ₁			
OB.LPL	en			gal ₂			
DAT.PL	en			gal ₂			ukku



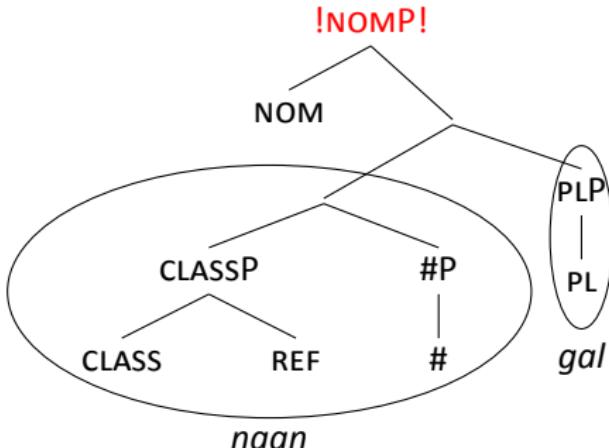
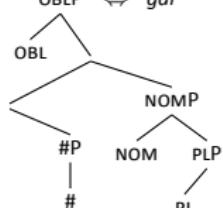
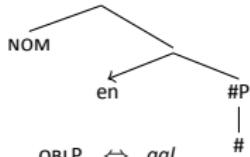
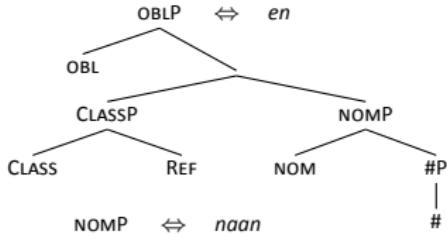
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Merge F

- a. spell out FP
- b. Evacuate the closest non-remnant XP
- c. Pied-Pipe
- d. Backtrack

	REFP	CLASS	#	NOM	OBL	DAT
NOM.SG	naan					
OB.SGL	en					
DAT.SG	en					akku

	REFP	CLASS	#	PL	NOM	OBL	DAT
NOM.PL	naan			gal ₁			
OB.PL	en			gal ₂			
DAT.PL	en			gal ₂			ukku



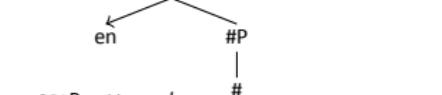
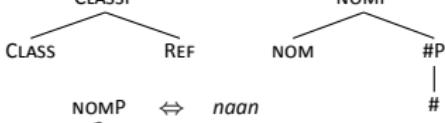
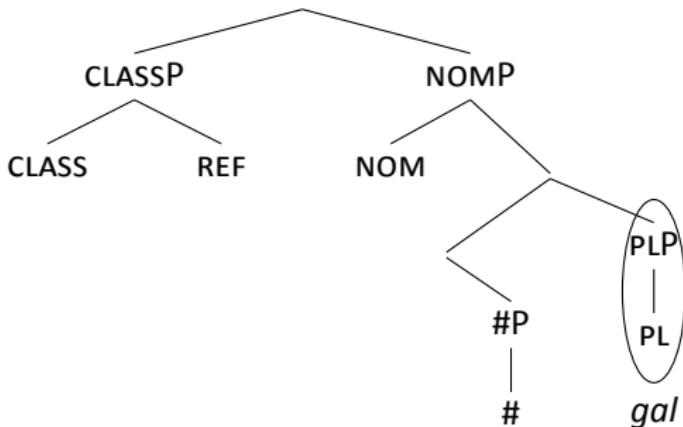
(13)

Merge F

- a. spell out FP
- b. Evacuate the closest non-remnant XP
- c. Pied-Pipe
- d. Backtrack

REFP	CLASS	#	NOM	OBL	DAT
NOM.SG	naan				
OB.SGL	en				
DAT.SG	en				akku

REFP	CLASS	#	PL	NOM	OBL	DAT
NOM.PL	naan			gal ₁		
OBL.PL	en			gal ₂		
DAT.PL	en			gal ₂		ukku

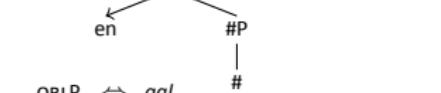
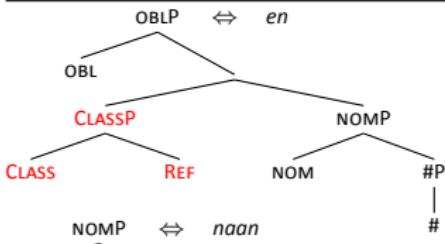
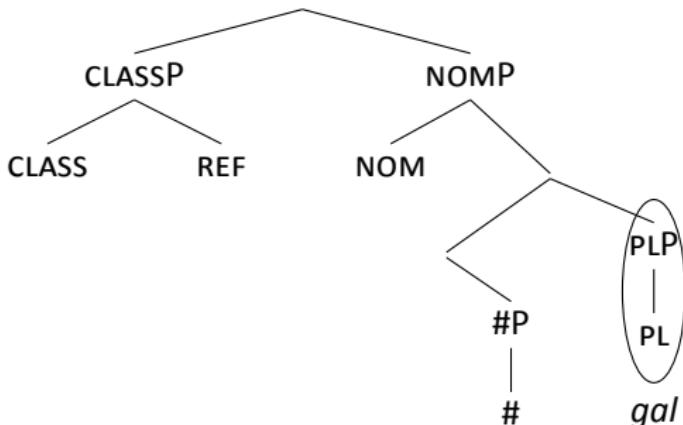


