4. Prosodic Manifestations of Focus

4.1 The Nuclear Stress Rule and its Critics

Chomsky & Halle (1968) presented two stress rules:

- **Compound stress rule**: stress is assigned to the leftmost stressable vowel in nouns, verbs, or adjectives, e.g. *bláckbird.*
- **Nuclear stress rule (NSR)** stress is assigned to the rightmost stressable vowel in a major constituent, e.g. [*the* [*black bírd*]].

Claim: Stress assignment is completely automatic once the syntactic structure is specified:

> "Once the speaker has selected a sentence with a particular syntactic structure and certain lexical items (...) the choice of stress contour is not a matter subject to further independent decision. (...) With marginal exceptions, the choice of these is completely determined as, for example, the degree of aspiration."

The NSR goes back to Newman (1946), "On the stress system of English", *Word* 2, 171-187, who was actually more careful:

> "When no expressive accents disturbs a sequence of heavy stresses, the last heavy stress is an intonational unit that takes takes the nuclear heavy stress"

Chomsky & Halle formulate the NSR as a cyclic rule, that is, a rule that can be applied recursively. In their notation, numbers 1, 2, 3 denote values of decreasing stress. The NSR states that in a structure [X Y], a stress 1 is assigned to the rightmost stress 1, and all other stresses are decreased by 1.

(1) [Mary [ate [sweet [ice cream]]]]

1	1	1	1	1		word stress
			1	2		compound stress
		2	1	3		NSR
	2	3	1	4		NSR
2	3	4	1	5		NSR

There are problems with the NSR as it stands:

- Stress may shift in certain constructions, cf. *fif*^{2}*teen* ^{1} vs. *fif*^{2}*teen*^{3} *boys*^{1}. It seems that we need rhythm rules for such phenomena.
- Coordinate structures do not behave as expected: [*Bill*^{2} *and*^{3} *Harry*^{2}] *sang*^{1}, not [*Bill*^{3} *and*^{4} *Harry*^{5}] *sang*^{1}.
- Cases with contrastive stress are not accounted for.
- Minimal differences like the following one observed by Newman (1946) are not accounted for:

(2) a. George has plans to léave.
b. George has pláns to leave.

Bolinger (1972), "Accent is predictable -- if you are a mind reader" objects against a "syntactic" theory of accent:

> "The distribution of sentence accents is not determined by syntactic structure but by semantic and emotional highlighting. Syntax is relevant indirectly in that some structures are more likely to be highlighted than others. But a description along those lines can only be in statistical terms."

Some cases discussed by Bolinger. He assumes that in the (a) cases, the speaker makes the objects the "informational focus" of the assertion, whereas in the (b) cases, the actions are put in focus. This is often related to specificity: If a spaker denotes the action in a rather specific way, e.g. *emphasize* vs. *make*, then the action is more likely to be taken as important, and hence, is more likely to be highlighted.

(3) a. The end of the chapter is reserved for various próblems to solve.
b. The end of the chapter is reserved for various problems to compúterize.

(4) a. I have a póint to make.
b. I have a point to émphasize.

(5) a. Next month we may be out on the street. I'm looking for a hóuse to rent.
b. I'm hot. I'm looking for somthing cool to drínk.

Bolinger notes that there are cases in which we have stress on a subject, contradicting the NSR. This happens with "semantically empty" verbs.

(6) a. The sún is shining.
b. The sun is disappéaring.

(7) a. The télephone is ringing.
b. The telephone is gréen.

Also, semantically empty NPs like pronouns or general nouns like *person* are typically not stressed:

(8) a. John kíssed her.
b. I have someone to sée.

(9) a. He was arrested because he kílled a políceman.
b. He was arrested because he kílled a person.

The problem with Bolinger's account is that it assumes that focus is a phenomenon that does not interact with grammatical structures at all. But this is not the case. For example, if the speaker wants to emphasize on the activity of reading a book, then the object NP, and not the verb, must be carry an accent:

(10) [What did Mary do yesterday?] She read a nóvel.

The theory of Jackendoff (1972) offers a solution: Jackendoff assumes a focus feature F that governs both the phonological form of a sentence (the position of the accent) and the semantic and pragmatic interpretation. The selection where to put the F feature is up to the speaker (and predictable to a certain degree if the speaker is cooperative in the communicative task at hand). Once the F feature is assigned, stress rules predict where accents should go.

4.2 Gussenhoven (1983)

Gussenhoven (1983), "Focus, mode and the nucleus", presents a view of accent assignment that refers to intonational groups and the argument/adjunct distinction.

Gussenhoven presents a "Sentence accent assignment rule" (SAAR). Basic properties:

- Constituents in focus are marked by underlining.
- A, P, C stand for "argument", "predicate", "condition" (roughly, adjunct), X and Y for constituents in general.
- Focus domains (intonational groups) are marked by brackets [ ].
- Accent is marked by *
- SAAR proceeds in two steps: First, a complex constituent is grouped in domains, then accent is assigned within domains.

(11) Sentence Accent Assignment Rule (SAAR):

a. Domain assignment:
   i) P(X)A → [P(X)A]
      A(X)P → [A(X)P]
   ii) Y → [Y]

b. Accent assignment:
   i) [ ] → [*]
   ii) In [A(X)P] or [P(X)A], accent A.

Rule (a.i) says that if a predicate and an argument is in focus (even if there is an intervening constituent that is not in focus), then predicate and argument (with the intervening material) form a domain. Rule (a.ii) says that every focused constituent forms a domain. (Probably a.ii applies only if rule a.i does not apply.) Rule (b.i) says that stress has to be assigned in every domain. Rule (b.ii) says that stress is realized on the argument within a predicate-argument constituent that forms a domain.

(12)

a.	AP → [A*P]	Our dóg's disappeared.
b.	ACP → [A* CP]	Our dóg's mysteriously disappeared.
c.	ACP → [A*][C*][P*]	Our dóg's mystériously disappéared.
d.	APC → [A* P][C*]	Jáne's had an accident in Lóndon.
e.	APAA → [A*] [PAA*]	[Any news about Jane?] Jóhn promised Jane a bíke.
f.	APA → [A*][PA*]	Jóhn kissed Máry.
g.	APA → [A*][PA]	Her húsband kissed her.
h.	APA → [AP*A]	He kíssed her.
i.	ACPCC → [AC*][P*][C*][C*]	Truman was quíetly búried in Indepéndence in nineteenseventytwó.

One important insight: Arguments and adjuncts behave differently (cf. d, f).

There are certain exceptions. For example, quantifiers and wh-words as arguments behave differently from other NPs:

(13) [What's going on?]
a. The prísoners have escaped.
b. Éverybody has escáped.

Gussenhoven also realizes that certain topicalization structures require a special intonation pattern (so-called "intonational topicalization"):

(14) [Why didn't you simply drive off?]
a. My tíres had been slashed!
b. My ti˘res had been sláshed!

According to Gussenhoven, intonational topicalization introduces a separate domain, which then has to receive an accent according to standard rules.

