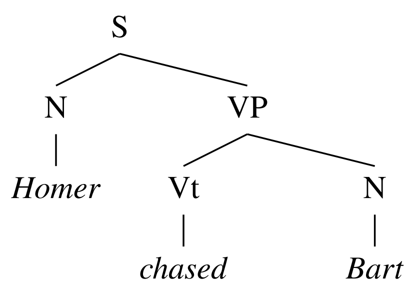
LX 321/521/621 *Syntax: Introduction to Sentential Structure*

September 16, 2022

1 Topics

- Tree relations and c-command
- Evaluating analyses
- Structural/constituency tests
- Sinhala

2 Tree relations



Dominance. Node X dominates node Y if a downward path connects X to Y.

Precedence. Node X precedes node Y if neither dominates the other and X is left of Y.

C-command. Node X c-commands node Y if neither dominates the other and the first branching node Z that dominates X also dominates Y.

3 Reflexive pronouns (anaphors)

(1) a. Lisa likes her.
b. Lisa likes him.
c. Homer likes him.
d. Lisa likes herself.
e. * Lisa likes himself.
f. Homer likes himself.

(2) a. * Herself likes Lisa.
b. * Himself likes Homer.

(3) a. Bart showed Maggie to herself (in the mirror).
b. * Bart showed herself to Maggie (in the mirror).

(4) John likes himself

(5) John_j likes himself_j.

(6) * John_j likes himself_i.

(7) John_j likes $\text{himself}_{*i/j}$.

(8) Maggie_i saw herself_i

(9) Maggie_i and Homer saw herself_i

(10) Homer and Maggie_i saw herself_i

(11) Homer and Maggie_i saw her_i

4 Negative Polarity Items

(12) Lisa saw Maggie.

(13) Lisa saw nobody.

(14) Nobody saw Lisa.

(15) * Lisa saw anybody.

(16) Nobody saw anybody.

(17) * Anybody saw nobody.

(18) Maggie or Lisa saw nobody.

(19) * Nobody or Lisa saw anybody.

(20) * Lisa or nobody saw anybody.

(21) Nobody saw Maggie or Lisa.

(22) Nobody saw Maggie or anybody.

(23) Lisa does not like anybody.

(24) * Anybody does not like Lisa.

(25) Lisa gave nothing to anybody.

(26) * Lisa gave anything to nobody.

(27) Nobody gave sausages to anybody.

5 Evaluating analyses

Simpsonian English

Grammar 1	
S →	N V
S →	N V N
N →	*Homer*
N →	*Marge*
N →	*Bart*
V →	*slept*
V →	*chased*
⋮	

Grammar 2	
S →	N VP
VP →	V
VP →	V N
N →	*Homer*
N →	*Marge*
N →	*Bart*
V →	*slept*
V →	*chased*
⋮	

(28) Homer slept

(29) Maggie chased Bart

(30) * Maggie slept Bart

(31) * Homer chased

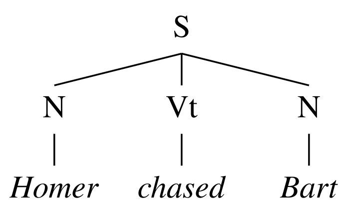
Grammars 1 and 2 are **empirically inadequate**.
They make predictions. They predict (28)–(31) are grammatical.
Those predictions are, in part, false. Not borne out by the observations.
Specifically, they generate ungrammatical sentences.
We must revise our model to take this into account and fix it.

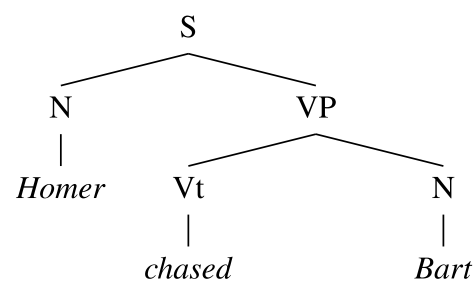
What went wrong?
Chasing is transitive – the activity of the subject transits(?) to the object.
Some verbs need an object. TRANSITIVE verbs. Some verbs don't. INTRANSITIVE verbs.
(Some verbs need two objects: *put* is DITRANSITIVE.)
We observe that this is true in English. (We assume Simpsonian English shares this property.)
We need a grammar that only puts N after transitive verbs.
We need to distinguish transitive and intransitive verbs.