(13)

Merge F

- a. spell out FP
- b. Evacuate the closest non-remnant XP
- c. Pied-Pipe
- d. Backtrack

	REFP	CLASS	#	NOM	OBL	DAT	
NOM.SG	naan						
OB.SGL	en						
DAT.SG	en					akku	
	REFP	CLASS	#	PL	NOM	OBL	DAT
NOM.PL	naan			gal ₁			
OBL.PL	en			gal ₂			
DAT.PL	en			gal ₂			ukku



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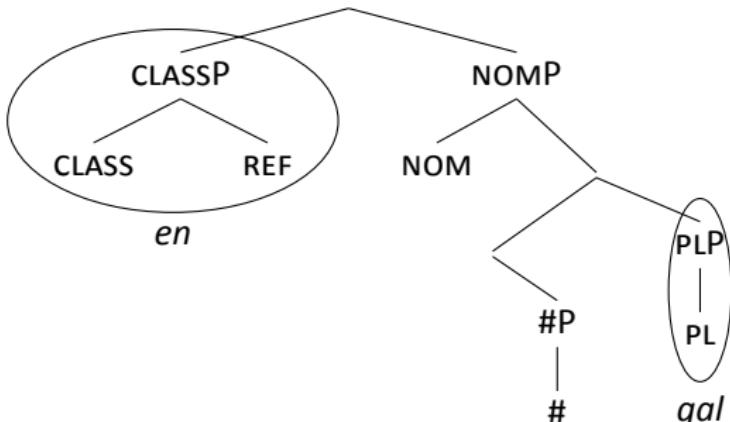
Merge F

- a. spell out FP
- b. Evacuate the closest non-remnant XP
- c. Pied-Pipe
- d. Backtrack

	REFP	CLASS	#	NOM	OBL	DAT
NOM.SG	naan					
OB.SGL	en					
DAT.SG	en				akku	

	REFP	CLASS	#	PL	NOM	OBL	DAT
NOM.PL	naan	gal ₁					
OB.PL	en	gal ₂					
DAT.PL	en	gal ₂			ukku		

OB_{LP} ⇔ en



(13)

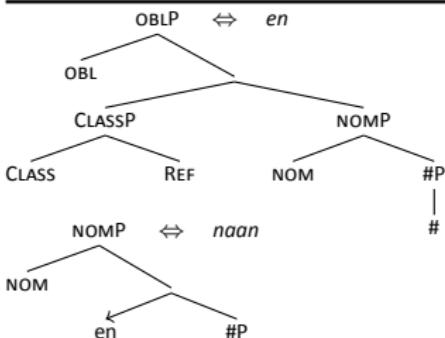
Merge F

- a. spell out FP
- b. Evacuate the closest non-remnant XP
- c. Pied-Pipe
- d. Backtrack

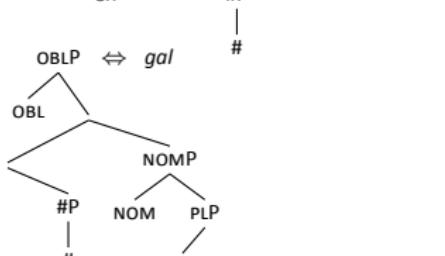
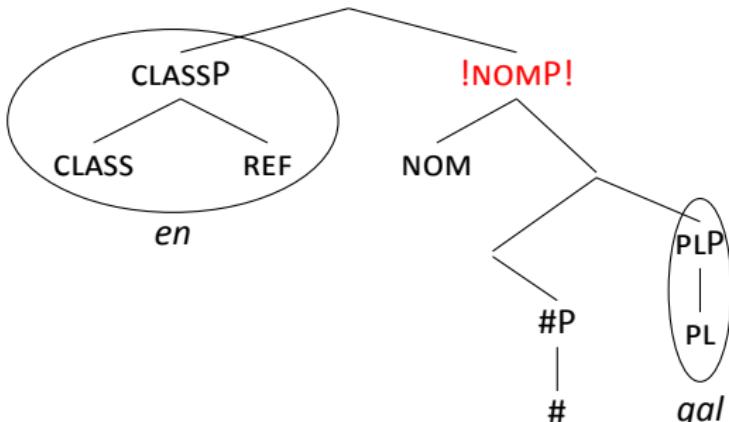
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OB.SGL	en					
DAT.SG	en				akku	