Furhter refinements of the SAAR:

A certain class of adverbs, "adverbs of proper functioning", behave differently from others:

(15) [Why are you using my pen?]
a. Because it wrítes properly.
b. Because it wrítes béautifully.

Adjectival complements are not stressed if there is an object (*leave open* as a complex predicate?)

(16) a. He left the dóor open. b. He left the door ópen.

Goal adjuncts form a focus domain with their predicate:

(17) a. He [has cycled to tówn]. b. He [has cy˝cled] [for hóurs].

This difference is more dramatic in OV languages like Dutch and German:

(18) a. Er ist [in die Stádt geradelt]. b. Er ist [stúndenlang] [gerádelt].

Domain formation over a "conditional" structure is impossible:

(19) a. [Thíeves] [will be prósecuted].
b. Come and see! [Thíeves will be prosecuted].

(20) a. The sheriff's officers turn [squátters] [óut].
b. The sheriff's officers turn [squátters out].

Gussenhoven also discusses sentences in which the "mode" (the polarity) of the sentence is in focus, and the content of the sentence is not.

(21) a. The house ísn't on fire.
b. The house ís on fire.

4.3 The Focus Theory of Selkirk

4.4 The Relation of Focus and Givenness after Schwartzschild

Roger Schwartzschild (1996), in a manuscript "Givenness and Optimal Focus", has developed a novel understanding of the two main functions that focus seems to have, namely, the marking of what is "new" in a discourse, and the introduction of alternatives, as in the focus for answers and the focus for operators like *only*.

4.4.1 Givenness, Newness and Focus

Schwartzschild observes an asymmetry between the definitions of the notions of "given" and "new" in previous work, e.g. Halliday (1967):

- "given" as "anaphorically recoverable" (cf. also Rochemont's c-construable).
- "new" as
  (a) "textually and situationally non-derivable information", or
  (b) "contrary to some predicted or stated alternative", or
  (c)"replacing the WH-element in a presupposed question".

Why this complicated, disjunctive analysis of givenness? The reason is that Halliday wants to say that focus is used to positively identify new constituents, and focus seems to occur in a relatively wide variety of different contexts:

(22) a. A: Why don't you have some French tóast?
B: I've forgotten how to máke French toast.
b. [John's mother voted for Bill.] No, she voted for Jóhn.
c. [Who did John's mother vote for?] She voted for Jóhn.

Schwartzschild's proposal:

- Eliminate "newness" as a term, just work with the better defined notion of "givenness".
- Don't give rules when focus should be applied, but rather for when it **should not** be applied — namely, if a constituent is given. Lack of focus is a grammatical marker of givenness. Presence of focus is not a marker of anything, but for the absence of something (givenness).

4.4.2 Background theory of focus marking

Schwartzschild works with the theory of focus marking developed in Selkirk (1995), who proposed the following rules for focus projection:

(23) a. Every accented word is F-marked.
b. (i) F-marking of the **head** of a phrase licenses F-marking of the **phrase**,
(ii) F-marking of the **internal argument** of a phrase licenses the marking of the **head**.

(24) a. [What did Mary do?] —
She [[praised]$_F$ [her [bróther]$_F$]$_F$]$_F$. (23.a) + (bii) + (bi)
b. [What did John's mother do?] — She [[práised]$_F$ him]$_F$. (23.a) + (bi)
c. [Who did John's mother praise?] — No, she praised [hím]$_F$. (23.a)

Generalization: Lack of F-marking indicates givenness in discourse (e.g. *him* in b, c), and embedded foci indicate novelty (e.g., *praised* in both cases and *her brother* in (a). Non-embedded foci, like *him* in (c), need not be novel.

4.4.3 A theory of givenness

Basic notion: An utterance is **given** iff it is **entailed by prior discourse**. But the notion of entailment is defined for propositions only, wherees givenness is also applied to expressions that are part of propositions. Schwartzschild proposes an **existential type-shifting** operation that checks givenness of non-propositional expressions:

(25) [John ate a green apple. What did Mary eat?] Mary ate a réd apple.
apple is given, as x[GREEN APPLE(x)] x[APPLE(x)]

Let us assume that non-F-marked constituents are given. This works fine on the level of individual words, but not so for larger expressions. For example, *ate* is not accented in (26) as we have x,y[ATE(x,y)] x,y[ATE(x,y)].

(26) [John ate a green apple.] No, he ate a réd$_F$ apple.

But what about larger expressions, e.g. the VP *ate a réd*$_F$ *apple*? Notice that this is not F-marked (it just contains a focus on *red*, but this focus cannot project according to Selkirk's rules), and hence should be given. But of course we do not have x[ATE A GREEN APPLE(x)] x[ATE A RED APPLE(x)]. But we do have an implicational relationship if we first quantify existentially over the item in focus: x[ATE A GREEN APPLE(x)] x Y[ATE A Y APPLE(x)]. This suggests the following condition of givenness:

(27) An utterance U counts as **given** if it has a salient antecedent A and modulo -type shifting, A entails the result of replacing F-marked parts of U with existentially bound variables (the "existential F-closure of U")

For expressions of type e: they are given iff they have an antecedent with which they corefer.

This notion of givenness can be exemplified as follows; notice that it follows the requirement that all non-F-marked constituents must be given.

(28) [John ate a green apple]. No, he ate a réd$_F$ apple.
Given: *he*, *ate*, *a*, *apple*,
new: *red*, *red apple*, *a red apple*, *ate a red apple*, *he ate a red apple*
given by existential binding over F-marked constituents:
red$_F$, *red*$_F$ *apple*, *a red*$_F$ *apple*, *ate a red*$_F$ *apple*, *he ate a red*$_F$ *apple*.

The saliency requirement in (27) is important, as a speaker can decide to treat certain antecedents as salient and suppress saliency for other antecedents.

(29) [John borrowed the book that Max had purchased.]
a. No, Máx$_F$ borrowed it. (= not John, but Max borrowed it.)
b. No, Max bórrowed$_F$ it. (= Max didn't purchase the book, he borrowed it.)

In (a), *borrowed* is not focus marked because the antecedent *borrowed* in the context is salient. In (b), *borrowed* is focus marked, suggesting that *borrowed* in the context is not salient. This is possible if the speaker wants to express a contrast not to the first clause, but to the second clause (*Max had purchased (it)*).

A problem with this definition of givenness: Notice that the antecedents do not entail X[MARY ATE A X APPLE].

(30) a. [Mary didn't eat a green apple.] Yes, you are right, but she ate a réd apple.

b. [John ate a green apple or a ripe banana.] And Mary ate a réd apple.

4.4.4 Focus and Givenness

As mentioned before, Schwartzschild assumes that F-marking and givenness interact as follows:

· **Givenness constraint:**
If a constituent is not F-marked, then it must be given.

This allows for given constituents that are F-marked, as in (22.b,c), or in (31):

(31) [Who did John's mother praise?] — She praised [hím]$_F$. (him = John)

Now consider the following example:

(32) [What did John's mother do?] — She [[práised]$_F$ him]$_F$

Why is *him* not F-marked? It could be, even though it is given (cf. (31)). Schwartzschild assumes the following additional principle:

· **Avoid F:**
F-mark as little as possible, without violating the Givenness constraint.