Grammar 1′	
S →	N Vi
S →	N Vt N
N →	*Homer*
N →	*Marge*
N →	*Bart*
Vi →	*slept*
Vt →	*chased*
⋮	

Grammar 2′	
S →	N VP
VP →	Vi
VP →	Vt N
N →	*Homer*
N →	*Marge*
N →	*Bart*
Vi →	*slept*
Vt →	*chased*
⋮	

Grammars 1′ and 2′ predict the same sentences. They are (at least) WEAKLY EQUIVALENT. The trees they generate are not the same, though. So Grammars 1′ and 2′ are not STRONGLY EQUIVALENT.





One is closer to what's actually true than the other. Which?
If they are weakly equivalent, it won't be a matter of what sentences they predict.
Instead, we compare them on

- Simplicity
- Ease of extension
- Constituency

Which of Grammar 1′ and 2′ is simpler?

Data set 1	
Homer slept and Maggie crawled	Homer slept or Maggie crawled
Bart ran and Homer chased Bart	Bart ran or Homer chased Bart
Maggie petted SLH and Bart saw Maggie	Maggie petted SLH or Bart saw Maggie

Grammar 1″	
S →	N Vi
S →	N Vt N
S →	N Vi Conj N Vi
S →	N Vi Conj N Vt N
S →	N Vt N Conj N Vt N
Conj →	*or*
Conj →	*and*
N →	*Homer*
N →	*Marge*
N →	*Bart*
Vi →	*slept*
Vt →	*chased*
⋮	

Grammar 1‴	
S →	N Vi
S →	N Vt N
S →	S Conj S
Conj →	*or*
Conj →	*and*
N →	*Homer*
N →	*Marge*
N →	*Bart*
Vi →	*slept*
Vt →	*chased*
⋮	

Data set 2	
Homer chased Bart and Bart ran	Homer chased Bart or Bart ran
Maggie slept and Bart slept or Homer slept	Maggie slept or Bart slept or Homer slept
Maggie slept and Bart slept and Homer slept	Maggie slept or Bart slept and Homer slept

- Which of Grammars 1″ and 1‴ is simpler?
- How many more sentences can we construct to add to the data set?
- Is Grammar 1″ a viable analysis?
- Is Grammar 1‴ a viable analysis?
- What has to be true for the first sentence to be true?
- What has to be true for the second sentence to be true?
- What has to be true for the last sentence to be true?

We still haven't made a decision about Grammar $1'''$ vs Grammar $2'''$… They are weakly equivalent, but Grammar $1'''$ is simpler.

Grammar $1'''$	
S →	N Vi
S →	N Vt N
S →	S Conj S
Conj →	*or*
Conj →	*and*
N →	*Homer*
N →	*Marge*
N →	*Bart*
Vi →	*slept*
Vt →	*chased*
⋮	

Grammar $2'''$	
S →	N VP
VP →	Vi
VP →	Vt N
S →	S Conj S
Conj →	*or*
Conj →	*and*
N →	*Homer*
N →	*Marge*
N →	*Bart*
Vi →	*slept*
Vt →	*chased*
⋮	

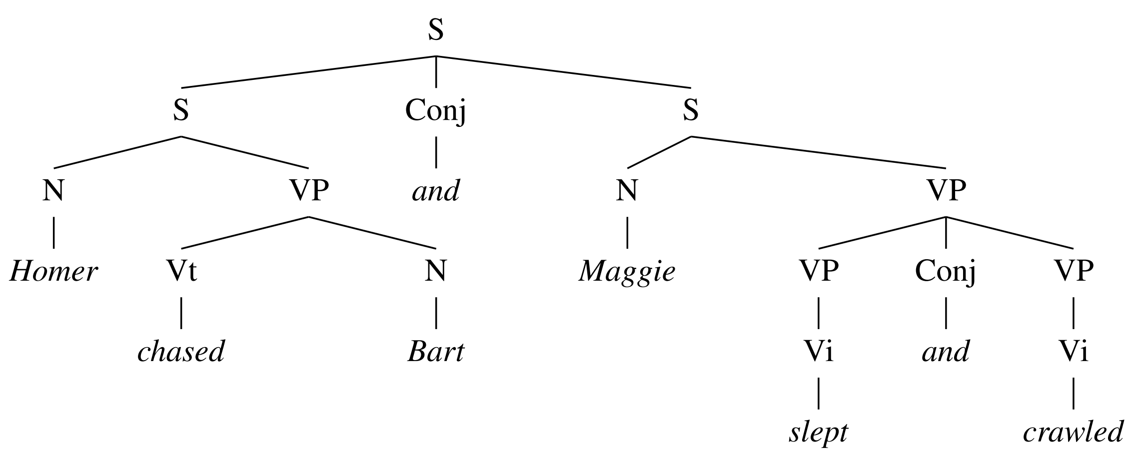
Data set 3	
Homer slept and crawled	Homer slept or crawled
Maggie petted SLH and slept	Maggie petted SLH or slept

