

#8 – Prosodic Structures and Performance Structures

Reasons for separating competence and performance systems for language:		
✓	#1	Grammar lacks basic characteristics needed for sentence recognition
	#2	Lack of evidence for effects of transformational complexity on comprehension
→	#3	Evidence for representations and strategies in perception and production not found in grammatical analyses.
	#4	Apparent dissociations of tasks in language breakdown
✓	#5	View of grammar as (elegant) recursive definition of well-formed sentences
	#6	Grammatical yet incomprehensible, comprehensible yet ungrammatical sentences
	#7	Speakers who have the same ‘knowledge’ of a language, but differ in their ability to process the language.

Properties under investigation

- a. Surface structures
- b. Domains for phonological processes
- c. Domains for intonational phrasing
- d. Domains for pausing in sentence production
- e. Parsing judgments (various tasks)

Relevance to topic of the course

- (i) are there ‘performance structures’ which exist independent of grammatical structures?
- (ii) what is the relation between syntactic structures and prosodic/performance structures?

Gee & Grosjean 1983: “Performance Structures”

2 issues

- (i) connection between prosodic/performance structures and syntactic structures
- (ii) generation of prosodic/performance structures incrementally

Note: the one departure from incrementality in G&G’s algorithm involves their treatment of the verb. They claim that the verb may group with *either* the subject or the object (etc.), whichever is prosodically lighter. They provide examples showing this, in which the relative weight of the subject and object is varied, and the prosodic position of the verb shifts accordingly ((a) examples in (1–3)). However, there’s another alternative, according to which the positioning of the verb with or separate from the subject is determined entirely by the weight of the subject. In this case, the assignment of prosodic structure can be entirely incremental. Unfortunately, G&G do not provide the relevant examples to test between these two alternatives ((b) examples in (1–3)).

- (1)
 - a. (John asked) (the strange young man)
 - b. John asked Bob.
- (2)
 - a. (The strange young man) (asked John)
 - b. The strange young man asked the peculiar middle-aged woman who had just walked in.

- (3) a. (Our disappointed woman) (lost her optimism)
 b. Our disappointed woman lost the optimism that had served her so well during her youth.

Steedman 1996: “Structure and Intonation”

3 issues

- (i) constituency of prosodic/intonation phrases
- (ii) interpretation of prosodic/intonation phrases
- (iii) connection between prosodic/intonation phrasing and other syntactic processes

- Interaction of Prosody and Coordination

Prosodic Constituency Condition

Combination of syntactic constituents via a syntactic combinatory rule is only allowed if their result is also a prosodic constituent.

- (4) a. * (Bill cooked and FRED) (ate the BEANS)
 b. *(Harry likes the NUTS) (and bolts APPROACH)
- (5) I know that Gromit likes Gouda. But what does Wallace like?
 (Wallace likes) (WENSLEYDALE)
 (Wallace likes) (WENSLEYDALE) and absolutely adores GRUYERE.
- (6) What about MUSICALS? Who likes THEM?
 (MARY) (likes MUSICALS)
 *?(MARY) (likes) and (HER HUSBAND) (completely adores) (MUSICALS)
- (7) Who did you give BOOKS to?
 (I gave BOOKS) (to MARY)
 (I gave BOOKS) (to MARY) and (MAGAZINES) (to HARRY)
- ...syntactic constituents built subsequent to prosodic constituents can be coordinated
 ...problem with (6) may be lack of complete sentence, may be blocking of phonological constituency for (likes MUSICALS)

Nespor & Vogel 1986: “Prosodic Phonology”

Primarily interested in domains for phonological processes, beyond the level of the individual word.

Arguments that domains for phonological processes do not correspond to syntactic constituents:

- (i) non-constituents create domains
- (ii) constituents fail to create domains
- (iii) effects of length are not represented in syntax, but affect the phonological domains
- (iv) intonation phrases don't respect syntactic constituency

- *Raddoppiamento Sintattico* – Tuscan Italian

- (8) Domain: word1 word2
Effect: lengthen initial consonant of word2
Condition: word1 ends in stressed vowel
- (9) a. La scimmia aveva appena mangiato metà [b:]anana
'The monkey had just eaten half a banana.'
- b. Il gorilla aveva appena mangiato quáttro [b]anane.
'The gorilla had just eaten four bananas.'