This explains why there is no focus marking on *him* in (32): Nothing forces us to assume F-marking. But why do we then have focus marking on *praised*, and why do we have focus marking on *him* in (31)?

First, S. assumes that constituent questions can be antecedents for givenness. To compute the antecedents he assumes existential closure over the question constituents:

(33) Who did John's mother praise?
Existential closure over *who*: x[PRAISE(JOHN'S MOTHER, x)]

(34) What did John's mother do?
Existential closure over *what*: P[P(JOHN'S MOTHER)]

This leads to the following analysis of (31):

(35) [Who did John's mother praise?] — She praised [hím]$_F$.

Given in this context:		
she praised hím$_F$	(as (33)	X[SHE PRAISED X])
praised hím$_F$	(as (33)	X y[y PRAISED X])
praised.	(as (33)	x y[y PRAISED x])
him$_F$	(coreference with *John*)	
she	(coreference with *John's mother*)	

Consequences of leaving off F-marking on *him*, **she praised him*: The following phrases violate the givenness constraint, hence we cannot avoid F-marking on *him*:

she praised him is not given, as (33) / SHE PRAISED HIM
praised him is not given, as (33) / y[y PRAISED HIM]

Is F-marking possible on other constituents instead?

**shé*$_F$ *praised him*:	violates givenness, as (33) /	X[X PRAISED HIM]
**she práised*$_F$ *him*:	violates givenness, as (33) /	X[SHE XED HIM]
**she* [*práised*$_F$ *him*]$_F$:	does not violate givenness, as (33) X[SHE XED], but ruled out by Avoid F, as it has more F-marking than *she praised hím*$_F$.	

This type of explanation is typical for explanations in Optimality Theory (Prince & Smolensky 1993): The Givenness constraint and Avoid Focus act against each other, and we try to find a solution that leads to as few violations as possible.

The last result shows why X, in a constellation [[head]$_F$ [X]$_F$]$_F$, must be interpreted as novel (cf. observation in § 4.4.2 that embedded foci are novel). Only if X is not novel can focus on F be avoided.

Explanation of focus marking in (32):

(36) [What did John's mother do?] — She [*práised*$_F$ him]$_F$
Given in this context: *she* [*práised*$_F$ *him*]$_F$ (as (34) X[SHE XED])
[*práised*$_F$ *him*]$_F$ (as (34) X y[y XED])
práised$_F$ (as (34) / X z[SHE XED z])
him, she (coreference with *John, John's mother*)

Consequences of leaving off F-marking on *praised*, and consequently on *praised him*: **she praised him*: The following phrases violate the Givenness constraint:

she praised him is not given, as (34) / SHE PRAISED HIM,
praised him is not given, as (34) / y[y PRAISED HIM]
praised is not given, as (34) / R[SHE RED HIM]

Is F-marking possible on other constituents instead?

**shé*$_F$ *praised him*: violates givenness, as (34) / X[X PRAISED HIM]
**she práised*$_F$ *him*: violates givenness, as (34) / X[SHE XED HIM]
**she praised hím*$_F$: violates givenness, as (34) / X[SHE PRAISED X]
**she práised*$_F$ *hím*$_F$: violates givenness, as (34) / X Y[SHE XED Y]
**she* [*praised him*]$_F$: no violation of givenness, as (34) X[SHE XED], but focus must be licensed by focus on a word (Selkirk).

4.4.5 Avoid F as scalar implicature

Schwartzschild observes that the less F marking ther on an utterance, the more narrow the set of contexts in which an utterance is felicitous. That is, if we have a context c and two utterances U, U′ which differ only insofar as U′ has additional F-markings, and both satisfy the Givenness constraint with respect to c, then U′ should be preferred over U. This follows as an instance of the maxim of Quantity of Grice, as a so-called **scalar implicature**: A speaker that chooses U over U′ indicates that the context c would not allow for the selection of U′. Hence Avoid F can be seen not as an independent principle of grammar, but rather as an instance of a very general pragmatic rule.

4.4.6 Association with Focus

Schwartzschild explains AwF phenomena in a similar way. Example:

(37) *John only ate a ríb*$_F$ *steak.*
Excludes: John ate a loin steak, John ate a filet steak, etc.
Notice: The excluded properties (e.g. *eat a loin steak*), added to a context, would make the sentence *John ate a ríb*$_F$ *steak* acceptable.

Explanation of how the quantificational effect of *only* arises [this is mainly my own suggestion]:

(38) John only ate a ríb$_F$ steak.

- Invoked context must contain a set of meanings S that are meanings of expressions that all satisfies the focus marking of *ate a ríb*$_F$ *steak*. For example, S contains meanins like λx[ATE(x, LOIN STEAK)], meaning of e.g. *ate a lóin*$_F$ *steak*, or λx[ATE(x, SALMON STEAK)], meaning of *ate a sálmon*$_F$ *steak*. Notice that existential F-closure will yield x Y[ATE(x, Y)] for all these meanings, which entails *ate a ríb*$_F$ *steak*, and licenses precisely this focus marking.
- *only* makes reference to this property S:
ONLY(P)(x) ⇔ P(x) Q S[¬Q(x)]
- In our example, after application to JOHN:
ATE(JOHN) Q {λx[ATE(x, LOIN STEAK)], λx[ATE(x, SALMON STEAK)], ...}[¬Q(JOHN)]

Exercises:

1. Explain the ambiguity that arises in the following example:

   My neighbour is a really funny character. {*John / Jóhn* } *is really nice, though.*

2. Explain the rhetorical effect that is brought about in the following sentence by not destressing a constituent that is given in the immdediate context (Example due to Terken & Hirschberg, in *Language and Speech* 37 (1994)):

   A: *How did you like that movie?*
   B: *Well, there are móvies, and there are móvies.*

3. Explain the accentual differences in the following examples (inspired by van Deemter, in *Journal of Semantics* 11 (1994)):

   a. *The president visited many towns. Usually, Mr. Clinton was late.*
   b. *The president visited many towns.*
   When he arrived in Clínton, he awas late.

4. Explain the focus marking in *What did Mary do? — She* [*praised*$_F$ *Jóhn*$_F$]$_F$ in Schwartzschild's theory. In particular, show why all other possible assignments of focus are excluded either by the Givenness constraint or by Avoid F.

5. Read S.G. Nooteboom & J.G. Kruyt (1987), 'Accents, focus distribution, and the perceived distribution of given and new information: An experiment', and J. Terken & J. Hirschberg (1994), 'Deaccentuation of words representing 'given' information: effects of persistence of grammatical function and surface posi-

tion". Describe what you find interesting or problematic in these experimental studies of destressing.