- Who crawled in the first sentence? Who slept in the second?
- What is the generalization?
- So, is Grammar $1'''$ or $2'''$ easier to extend to handle this?

It looks like we have the glimmer of a pattern here. Can we simplify this?

Grammar $2''''$	
⋮	
S →	S Conj S
VP →	VP Conj VP
Conj →	*or*
Conj →	*and*
⋮	

(We can, sort of. At least at a "meta"-level, if we allow X to stand in for any specific node.)



A CONSTITUENT is a group of nodes defined by a single node.

The grammars we are evaluating here do not just predict sentences, they also predict **constituency**.

We can conjoin S consitutents. We can conjoin VP constituents.

Generalizing, maybe we can conjoin *any* constituents?

One way we can check to see if the structure we are proposing is to check if the predicted constituents match the observed ones. CONSTITUENCY TESTS.

Constituency tests

- Coordination/conjunction
- Proform replacement
- Ellipsis
- Dislocation

Conjunction test. If a string of words can be conjoined, then it is a constituent.

(32) Homer talked to Marge and Lisa.

(33) Homer chased Bart on Monday and on Tuesday.

(34) Homer chased Bart on Monday and Tuesday.

(35) Homer talked to Lisa and Marge.

(36) * Homer talked Lisa and to Marge.

(37) * Homer Lisa and talked to Marge.

(38) — Lisa and Homer talked to Marge.

(39) Homer chased Bart quickly and slept.

Given this, sketch the constituency (no labels, just branches) of

(40) Homer chased Bart quickly.

In *Homer ate a donut*, is *ate a donut* a constituent? In *Homer ate a donut*, is *ate a* a constituent?

Proform replacement test. If a string of words can be replaced by a proform, then it is a constituent.

(41) a. Homer chased Bart, and Marge saw Bart.
b. Homer chased Bart, and Marge saw him.

(42) a. Homer chased Bart, and Marge chased Bart too.
b. Homer chased Bart, and Marge did so too.

(43) I left a tip on the table, but Mr. Burns did not leave one there.

(44) I left a tip on Tuesday, but Mr. Burns did not leave one then.

In *Homer ate a big pink donut*, is *a big pink donut* a constituent? Is *pink donut* a constituent?

Ellipsis test. If a string of words can be elided, then it is a constituent.

(45) a. Homer could chased Bart, and Marge could chase Bart too.
b. Homer could chased Bart, and Marge could too.
c. Homer could chased Bart, and Marge could ∅ too.

Dislocation test. If a string of words can be dislocated, then it is a constituent.

(46) a. Bart gave Maggie to Lisa.
b. Maggie, Bart gave — to Lisa.
c. To Lisa, Bart gave Maggie —.
d. — Lisa, Bart gave Maggie to —.
e. * Maggie to, Bart gave — Lisa.

(47) Homer chased Bart and Lisa

- Is *Bart* a constituent?
- Is *Lisa* a constituent?
- Is *Bart and Lisa* a constituent?
- Is *chased Bart and Lisa* a constituent?

(48) Bart saw the man with a telescope.

- Is *the man with a telescope* a constituent?
- Who had the telescope?

6 Sinhala

Last on the handout, but we'll probably do this first.

(49) lamea naʈənəwa.
child dance
'The child is dancing.'

(50) balla burənəwa.
dog bark
'The dog is barking.'

(51) Chitra puusa hoyənəwa.
Chitra cat find
'Chitra is looking for the cat.'

- Write parts of speech, extrapolating from English if necessary.
- Write phrase structure rules to capture those sentences.
- Write four other sentences those rules predict to exist.