- Non-application, despite phonological conditions being met

- (10) a. La volpe ne aveva mangiato metà [p]rima di addormentarsi.
'The fox had eaten half of it before falling asleep.'
- b. Il gatto aveva catturato un colibrí [m]olto pregiato.
'The cat had caught a highly valued hummingbird.'

- Application

- (11) a. Ha appena comprato un colibrí [b:]lú [k]on le ali sottilissime.
'he just bought a blue hummingbird with very thin wings.'
- b. Cacerá [k:]aribú [k]ol fucile e cervi con l'arco e le frecce.
'He will hunt caribous with a rifle and deer with a bow and arrow.'
- c. Un levriero costerà [s:]uppergiú [m]ezzo milione.
'A greyhound will cost about half a million (lire).'
- d. Disegnó [b:]alene blú [k]on inchiostro di lapislazzuli.
'He drew blue whales with lapislazuli ink.'

...a sisterhood condition in incremental derivations will handle all of these, except that it does not straightforwardly apply to [s:]uppergiú in (11c).

identification of domain with specific node-type will not work, given application to V-N sequence in (11b) and (11d), but failure in Adj-P sequence internal to NP in (11a).

- (12) a. Ho visto tré [k:]olibrí [b:]rutti.
'I saw three ugly hummingbirds.'
- b. Ho visto tré [k:]olibrí [k]osí [b:]rutti.
'I saw three such ugly hummingbirds.'

(N&V assume that each of these expressions is uniformly right-branching)

- Effect of phrase length on phonological domains: *Gorgia Toscana*

(13) Intervocalic aspiration of voiceless stops

- | | | | |
|----|-----------|-------------|-----------|
| a. | lu[]o | < lu[p]o | ‘wolf’ |
| b. | crice[]o | < crice[t]o | ‘hamster’ |
| c. | fo[h]a | < fo[k]a | ‘seal’ |

- Application

(14) a. La zoo ha appena comprato una nuova []antera.
‘The zoo has just bought a new panther.’

b. Ci sono tantissimi []arli nella mia scrivania.
‘There are lots of wood-worms in my desk.’

c. Sta arrivando uno stormo di [h]orvi neri.
‘A flock of black crows is arriving.’

(15) a. aveva [h]onosciuto Arcibaldo.
‘(he) had met Arcibaldo.’

b. viaggia [h]ol cammello
‘(he) travels by camel.’

c. si lamenta [h]ostantemente
‘(he) complains constantly.’

Examples in (14–15) can all be explained by sisterhood condition on application of GT

- Non-application

(16) a. Le zanne dell’elefante bianco dell’Africa orientale [k]ostano sempre di piú in Europa.
‘The tusks of the white elephant of eastern Africa cost more and more in Europe.’

b. Quella banda segreta di ragazzi temuta da tutti [k]accia orsi ferocissimi solo per divertirsi.
‘That secret band of boys feared by all hunts very ferocious bears just for fun.’

c. Certi tipi di uccelli trovati solo in Australia [k]ostruiscono nidi complicatissimi a due piani.
‘Certain types of birds found only in Australia construct very complicated two-story nests.’

All examples in (16) involve boundary between right (deepest) edge of relative clause and matrix clause verb: sisterhood condition not met.

- Instances of application in (17) represent tendencies

(17) a. Osservano il rarissimo [h]olibri peruviano [h]on le penne azzure [k]on un cannocchiale particolarmente adatto alla situazione.
 ‘(They) observe the very rare Peruvian hummingbird with blue feathers with binoculars that are particularly suitable for the situation.’

Note: application to first /kon/ in (13a) creates an apparently minimal contrast with the application of *raddoppiamento sintattico* in (7a).

b. Hanno [h]omprato un sacco di [h]aramelle liquerizia e lattine di [h]oca [h]ola [k]on i soldi [h]he hanno guadagnato vendendo giornalini.
 ‘(They) bought a lot of candies, licorice, and cans of coca cola with the money they earned selling comic books.’