4.5 Syntactic and Semantic Factors in Focus Marking

In this section I will discuss the various factors that have been identified as relevant for focus marking. As we have seen, there are two general strategies:

- **Focus projection**: Focus is assigned to a simple constituent and can be projected to an embedding constituent (cf. Chomsky 1971 for the term; Höhle 1982, Selkirk 1984, 1995). The rules may be sensitive to syntactic structure.
- **Accent percolation:** Focus can be assigned to a complex constituent. It is marked by accent somwhere within this constituent. The rules of this accent percolation may be sensitive to syntactic structure (Gussenhoven 1983, Jacobs 1991).

I will adopt the second view here.

4.5.1 Arguments vs. Adjuncts

The difference between arguments and adjuncts for accent percolation has been observed by various researchers (Gussenhoven 1983, Selkirk 1984; see Gussenhoven 1992, 'Sentence accents and argument structure', in I. M. Roca, *Thematic Structure. Its Role in Grammar*, Berlin, Foris, for discussion). If a head-argument structure is in focus, accent can be realized on the argument only; if a head-adjunct structure is in focus, accent must be realized on the head and the adjunct.

(39) a. He [stayed in the tént]$_F$.
b. He [smóked in the tént]$_F$.

(40) a. He [begged for a cígarette]$_F$.
b. He [jógged for an hóur]$_F$.

(41) a. She [sang the whole ária]$_F$.
b. She [sáng the whole dáy]$_F$.

This effect is more dramatic in OV languages, like Dutch and German, because there the difference may show up at the end of the sentence:

(42) a. Er ist [im Zélt geblieben]$_F$
b. Er hat[im Zélt geráucht]$_F$.

(43) a. Sie hat [die ganze Árie gesungen]$_F$.
b. Sie hat [den ganzen Tág gesúngen]$_F$.

In certain cases arguments precede their predicates in English as well. Accent percolation on subjects was identified as a problem for the NSR in Schmerling (1976):

(44) [What happened?] -- [Jóhnson died]$_F$.

The minimal pair discussed by Newman (1946) and Bolinger can be explained as well. In (a), *plans* is an argument of the transitive verb *leave*; in (b), the verb*to leave* is used as an intransitive verb that is an argument of the predicate *have plans (to)*.

(45) a. George has [pláns to leave]$_F$.
b. George has [plans to léave]$_F$

Another instance of the argument/adjunct asymmetry: a phrase like *for an hour* is a classical case of an adjunct. A phrase like *three miles* can be seen either as an adjunct or as an argument of *John ran three miles*. German does not distinguish these cases by the use of a preposition. But the argument/adjunct status is clear by the intonational pattern:

(46) a. Maria ist [eine Stúnde geláufen]$_F$ vs. *Maria ist [eine Stúnde gelaufen]$_F$.
'Maria ran for an hour'

b. Maria ist [drei Kilométer geláufen]$_F$,
also: Maria ist [drei Kilométer gelaufen]$_F$.

The peculiar accent pattern of arguments can be observed with other predicate/argument relationships as well. For example, in prepositional phrases the preposition of the head and the NP is the argument, and we indeed find that accent is realized on the argument. This is particularly striking in languages like German that have both prepositions and postpositions.

(47) [Why did Hans do that?]

a. Er hat es [wegen der Kínder]$_F$ getan. 'He did it because of the kids'

b. Er hat es [der Kínder wegen]$_F$ getan. (same interpretation)

An example that does not behave as expected are arguments of relational nouns:

(48) a. [the father of Jóhn]$_F$

b. [John's fáther]$_F$

The accentual behavior of arguments shows up in other cases of argument-adjunct relationships as well and can be used to identify argumenthood.

By the accent pattern, **resultative constructions** have arguments, whereas depictive constructions don't have arguments. We have minimal pairs like the following (cf. Gussenhoven 1992):

(49) a. She [painted the dóor green]$_F$ (also o.k.: She painted [the dóor gréen]$_F$).

b. She [painted the módel náked]$_F$ (*She painted [the módel naked]$_F$).

(49.a) is a resultative construction: The proposition GREEN(THE DOOR) is true as a result of her painting. (49.b) is a depictive construction: It is said that either she or the model was naked during the painting. But clearly, *she* and *the model* are not syntactic arguments of *naked*; rather, they are arguments of *painted*. The predicate

naked rather identifies its argument anaphorically (e.g., *she painted the model while she was naked*). It is even unclear whether a focus as in (b) is possible at all, as *the model* and *naked* do not form a constituent. Perhaps a question like *What did she paint?* must be answered by a sentence like *She painted* [*the módel*]$_F$ [*náked*]$_F$.

A subtype of this constructions are constructions in which a predicate denotes the goal of a movement predication:

(50) a. She [put the spóon into the drawer]$_F$
(also o.k. She [put the spóon into the dráwer]$_F$.

b. Sie [hat den Lóeffel in die Schublade gelegt]$_F$

Sometimes **locative predicates** show differential behavior (cf. Gussenhoven 1992):

(51) a. I [heard an explósion in the cellar]$_F$.

b. I [heard an explósion in the céllar]$_F$.

Notice that (b), but not (a), can mean that I heard the explosion while I was in the cellar, and the explosion was somewhere outside. The pattern (a) is only possible if *in the cellar* is predicated on *an explosion*.

Locatives can also be arguments of verbs like *live (in)*. This explains the following difference in German, where *in Berlin* is an argument, and *luxuriös* is an adjunct:

(52) a. Maria hat [in Berlín gewohnt]$_F$. 'Maria lived in Berlin'

b. Maria hat [sehr luxuri'ös gewóhnt]$_F$ 'Maria lived very luxuriously'

We also find differences with **raising** constructions vs. Equi-NP constructions (cf. Gussenhoven 1992):

(53) a. I [heard a bírd sing]$_F$.

b. I [taught Jóhn to síng]$_F$.

Gussenhoven's analysis of (a): *heard* has *a bird sing* as an argument, and *sing* has *a bird* as an argument. The rule that leads to argument accent has to be applied cyclically, leading to accent on *a bird*. In (b), *taught* has two arguments, *John* and *to sing*, and accent is realized on both arguments.

Alternative analysis: *a bird* is a theme of *sing* in (a), whereas *John* is an agent of *sing* in (b). Cf. accent pattern in the following cases:

(54) a. [What happened?] - [A bírd sang]$_F$.

b. [What happened?] = [Jóhn sáng]$_F$.

Gussenhoven develops an argument against Bolinger's theory that it is the semantic "weight" of a verb that counts. Notice that *examined* is longer and more specific than *go*, but still we find the following pattern:

(55) a. I [want my chíld to be examined]$_F$.

b. I [asked my chíld to gó]$_F$.