	REFP	CLASS	#	PL	NOM	OBL	DAT
NOM.PL	naan	gal ₁					
OB.PL	en	gal ₂					
DAT.PL	en	gal ₂			ukku		

OB_{LP} ⇔ en



NOMP ⇔ naan

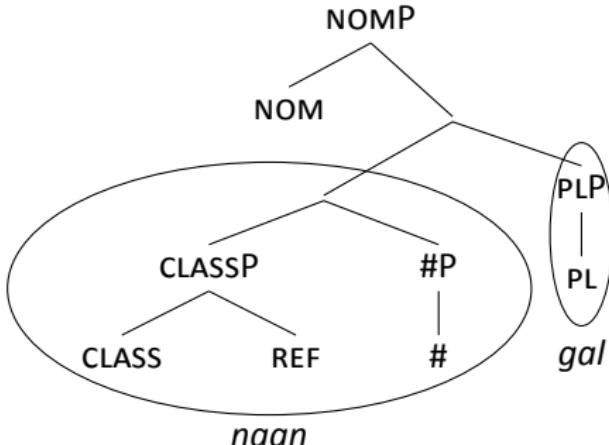
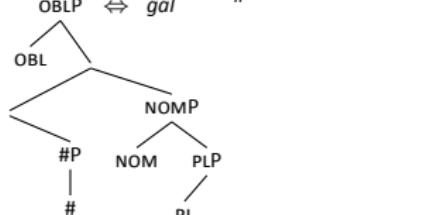
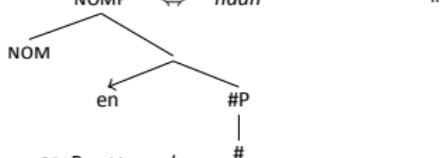
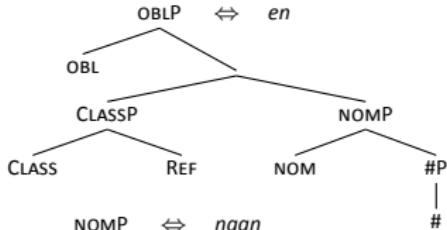
(13)

Merge F

- a. spell out FP
- b. Evacuate the closest non-remnant XP
- c. Pied-Pipe
- d. Backtrack

	REFP	CLASS	#	NOM	OBL	DAT
NOM.SG	naan					
OB.SGL	en					
DAT.SG	en					akku

	REFP	CLASS	#	PL	NOM	OBL	DAT
NOM.PL	naan			gal ₁			
OB.PL	en			gal ₂			
DAT.PL	en			gal ₂			ukku

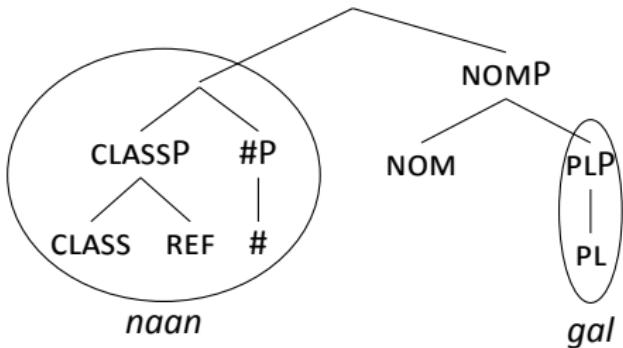
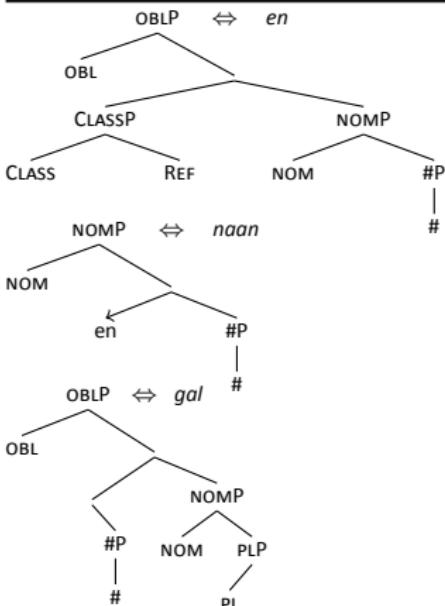


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Merge F

- a. spell out FP
- b. Evacuate the closest non-remnant XP
- c. Pied-Pipe
- d. Backtrack

	REFP	CLASS	#	NOM	OBL	DAT
NOM.SG		naan				
OB.SGL			en			
DAT.SG			en			akku
	REFP	CLASS	#	PL	NOM	OBL
NOM.PL		naan		gal ₁		
OB.PL			en		gal ₂	
DAT.PL			en		gal ₂	ukku