Note: /soldi che/ does not satisfy the sisterhood condition if relative clause contains a fronted null-operator.

- Applies between subjects & verbs when subject is short

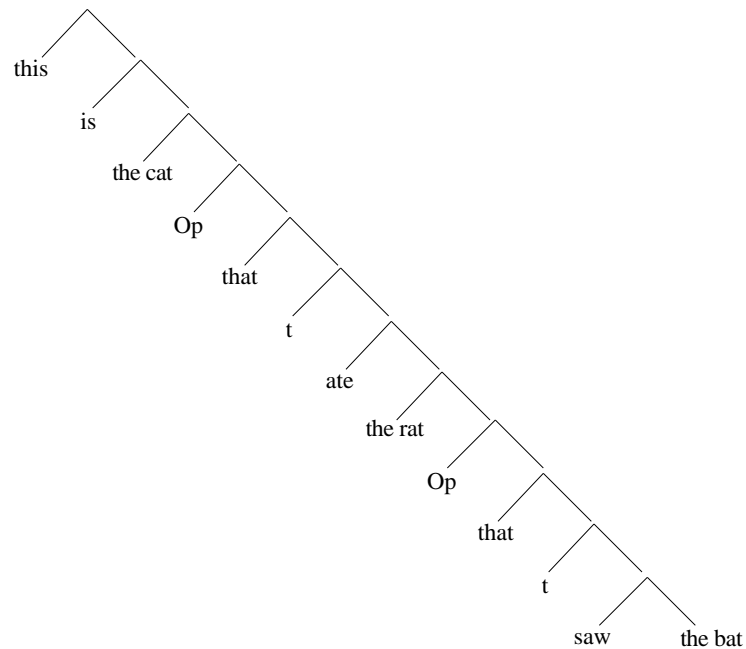
(18) a. Gli struzzi [h]orrono velocemente.
 ‘Ostriches run quickly.’

b. Un levriero [h]osta moltissimo.
 ‘A greyhound is very expensive.’

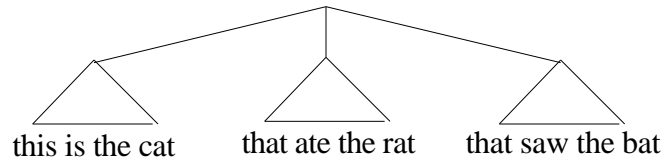
Subject-verb sequence will never satisfy sisterhood between the N and the V, unless Det-N sequence counts as a single unit for computation of sisterhood.

(19) a. This is the cat that ate the rat that saw the bat...

b.



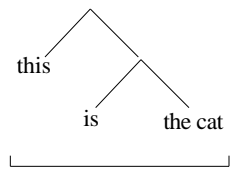
c.



(20)

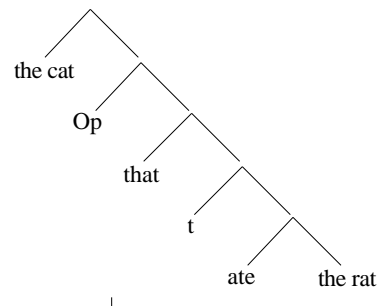
Notice, however, that if we look at how the syntactic structure in (19b) is incrementally built from left-to-right, *every prosodic constituent is a syntactic constituent*.

In left-to-right assembly, the phrase *this is the cat* is a constituent at the point immediately before addition of the first relative clause.



Once the first relative clause is attached to the NP *the cat*, the string *this is the cat* ceases to be a syntactic constituent. If we assume that prosodic phrasing either feeds syntactic analysis or is computed in tandem with syntactic phrasing, then the loss of this constituent is of no great concern.

At the end of the assembly of the phrase *that ate the rat*, which corresponds to the second major prosodic phrase, this string is a syntactic constituent too.



Phillips 1996: “Order and Structure”

Grammaticalized intonation phrasing in Tohono O’Odham can be derived from structures present during incremental derivation. (pp.229–243).

Cooper & Paccia-Cooper 1980: “Syntax and Speech”

Similar results and methods to Grosjean et al. 1979 and Gee & Grosjean 1983: investigating domains for application and blocking of pausing, segmental lengthening, across-word flapping etc. etc.