4.5.2 Types of Predicates

Do all types of arguments behave in the same way when it comes to accent percolation? It seems that this is not the case, not even when we just consider direct objects. Uhmann (1991) (in *Fokusphonologie. Eine Analyse deutscher Intonationskonturen im Rahmen der nicht-linearen Phonologie*, Tübingen) shows that, in German, certain transitive verbs prefer a pattern that we find with adjuncts:

(56) [Why is John in such a bad mood?]

a. *Weil er [Péter beneidet]$_F$. / Weil er [Péter benéidet]$_F$.
'Because he envies Peter'

b. Weil er [Péter gesehen hat]$_F$ / ??Weil er [Péter geséhen hat]$_F$
'Because he saw Peter'

Jacobs (1993) argues that one important factor is whether a predicate is **stative** or **episodic** (which can be seen as a change of state). Statives, like *beneiden*, 'envy', *vertrauen* 'trust' etc. resist accent percolation only to the object. Episodic verbs, like *sehen* 'see' and many other examples we have discussed so far allow for it.

The following minimal pairs (my own) seem to argue for this factor:

(57) [Why will Maria visit the Bay area?]

a. Weil sie sich [in San Francísco áuskennt]$_F$. /
??Weil sie sich [in San Francísco auskennt]$_F$.
'Because she knows (her way around in) San Francisco'

b. Weil sie [San Francísco kennenlernen will]$_F$ /
??Weil sie [San Francísco kénnenlernen will]$_F$
'Because she wants to get to know San Francisco'

However, there are some stative verbs that readily allow for accent percolation to the object:

(58) [Why does Maria always travel to Scandinavia?]
Weil sie [Schwédisch spricht/kann]$_F$ / Weil sie [Schwédisch sprícht/kánn]$_F$.
'Because she speaks/can speak Swedish'

In particular, stative verbs with an object that expresses a **localisation** of an entity allow for this pattern. This holds for verbs like *wohnen* 'live (in)', *bleiben* 'remain', *stecken* 'be confined in', etc. Notice that these verbs are stative, even if they do not express a permanent state:

(59) [Why is Maria so happy?]

a. Weil sie [in M´ünchen wohnt]$_F$ / ??Weil sie [in M´ünchen wóhnt]$_F$.
'Because she lives in Munich'

b. Weil sie [in M′ünchen geblieben ist]$_F$ /
??Weil sie [in M′ünchen geblíeben ist]$_F$.
'Because she remained in Munich'

Furthermore, **copula constructions** and **possessive constructions**, which are stative as well, allow for accent percolation to the object. We may see them as expressing the location of an object in a property space or in a possession space, hence as instances of verbs expressing localisation.

(60) Weil Maria [eine Léhrerin war]$_F$ / *Weil Maria [eine Léhrerin wár]$_F$.
'Because Maria was a teacher'

61 Weil Hans [einen Vólvo besitzt]$_F$ / *Weil Hans [einen Vólvo besítzt]$_F$.
'Because Hans has a Volvo'

The influence of the episodic/stative distinction has been observed for accent percolation to **subjects**, with minimal pairs like the following (Kraak 1970, 'Zinsakzent en syntaxis' *Studia Nederlandica* 4, 1-62, Schmerling (1976), Fuchs (1980), Gussenhoven 1983). Notice that redness is a transient property for eyes, whereas blueness is typically understood as a permanent property:

(62) a. [Your éyes are red]$_F$! / [Your éyes are réd]$_F$!

b. *[Your éyes are blue]$_F$! / [Your éyes are blúe]$_F$!

Gussenhoven (1983, 1992) and Bolinger (1985) argue that accent percolation to the subject of stative predicates is possible if the predicate is used to express the discovery or disclosure of permanent properties:

(63) a. [Adam, upon first seeing Eve:] [Your éyes are blue]$_F$!

b. How strange! [Dólphins are mammals]$_F$! Did you know that?

This meets with a slightly different research tradition on **thetic** vs **categorical** sentences, a distinction introduced by the philosopher Anton Marty (1897). Categorical statements are statements that identify an entity about which the statement should be made, and then make the statement about it. Thetic sentences are of a homogeneous nature. This distinction was appealed to in Kuroda (1972), an article on restrictions of explicit topic marking in Japanese. See Sasse (1987). In particular, Kuroda observes that while episodic sentences allow for categorical sentences (with subject topic marked by*wa*) or thetic sentences (with subject marked by *ga*), generic sentences (which are stative) only allow for categorical sentences.

(64) a. Inu wa hasitte iru.
'A/The dog is running', utterance about dog, categorical.
b. Inu ga hasitte iru.
'A/The dog is running', all-new utterance, thetic.

(65) a. Inu wa hasiru. 'Dogs run.' (*hasiru*: simple present)
b. *Inu ga hasiru. (Except with *inu ga* in focus)

Not every episodic predicate allows for accent percolation to the subject:

(66) a. [The báby is crying.]$_F$ / [The báby is cr′ying]$_F$.
b. ??[The báby is babbling.]$_F$ / [The báby is bábbling.]$_F$.

There are several insightful articles that are concerned with the factors that allow for accented subjects in all-new utterances. Stechow (1986) and Faber (1987) argue that agenthood is involved: Agent subjects do not allow for accent percolation. A predicate like *be crying* can be interpreted in a non-agentive way, whereas a predicate like *be babbling* is rather understood as agentive. A minimal pair discussed by Faber; in (a), the father's feeling are involved, whereas in (b), the father is seen to lay a formal complaint; notice that the latter is more agentive than the first.

(67) a. (She was quite a clever woman as a matter of fact. I wonder why she never went to University.) [Her fáther objected]$_F$.

b. (I was told Priscilla's wedding service stopped rather abruptly. - What on earth happened?) Her fáther objécted.

Allerton & Cruttenden (1979) identify three classes of verbs that allow for accent percolation to the subject: Verbs that express accidents, verbs that express appearance or disappearance, and verbs that are semantically empty:

(68) a. [The schóol is on fire]$_F$!
b. [My púrse is stolen]$_F$!
c. [The sún was shining]$_F$.

Hatcher (1956) discusses a similar class of verbs in Spanish, cf. also Contreras (1976). In Spanish, the construction corresponding to accent percolation to the subject is VS order. See also Lambrecht's work on French.

(69) [What happened?] Entró un solDAdo. 'A soldier entered.'

According to Hatcher, the following verbs allow for VS order: verbs expressing existence, absence, beginning, continuing, production, occurrence, appearing, and coming.

A possible generalization: Predicates that express properties by which people typically become aware of entities allow for accent percolation to the subject. This explains why episodic predicates are preferred in that function. But it is unclear why agentive predicates are dispreferred. But cf. the following minimal pair:

(70) [What's that noise again?]
a. ?? [Jóhn is fiddling.]$_F$.
b. [Jóhn is fiddling again]$_F$.

4.5.3 Topic-Comment Structures and Quantified Structures

A focus domain cannot span a structure that contains a **topic and a comment**, even if the topic is a regular argument (cf. also Gussenhoven (1992)):

(71) a. *[As for Jóhn, I have seen him yesterday]$_F$
o.k.: As for Jòhn, I've seen him yésterday.

b. *[Jóhn, I like]$_F$. o.k.: Jòhn, I líke.

Schmerling (1976) discusses the following minimal pair. Both sentences were uttered as the first sentences of a the news on the radio, but Johnson's death came as a surprise, whereas Truman's death was expected, and he was talked about (that is, a topic):

(72) a. [Jóhnson died.]$_F$
b. Trùman díed.