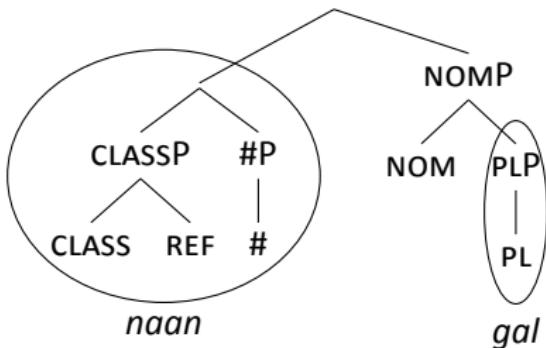


(13)

Merge F

- a. spell out FP
 - b. Evacuate the closest non-remnant XP
 - c. Pied-Pipe
 - d. Backtrack

	REFP	CLASS	#	NOM	OBL	DAT
NOM.SG	naan					
OB.SGL	en					akku
DAT.SG	en					
	REFP	CLASS	#	PL	NOM	OBL
NOM.PL	naan		gal ₁			
OBLS.PL	en		gal ₂			
DAT.PL	en		gal ₂			ukku
	OBLP	↔	en			
	OBL					
	CLASSP					
	CLASS					
	REF					
	NOMP					
	NOM					
	#P					
	#					
	NOMP	↔	naan			
	NOM					
	en					
	#P					
	#					
	OBLP	↔	gal			
	OBL					
	CLASSP					
	CLASS					
	REF					
	NOMP					
	NOM					
	PLP					
	PL					
	#					



(13)

Merge F

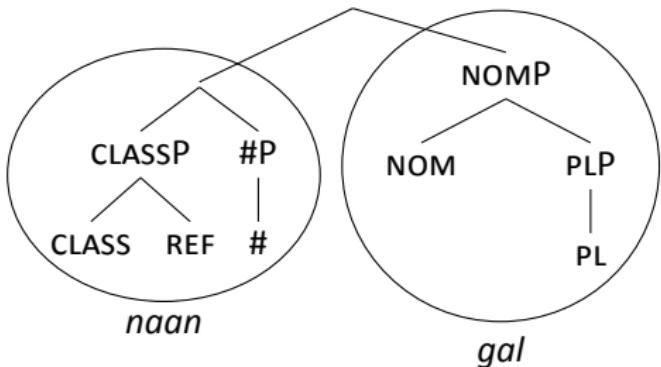
- a. spell out FP
- b. Evacuate the closest non-remnant XP
- c. Pied-Pipe
- d. Backtrack

	REFP	CLASS	#	NOM	OBL	DAT
NOM.SG	naan					
OB.SGL	en					akku
DAT.SG	en					
	REFP	CLASS	#	PL	NOM	OBL
NOM.PL	naan		gal ₁			
OBLS.PL	en		gal ₂			
DAT.PL	en		gal ₂			ukku

OB_{LP} ⇔ en

CLASSP ⇔ naan

OB_{LP} ⇔ gal



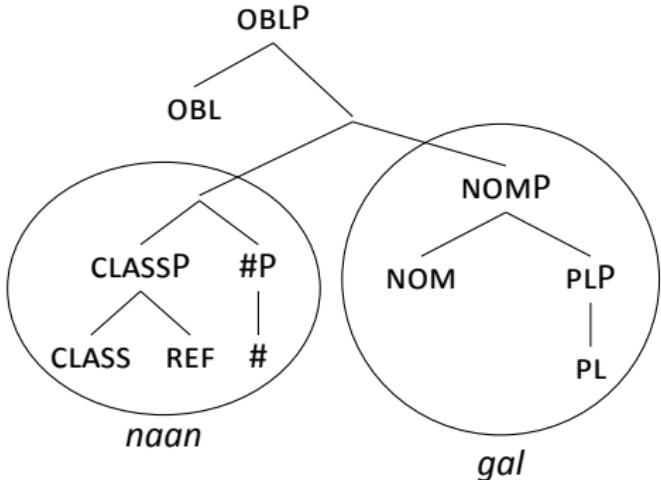
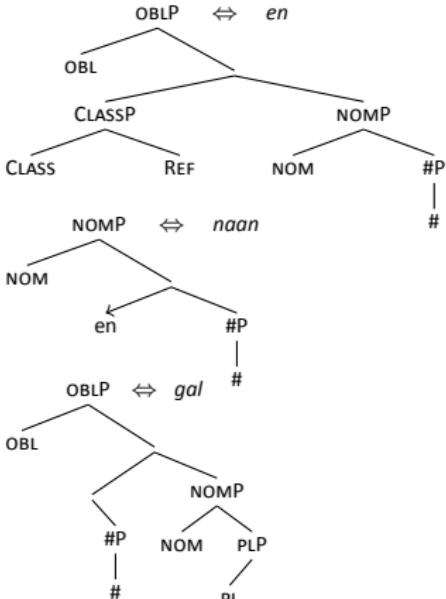
(13)

