

# Lecture 5: Even More LFG Formalism

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Updated 1/25/08 9:37 AM

- **conditional equations**
- **uniqueness of PRED values**
- **predicate argument structures**

**conditional** equations:  $A \Rightarrow B$  (equations A and B)  
means check for truth of A; if it is true, then B holds of  
that f-structure.

Definition:  $A \Rightarrow B =_{df} \neg A \vee (A_c \wedge B)$   
(Not classical conditional:  $A \Rightarrow B =_{df} \neg A \vee B$ )

Why?

Example: Encoding grammatical relations with case.

Malayalam

a.     kutti             aanaye             nulli  
          child.NOM     elephant.ACC     pinched  
          ‘The child pinched the elephant.’

b.     kutti nulli aanaye

c.     aanaye kutti nulli

d.     nulli kutti aanaye

e.     aanaye nulli kutti

f.     nulli aanaye kutti

An analysis using conditional equations:

$$S \rightarrow X^* \quad X = NP \text{ or } V$$

- To V, assign:  $\uparrow = \downarrow$
- To NP, assign 2 equations:  
 $(\downarrow \text{CASE}) = \text{NOM} \Rightarrow (\uparrow \text{SUBJ}) = \downarrow$   
 $(\downarrow \text{CASE}) = \text{ACC} \Rightarrow (\uparrow \text{OBJ}) = \downarrow$

The idea: It tests for the presence of CASE to determine the proper the functional specification.

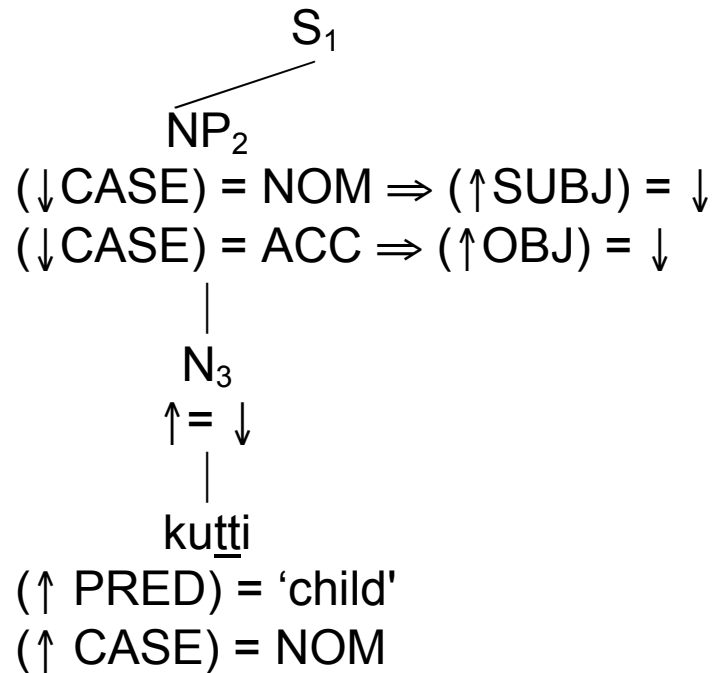
Nominative NP:  $(\uparrow \text{SUBJ}) = \downarrow$