A focus domain cannot span over a predicate and an argument that expresses a **quantification**.

73 a. Mary [put the spóons away]$_F$.
b. Mary [put all the spóons away]$_F$.
c. ?? Mary [put every spóon away]$_F$.
d. ?? Mary [put most of the spóons away]$_F$.
better: Mary [put most of the spóons aváy]$_F$.

If we see conditional clauses as implicit quantificational structures ovre possible worlds, then this explains why focus cannot span a whole conditional clause:

74 *[If it ráins we will stay home]$_F$.

Furthermore, it explains the difference noted by Gussenhoven between generic and non-generic sentences (he explains this difference by appealing to the fact that (a) is an eventive (episodic) sentence, whereas (b) is a stative sentence).

75 a. Come and see! [Thíeves will be prosecuted]$_F$.
b. In this country, *[thíeves will be prosecuted]$_F$.
c. In this country, thìeves will be prósecuted.

Perhaps this is a consequence of the role of topic/comment structures for focus: The domain of a quantifier typically is topical. See Haiman (1978) for arguments that *if*-clauses are topical.

4.5.4 Non-accentable Expressions

There are a number of expressions that cannot be the target of accent percolation (cf. Gussenhoven 1992, with literature). One set are pronominal arguments (*someone*, *everyone*) and adjuncts (*now*, *yesterday*, *here*, *over there*).

(76) a. We [went to Glásgow on Mónday]$_F$.
b. We [went to Glásgow yesterday]$_F$

(77) a. He [tálked to someone]$_F$. / *He [talked to sómeone]$_F$.

b. He [tálked to everyone]$_F$. / He [tálked to éveryone]$_F$ /
?? He [talked to éveryone]$_F$.

Notice that *someone* does not refer to a contextually given entity. But it behaves like such an entity: If it is accented, then it signals narrow focus:

(78) a. [I know that he met Mary and John. What did he do next?]
He talked to hér$_F$ / He talked to Máry$_F$.

b. [Did he talk to John?] No, but he talked to sómeone$_F$.

We should assume that expressions can have a feature that disallows them to be targets of accent percolation. As a consequence, the accent is realized on another constituent, like the head. Only if the accent of a focus cannot be realized anywhere else can they be accented:

(79) a. He [tálked to someone$_{\text{-AccPerc}}$]$_F$
b. He talked to [sómeone$_{\text{-AccPerc}}$]$_F$

The feature [-AccPerc] identifies contextually given and anaphoric items. In addition, it is a lexical property for pronominals like *someone*, *everyone*, and of adverbials that refer to situationally given entities, like *yesterday*, *here*, etc.

Interestingly, if a pronominal element is part of an idiom, then it behaves like a regular argument (example (a) in Lötscher (1983) p. 51, example (b) K. Lambrecht, pers. comm.):

(80) a. Hans hat das Buch [mit sích gehen lassen]$_F$
Hans AUX the book with himself go let
'Hans stole the book'

b. Das hab ich [woánders hergenommen]$_F$ (Goethe, *Faust*)
that AUX I somewhere.else took, = I took this from somewhere else
'I stole it'

Possible explanation: Subexpressions of an idiom do not carry meaning. They don't refer. The feature [-AccPerc] typically identifies constituents that refer to contextually or situationally given elements. But such constituents must have a meaning.

Gussenhoven (1992) identifies other expressions that cannot be target of accent percolation: Mood and modality markers (*actually*, *probably*, *as a matter of fact*). But notice that these are not adjuncts, but operators (heads).

4.5.5 Other Factors

Gussenhoven (1992) observes that accent percolation to the subject is possible only if their is no other non-pronominal constituent in the sentence:

(81) [What's so special about Athens?]
a. [My dáughter was imprisoned there]$_F$

b. ??[My dáughter was imprisoned in that city]$_F$.

In general, the more complex the expressions in a focus are, the more likely we get separate accents:

(82) [What did Mary do to support the Libertarian primaries?]
a. She [donated her bíke]$_F$.
b. She [dónated her váluable mótorbike]$_F$.

4.6 Focus and Intonational Phrasing

In recent years, a number of accounts of focus marking by accent have been developed that factor in the presence of **phonological** and **intonational phrases** in focus marking. (On phonological phrasing in general see Selkirk 1984 section 5.4, Nespor & Vogel 1986, Vogel & Kenesei 1990, Inkelas & Zec 1995).

4.6.1 Intonational Phrasing and Syntactic Structure

It was clear from the early days of generative grammar that prosodic structure and syntactic structure interact. For example, syntactically ambiguous sentences often are disambiguated by prosodic information, like phonological phrasing (here indicated by parentheses).

(83) John saw that gasoline can explode.
a. (John saw that) (gasoline) (can explode)
b. (John saw) (that gasoline can) (explode)

(84) a. (Three mathematicians in ten) (derive a lemma)
b. (Three mathematicians) (intend to rival Emma)

But not every syntactic ambiguity is resolved in this way. For example, PP-attachment ambiguities are not disambiguated:

(85) (John saw) (the man) (with the telescope).

Also, there is no direct mapping between syntactic structure and prosodic structure:

(86) a. [This is [the cat [that caught [the rat [that stole [the cheese]]]]]]
b. (This is the cat) (that caught the rat) (that stole the cheese)

Phonological phrasing is not completely determined by syntax. Often there are alternative phonological phrasings, triggered by emphasis and focusation.

(87) a. [What does Mary prefer?] [Mary [prefers corduroy]]
(Mary prefers) (corduroy)
b. [What about Mary?] [Mary [prefers corduroy]]
(Mary) (prefers corduroy)

According to Selkirk, phonological phrases must form **sense units**. An argument and a head is a sense unit, and an adjunct and a head is a sense unit. This predicts the following possibilities with a sentence with a ditransitive verb:

(88) a. (Jane gave the book to Mary)
b. (Jane) (gave the book to Mary)
c. (Jane gave the book) (to Mary)
d. (Jane gave) (the book) (to Mary)
e. (Jane) (gave the book) (to Mary)
f. (Jane) (gave) (the book) (to Mary)
g. *(Jane) (gave) (the book to Mary)
h. *(Jane gave) (the book to Mary)

Notice that phonological phrasing does not directly reflect syntactic constituency. Steedman (1991) attemps to establish a firmer connection between syntactic structure and phonological phrasing within Categorial Grammar, which allows for flexible ways of category combinations. In particular, Steedman sees phonological phrasing as providing clues for the ways how expressions should be parsed.