Merge F

- a. spell out FP
- b. Evacuate the closest non-remnant XP
- c. Pied-Pipe
- d. Backtrack

	REFP	CLASS	#	NOM	OBL	DAT
NOM.SG	naan					
OB.SGL	en					
DAT.SG	en					akku

	REFP	CLASS	#	PL	NOM	OBL	DAT
NOM.PL	naan			gal ₁			
OB.PL	en			gal ₂			
DAT.PL	en			gal ₂			ukku



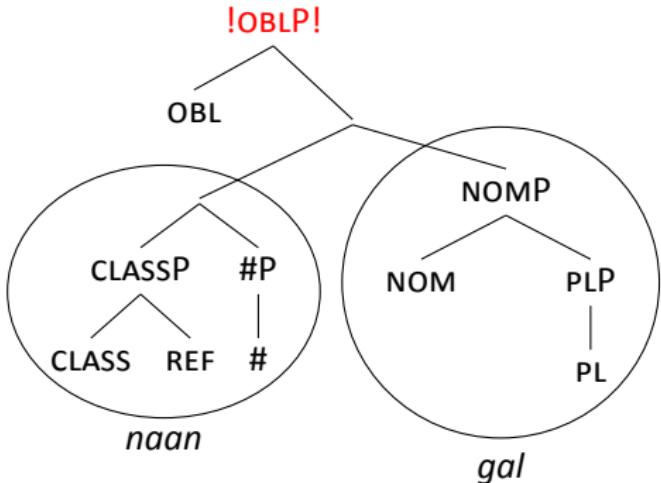
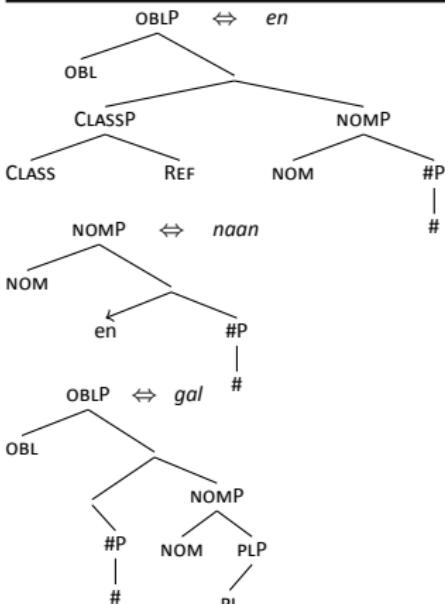
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Merge F

- spell out FP
- Evacuate the closest non-remnant XP
- Pied-Pipe
- Backtrack

	REFP	CLASS	#	NOM	OBL	DAT
NOM.SG	naan					
OB.SGL		en				
DAT.SG		en				akku

	REFP	CLASS	#	PL	NOM	OBL	DAT
NOM.PL	naan			gal ₁			
OBLS.PL	en			gal ₂			
DAT.PL	en			gal ₂			ukku



(13)

Merge F

- a. spell out FP
- b. Evacuate the closest non-remnant XP
- c. Pied-Pipe
- d. Backtrack

	REFP	CLASS	#	NOM	OBL	DAT
NOM.SG	naan					
OB.SGL	en					
DAT.SG	en				akku	

	REFP	CLASS	#	PL	NOM	OBL	DAT
NOM.PL	naan			gal ₁			
OB.PL	en			gal ₂			
DAT.PL	en			gal ₂			ukku

OBLP \Leftrightarrow en

```

graph TD
    OBLC[OBLC] --- OBL1[OBL]
    OBLC --- CLASSP1[CLASSP]
    OBLC --- REF1[REF]
    CLASSP1 --- CLASS1[CLASS]
    CLASSP1 --- REF1
    OBL1 --- NOMP1[NOMP]
    NOMP1 --- NOM1[NOM]
    NOMP1 --- #P1[#P]
    NOM1 --- en1[en]
    NOM1 --- #P2[#P]
    #P2 --- #
  