Accusative NP:  $(\uparrow \text{OBJ}) = \downarrow$

*kutti*N      (↑ PRED) = 'child'  
                  (↑ CASE) = NOM

*kuttiyute* N    (↑ PRED) = 'child'  
                  (↑ CASE) = GEN

*aanaye* N      (↑ PRED) = 'elephant'  
                  (↑ CASE) = ACC

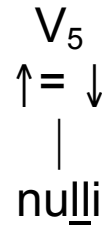
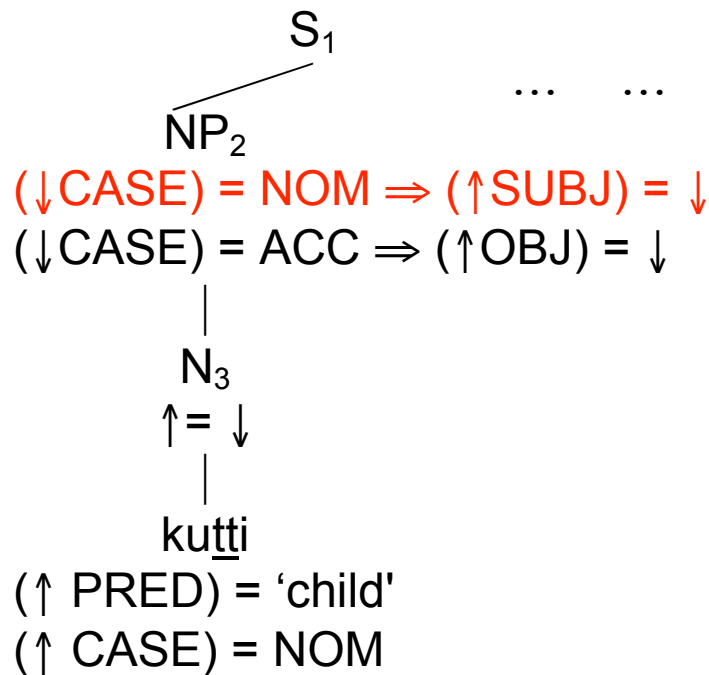


$V_5$   
 $\uparrow = \downarrow$   
 |  
nulli

Recall:  $A \Rightarrow B =_{df} \neg A \vee (A_c \wedge B)$

So  $(\downarrow \text{CASE}) = \text{NOM} \Rightarrow (\uparrow \text{SUBJ}) = \downarrow$

is  $(\downarrow \text{CASE}) \neq \text{NOM} \vee ((\downarrow \text{CASE}) =_c \text{NOM} \wedge (\uparrow \text{SUBJ}) = \downarrow)$



$(\downarrow \text{CASE}) \neq \text{NOM} \vee ((\downarrow \text{CASE}) =_c \text{NOM} \wedge (\uparrow \text{SUBJ}) = \downarrow)$

This gives 2 alternative f-descriptions:

- $(\downarrow \text{CASE}) \neq \text{NOM}$  fails to yield well-formed f-structure due to conflict with the [CASE NOM] feature from kutti.
- $(\downarrow \text{CASE}) =_c \text{NOM} \wedge (\uparrow \text{SUBJ}) = \downarrow$  yield a well-formed f-structure







*Completeness:* An f-structure must contain all of the governable grammatical functions that its predicate (PRED) governs.

Each governed GF listed **inside** the angle brackets must have PRED feature.

He devoured the fish.

PRED	'devour<(↑SUBJ)(↑OBJ)>'		
TENSE	PAST		
SUBJ	[ PRED	'pro'	]
	[ NUM	SG	]
	[ CASE	NOM	]
	[ PERS	3	]
OBJ	[ PRED	'fish'	]
	[ NUM	SG	]
	[ DEF	+	]
	[ PERS	3	]

*Completeness*: An f-structure must contain all of the governable grammatical functions that its predicate (PRED) governs.

A governed GF listed **outside** the angle brackets must appear but **need not** have PRED feature.

*rain* V (↑PRED) = 'rain<>(↑SUBJ)'

[	PRED	'rain<>(↑SUBJ)'	]	It rained.
	TENSE	PAST		
	SUBJ	[ NUM SG ]		
		[ PERS 3 ]		

However...

Such a GF can have a PRED feature: raising vs. equi

'raising':

*tend* V (↑PRED) = 'tend<(↑XCOMP)>(↑SUBJ)'  
(↑SUBJ) = (↑XCOMP SUBJ)

1. Mary tends to laugh.
2. It tends to rain.

'equi' (one analysis):

*intend* V (↑PRED) = 'intend<(↑SUBJ)(↑XCOMP)>'  
(↑SUBJ) = (↑XCOMP SUBJ)

3. Mary intends to laugh.
4. \*It intends to rain.

He devoured the fish.

devour V (↑PRED) = 'devour<(↑SUBJ)(↑OBJ)>'

'devour < (↑SUBJ)    (↑OBJ) >'  
                  Agent        Patient

## Uniqueness of PRED values (semantic forms)

He devoured the fish.  
SUBJ                  OBJ

\*He devoured      the fish      the apple.  
SUBJ                  OBJ                  OBJ

Suppose English PSG allows this.

Then how is it ruled out?

PRED	'devour<(↑SUBJ)(↑OBJ)>'	
TENSE	PAST	
SUBJ	PRED	'pro'
	NUM	SG
	CASE	NOM
	PERS	3
OBJ	PRED	'fish'
	PRED	'apple'
	...	

\*He devoured the fish the apple.

A problem:

\*He devoured the fish the fish.