(89) a.
```
(Mary) (prefers   corduroy)
       (S\NP)/NP  NP
NP          S\NP
       S
```

b.
```
(Mary     prefers)   (corduroy)
NP
S/(S\NP) (S\NP)/NP                    (type raising)
       S/NP          NP
             S
```

Evidence for phonological phrasing comes from accent (typically, each phrase has an accent) and in general changes in the F0 contour, the basic phonation frequency (phonological phrases are marked by boundary tones, e.g. L% or H%, cf. Pierrehumbert (1980)):

(90) After the musical H% they went for a late snack to Ella's L%
(After the musical) (they went for a late snack to Ella'a)

In addition, many languages show other phonological phenomena that indicate phonological phrases. One case that is well studied is Raddoppiamento Sintattico in Italian: In a sequence of two words α, β, the initial consonant of β is lengthened if α ends in a stressed vowel, and α and β belong to the same phonological phrase, which in turn is indicative of syntactic structure (essentially, α and β must be immediate sisters).

(91) a. Devi comprare [$_{NP}$ delle mappe [$_{PP}$ di città vecchie]]
(Devi comprare) (delle mappe) (di città [v:]ecchie)
'You must buy some maps of old cities'

b. Devi comprare delle [$_{NP}$ [mappe [di città]] vecchie]
(Devi comprare) (delle mappe di città) (vecchie)
'You must by some old maps of cities'

Inkelas & Zec (1995) distinguish between phonological words (e.g. *di città*), phonological phrases (e.g., *delle mappe*, *di città vecchie*), and intonational phrases

(e.g. *delle mappe mappe di città vecchie*) that are defined by distinct phonological processes.

The formation of phonological phrases often makes reference to the notions of head and complement (just as accent percolation rules). A common way of classifying phrasing types is whether a phrase boundary occurs at the left edge or at the right edge of a maximal category. We then have phonological phrase types of the following kinds:

(92) a. Right, head-initial languages:
$[_{X''} X^0 Y'']$ → $(X^0 Y'')$, e.g. French

b. Left, head-initial languages:
$[_{X''} X^0 Y'']$ → (X^0) (Y''), e.g. Chimwi:ini (Bantu)

c. Right, in head-final languages:
$[_{X''} Y'' X^0]$ → (Y'') (X^0), e.g. Japanese

d. Left, in head-final languages:
$[_{X''} Y'' X^0]$ → $(Y'' X^0)$, e.g. Korean

Another type is one in which only branching constituents can form a phrase (and enforce a phrase on the remaining constituent). Example: [X [Y Z]] → (X) (Y Z).

4.6.2 The Influence of Focus on Phonological Phrasing

4.6.2.1 The Argument/Adjunct Asymmetry and Complex Constituents

Theories of phonological phrasing assume that arguments behave differently from adjuncts. This corresponds to our findings about accent percolation. We can assume the following (cf. Uhmann (1991)):

- If focus is assigned to a constituent, then all the phonological phrases of that constituent must bear an accent.
- Head-Argument structures often can form phonological phrases, whereas Head-Adjunct structures rarely form phonological phrases.

(93) a. John [stayed [in the tent]]$_F$.
(John) [(stayed in the tent)]$_F$
(John) (stayed in the tént)

b. John [smoked [in the tent]]$_F$
(John) [(smoked) (in the tent)]$_F$
(John) (smóked) (in the tént)

Also, we have seen that complex phrases often lead to an increase in the number of accents. Again this can be seen as a result of the fact that complex phrases often form their own phonological phrases:

(94) a. Mary [donated her bike]$_F$
(Mary) [(donated her bike)]$_F$
(Mary) (donated her bíke)

b. Mary [donated her valuable motorbike]$_F$
(Mary) [(donated) (her valuable motorbike)]$_F$
(Mary) (dónated) (her valuable mótorbike)

4.6.2.2 The case of Chichewa

In a particularly careful study, Kanerva (1990) discusses the effects of phonological phrasing and intonatinal phrasing on Chichewa (Bantu). In this language intonational phrases are indicated by three processes:

- intonational boundary tones (lexical tone is never expressed on the final syllable of an IP)
- tonal catathesis (downdrift) in H tones of H..L...H...L...H chains is broken by IP boundaries,
- lengthening of the final two syllables of an IP.

Phonological phrases are indicated by four rules:

- Lenghtening of the penultimate syllable in a phonological phrase.
- Tonal retraction: High tones on last syllable shifts to the second mora of the penultimate syllable (allowing for ultimate syllables in *intonational* phrases to lack any lexical tone)
- Nonfinal doubling and Prehigh doubling: Spreading of certain high tones within a phonological phrase.

Examples of phonological phrases:

(95) A-nameny nyumba ndi mwala.
'pro-hit the house with a rock'
a. (Anaményá nyumbá ndí mwáála).
b. (Anaményá nyuúmba) (ndí mwáála).
c. (Anaméenya) (nyumbá ndí mwáála).
d. (Anaméenya) (nyuúmba) (ndí mwáála).

Influence of focus on phonological phrase formation: If there is a focus within a VP, a phonological phrase starts at the verb and ends at the focussed constituents, and any following nonfocus constituents each form their own domain. Otherwise, the VP forms a single domain.

(96) a. [What did he do?]

b. [What did he hit the house with?] (Anaményá nyuúmba) (ndí mwáála)

c. [What did he hit with the rock?] (Anaményá nyuúmba) (ndí mwáála)

d. [What did he do to the house with the rock?]
(Anaméenya) (nyuúmba) (ndí mwáála)

(See pages 156 - 159).

4.6.2.3 Modern Greek, Korean and Chinese

Other observations on the influence of focus in a variety of languages include the following:

In Modern Greek Condoravdi (1990), phonological phrases are indicated by deletion of word-final vowels within a phrase. A focus introduces a break for phonological phrases on its left end.

(97) a. ɣipsina$_F$ aɣalmata → ɣipsin' aɣalmata 'plaster statues'
b. ɣipsina aɣalmata$_F$ → ɣipsina aɣalmata

Emerging generalization: Focusation introduces phonological phrase boundaries. In Chichewa, focusation on a constituent α introduces a boundary to the right of α. In Modern Greek, Focusation on a constituent α introduces a boundary to the left of α.

In Korean Cho (1990), "words with an emphatic or contrastive accent form a phonological phrase with the folloiwng word, even when the two words are contained in different maximal projections". A phonological process that identifies co-constituency in a focus phrase is obstruent voicing (e.g., /k/ → /g/):

(98) a. (Suni-ga) (kayo) 'Suni-NOM is going'
b. (Suni-ga gayo) (in answer to 'Who is going?)

Question: Does focusation introduce boundaries to the left?

See Selkirk & Shen (1990) for phonological phrasing and focus in Shanghai Chinese.

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4.6.2.4 The Case of Bengali

Hayes (1991) discusses phonological phrasing and accent in Bengali, an OV language, with observations on the role of focus.

The accent percolation rules are different from what we have seen so far, as accent is realized on the head. Hayes & Lahiri contrast this with the situation in German, and claim that predicate-argument structure does not play a role for focus marking in Bengali.

(99) a. [sˇæmoli ram-er bari dʰúkecˇʰilo]$_F$
[Shamoli Ram's house entered]$_F$

b. [sˇæmoli [rám-er bari]$_F$ dʰukecˇʰilo
Shamoli entered [Rám's house]$_F$

Hayes & Lahiri propose the following stress rules:

(100)a. Within a phonological phrase, the leftmost non-clitic word is strongest.

b. Within the intonational phrase,
i. If there is a P-phrase with focus, it receives the strongest stress.
ii. Otherwise, the rightmost P-phrase gets the strongest stress.