```

NOMP \Leftrightarrow naan

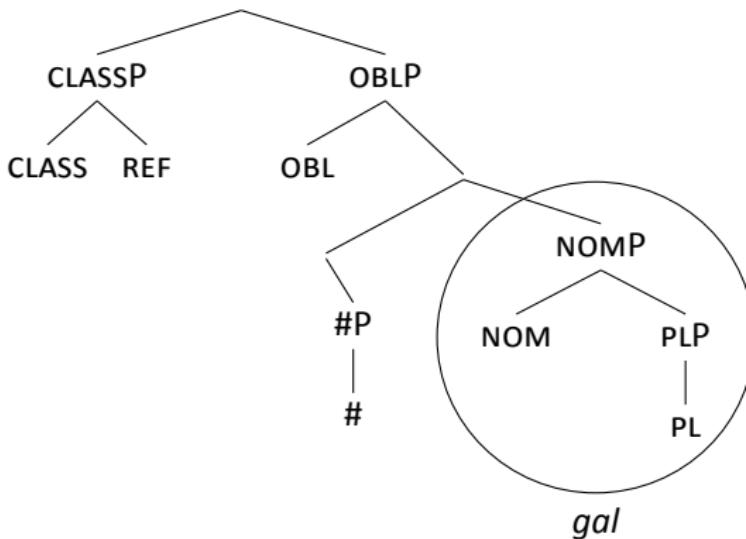
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graph TD
    OBLC2[OBLC] --- OBL2[OBL]
    OBLC2 --- CLASSP2[CLASSP]
    OBLC2 --- REF2[REF]
    CLASSP2 --- CLASS2[CLASS]
    CLASSP2 --- REF2
    OBL2 --- NOMP2[NOMP]
    NOMP2 --- NOM2[NOM]
    NOMP2 --- #P3[#P]
    NOM2 --- naan1[naan]
    NOM2 --- #P4[#P]
    #P4 --- #
  
```

OBLC \Leftrightarrow gal

```

graph TD
    OBLC3[OBLC] --- OBL3[OBL]
    OBLC3 --- CLASSP3[CLASSP]
    OBLC3 --- REF3[REF]
    CLASSP3 --- CLASS3[CLASS]
    CLASSP3 --- REF3
    OBL3 --- NOMP3[NOMP]
    NOMP3 --- #P5[#P]
    NOMP3 --- NOM4[NOM]
    NOMP3 --- PLP4[PLP]
    NOM4 --- gal1[gal]
    PLP4 --- PL4[PL]
    PL4 --- gal2[gal]
    #P5 --- #
  
```



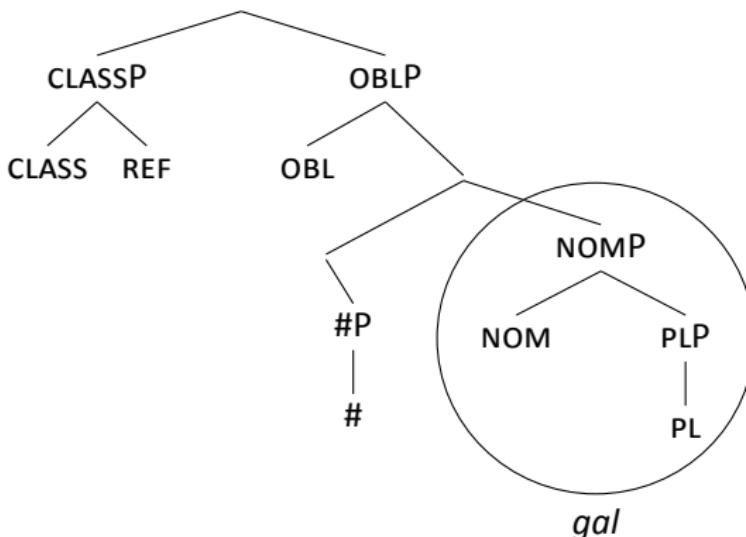
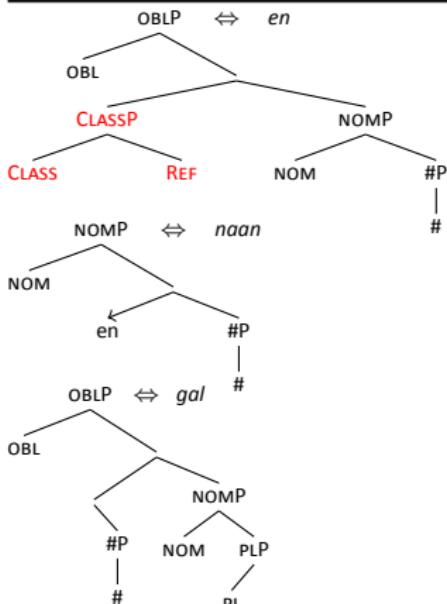
(13)

Merge F

- a. spell out FP
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- c. Pied-Pipe
- d. Backtrack

	REFP	CLASS	#	NOM	OBL	DAT
NOM.SG	naan					
OB.SGL		en				
DAT.SG		en				akku

	REFP	CLASS	#	PL	NOM	OBL	DAT
NOM.PL	naan			gal ₁			
OBLS.PL	en			gal ₂			
DAT.PL	en			gal ₂			ukku



(13)

Merge F

- a. spell out FP
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- c. Pied-Pipe
- d. Backtrack

	REFP	CLASS	#	NOM	OBL	DAT
NOM.SG	naan					
OB.SGL	en					
DAT.SG	en				akku	
	REFP	CLASS	#	PL	NOM	OBL
NOM.PL	naan		gal ₁			
OBLS.PL	en		gal ₂			
DAT.PL	en		gal ₂			ukku

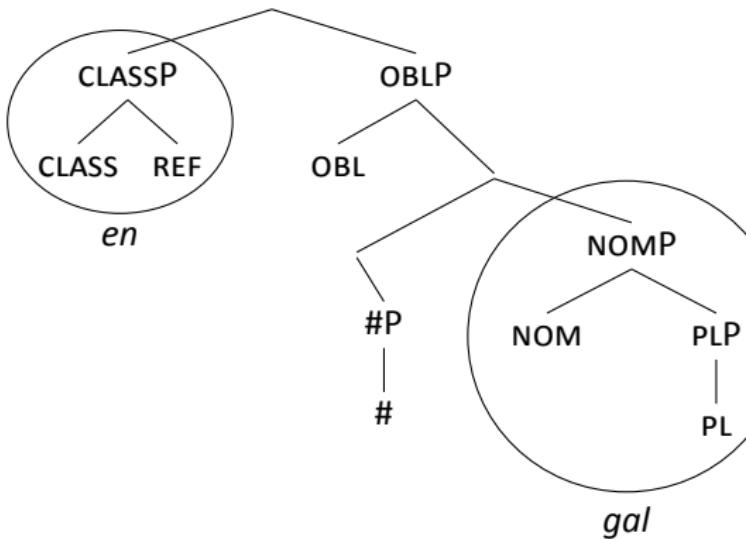
OBLP \Leftrightarrow en

NOMP \Leftrightarrow naan

#P \Leftrightarrow #

OBLP \Leftrightarrow gal

#P \Leftrightarrow #



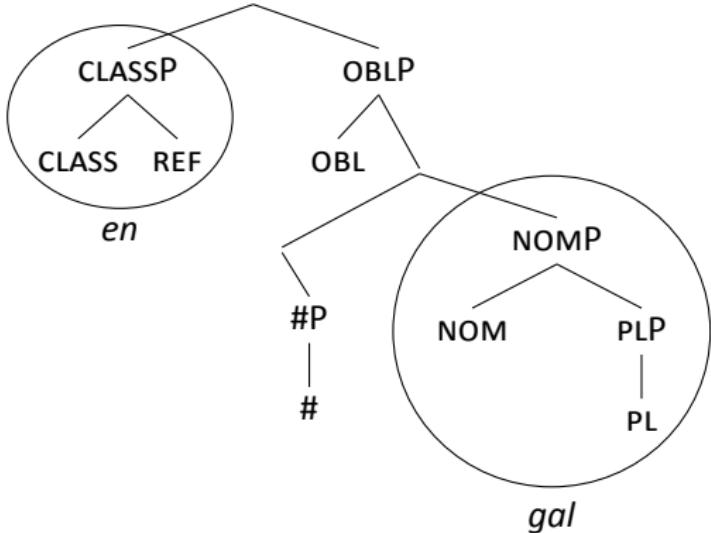
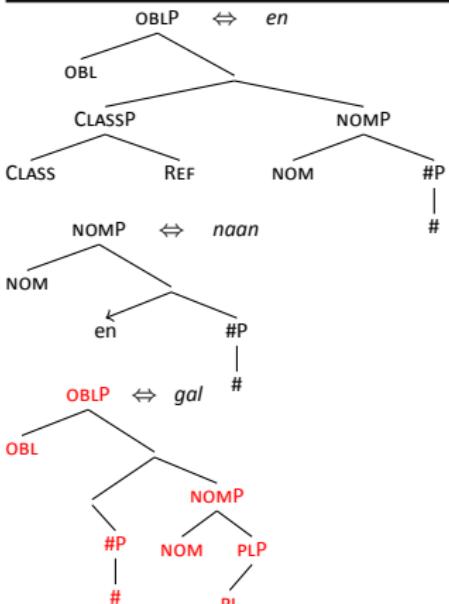
(13)

Merge F

- a. spell out FP
- b. Evacuate the closest non-remnant XP
- c. Pied-Pipe
- d. Backtrack

	REFP	CLASS	#	NOM	OBL	DAT
NOM.SG	naan					
OB.SGL		en				
DAT.SG	en					akku

	REFP	CLASS	#	PL	NOM	OBL	DAT
NOM.PL	naan			gal ₁			
OBLS.PL	en			gal ₂	gal ₂		
DAT.PL	en						ukku

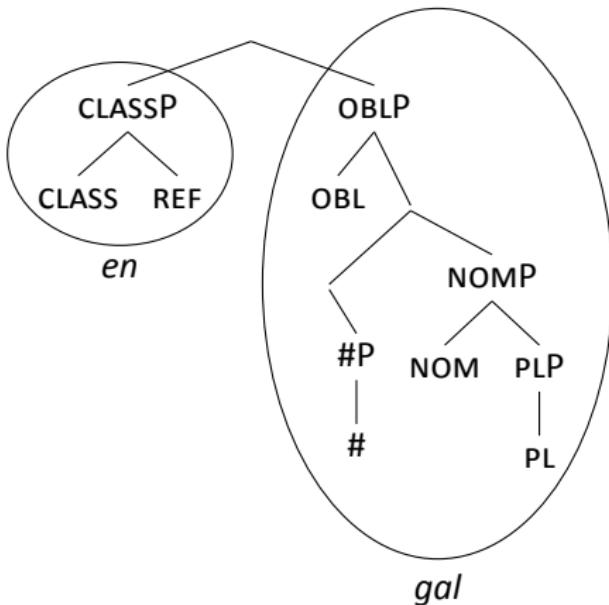
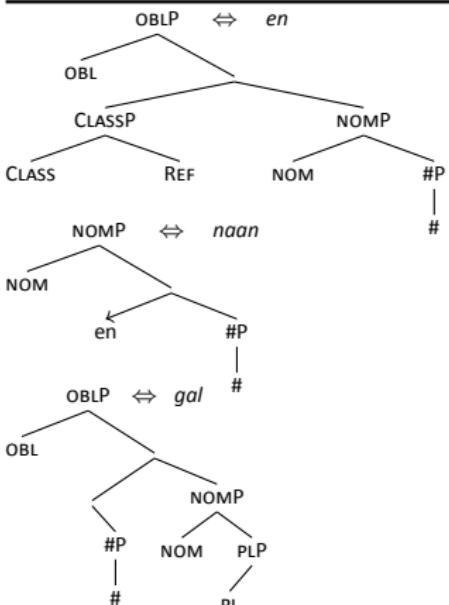


(13)

Merge F

- a. spell out FP
- b. Evacuate the closest non-remnant XP
- c. Pied-Pipe
- d. Backtrack

	REFP	CLASS	#	NOM	OBL	DAT	
NOM.SG	naan						
OB.SGL	en						
DAT.SG	en				akku		
	REFP	CLASS	#	PL	NOM	OBL	DAT
NOM.PL	naan		gal ₁				
OBLS.PL	en		gal ₂	gal ₂			
DAT.PL	en					ukku	



(13)

Merge F

- a. spell out FP
- b. Evacuate the closest non-remnant XP
- c. Pied-Pipe
- d. Backtrack

Intro

Rutul

Tamil

Plural

Tamil (1)

	SG	PL
NOM	naan	naan-gal
OBL	en-Ø	en-gal-Ø
DAT	en-akku	en-gal-ukku

Tamil (1)

	SG	PL
NOM	naan	naan-gal
OBL	en-Ø	en-gal-Ø
DAT	en-akku	en-gal-ukku

- ▶ Moskal & Smith (2015): context sensitive rules are not restricted by adjacency

Tamil (1)

	SG	PL
NOM	naan	naan-gal
OBL	en-Ø	en-gal-Ø
DAT	en-akku	en-gal-ukku

- ▶ Moskal & Smith (2015): context sensitive rules are not restricted by adjacency
- ▶ Today: There is an allomorphic chain

Rutul ('road')

	SG	PL
NOM	raʔq	raʔq-bir
OBL	rɪʔgiʔ-Ø	rɪʔgiʔ-mi-Ø
DAT	rɪʔgiʔ-s	rɪʔgiʔ-mi-s

Tamil (1)

	SG	PL
NOM	naan	naan-gal
OBL	en-Ø	en-gal-Ø
DAT	en-akku	en-gal-ukku

- ▶ Moskal & Smith (2015): context sensitive rules are not restricted by adjacency
- ▶ Today: There is an allomorphic chain

Rutul ('road')

	SG	PL
NOM	raʔq	raʔq-bir
OBL	rɪʔgiʔ-Ø	rɪʔgiʔ-mi-Ø
DAT	rɪʔgiʔ-s	rɪʔgiʔ-mi-s

- ▶ Tamil is like Rutul plus syncretism

Tamil (1)

	SG	PL
NOM	naan	naan-gal
OBL	en-Ø	en-gal-Ø
DAT	en-akku	en-gal-ukku

- ▶ Moskal & Smith (2015): context sensitive rules are not restricted by adjacency
- ▶ Today: There is an allomorphic chain

Rutul ('road')

	SG	PL
NOM	raʔq	raʔq-bir
OBL	riʔgiʔ-Ø	riʔgiʔ-mi-Ø
DAT	riʔgiʔ-s	riʔgiʔ-mi-s

- ▶ Tamil is like Rutul plus syncretism
- ▶ This is within the reach of the subextracting algorithm