(101)a. neutral

((sˇæmoli)$_P$ (ram-er bari)$_P$ (dʰukecˇʰilo)$_P$)$_I$
x x x x x x x x x x
x x x x
x
x

b. focus on 'Ram's house'

((sˇæmoli)$_P$ (ram-er bari)$_P$ (dʰukecˇʰilo)$_P$)$_I$
x x x x x x x x x x
x x x x
x

The extent of focus marking is marked by a phrase boundary that is identified by a rising boundary tone. Focus accent itself is realized by a low tone (actually, "low" seems to mean: not elevated in pitch, but with higher amplitude, See examples p. 60/61).

4.7 Informational Integration and Autonomy

Jacobs (1993; Jacobs (1994) has developed a theory of informational integration and autonomy that tries to relate accent rules and the way how constituents are processed semantically.

(102)a. [What's up?] Your éyes are red!$_F$

b. [What about my eyes?] Your èyes are réd!

Here, (a) is an integrated structure, (b) is not integrated, bt *your eyes* and *are red* are informationally autonomous (cf. Fuchs 1980 for the notion of "integration"). This is reflected in the accentual structure: Each integrated structure is marked by one accent. And it reflects presumably in the formation of phonological phrases, eg. (*Your éyes are red*) vs. (*your eyes*) (*are red*).

Jacobs sees this as a difference in the way how the sentence is processed: In (a), there is one simple processing step, in (2) there are at least two steps: First, a reference to the eyes of the addressee, secondly, a predication that these things are red. Jacobs uses an arrow notation to express processing steps. If α is a meaning, then ↓α↓ indicates that α is semantically autonomous.

(103)a. ↓RED(YOUR EYES)↓

b. ↓ ↓RED↓ (↓YOUR EYES↓) ↓

Jacobs recognizes that semantic autonomy is to a great extent a feature that speakers can apply at will. He assumes the following rules:

(104)A head X of a complex constituent is informationally non-autonomous in relation to its sister Y only if:

a. Y is an argument of X;

b. If X assigns a theta-role to Y, then
i. X does not ascribe to Y a spatio-temporal unlimited property and
ii. Y is associated with proto-patient entailments.

c. X does not contain more than one constituent with a full lexical meaning (it may contain additional functional elements)

Here, (a) points to the argument/adjunct asymmetry observed before:

(105)a. *stayed in the tent* can be integrated: ↓STAY(IN THE TENT)↓

b. *smoked in the tent* cannot be integrated: ↓↓IN THE TENT↓(↓SMOKE↓)↓

(b.i) refers to the difference that we have observed before between eventive and stative predicates. Example, notice that redness is typically a temporally limited property for eyes.

(106)a. *Your éyes are red.* ↓RED(YOUR EYES)↓

b. *Your èyes are blúe.* ↓↓BLUE↓(↓YOUR EYES↓)↓

(b.ii) refers to the difference between agentive and non-agentive predicates (cf. Dowty (1991) for a theory of thematic roles that works with "proto-roles" for agenthood and patienthood). In particular, Jacobs lists the following proto-patient properties:

(107)a. an argument is subjected to a change of state.

b. an argument is an incremental theme (? - no examples)

c. an argument is causally influenced by another participant

d. an argument is a point of reference for the spatio-temporal localisation of an entity

e. the experience (realization) of the existence of an argument is not independent of the general situation described.

We have seen examples for most of these cases. In particular, integration is possible even for agentive arguments if the arguments have other properties as well. In the following example, (e) overrides agentivity.

(108) *A rélative of mine called me up.*
↓CALLED UP(ME)(A RELATIVE OF MINE)↓

Condition (104.c) refers to the fact that integration is not fully recursive. Only if the head contains an argument that is not fully lexical do we find some recursion.

(109)a. weil (ein Fréund [uns angerufen hat])
'because a friend has called us'
↓CALLED UP(US)(A FRIEND)↓

b. weil (ein Fréund) (den Férnsehsender) (angerufen hat)
'because a friend has called the TV station'
↓↓ CALLED UP(THE TV STATION)↓(↓A FRIEND↓)↓

c. weil (ein Frèund) (uns heute ángerufen hat)
'because a friend has called us today'
↓↓ YESTERDAY(↓CALLED UP(US)↓)↓(↓A FRIEND↓)↓

Complex verbal predicates ("light verb constructions") are complex heads that allow for integration, as in *zur Verfügung stellen*, 'allow to use' (from here on I mark integration by phrasing):

(110) Er hat mir (sein Áuto [zur Verfügung gestellt]).
he AUX me his car to use put
'he allowed me to use his car'

There are borderline cases in which a head seems to be a fully lexical constituent. (Remark: Sentences like that are counterarguments against Cinque (1993), who assumes that focus projection originates from the most embedded argument).

(111) weil er (die Zéitung [in den Ofen [gesteckt hat]])
'because he has put the newspaper into the oven'

However, it is unclear whether *den Ofen* 'the.ACC oven' really is an expression that refers to an entity, or whether the predicate simply refers to an act of putting-in-the-oven. Whenever we have a clearly referential expression, this integration is dispreferred, and we have autonomy instead:

(112)weil er (die Zèitung) (in diesen Ófen gesteckt hat)
'because he has put the newspaper into that oven'

Condition (104.c) restricts the complexity of the head, but not of the argument, which may be complex without impeding integration:

(113)Er hat ([ein Buch von Camus über den Algérienkrieg] gelesen).
'he has read a book by Camus about the war in Algeria'

The condition for integration does not mention coordinate structures, which typically are not integrated:

(114)a. Sie hat (den Artìkel) (gelésen und kritisíert).
'she has read and criticized the article'

b. Sie hat (den Artìkel) (und das Búch) gelesen
'she has read the article and the book'

Another condition is that functional elements (auxiliaries, modals etc.) typically are integrated. (Perhaps there is a general tendency that non-referential expressions tend to be integrated because they do not necessitate a separate act of reference.) For example, the objects of light verbs must be integrated:

(115)a. Er hat ihr dieses Auto (zur Verf'ügung gestellt).
he AUX her this car to use put
'he has allowed her to use this car'

b. *Er hat ihr dieses Auto (zur Verf'ügung) (gestéllt)

There is a syntactic test for integration in German, namely, the ability to be moved to Spec-Position for reasons of contrastive topicalization (to be dealt with later):

(116)a. (die Zéitung in den Ofen gesteckt) hat er nícht t_1.
the newspaper in the oven put AUX he not
'As for putting the newspaper in the oven, he didn't do it'

b. ?? die Zeitung in diesen Ofen gesteckt hat er nicht t_1.

Jacobs does not assume that integration influences phonological phrasing (he does not work with this notion), but that it influences the position of nuclear accents, along the following rules:

(117)a. Within a set of sister constituents, those that have a feature F get a "+"

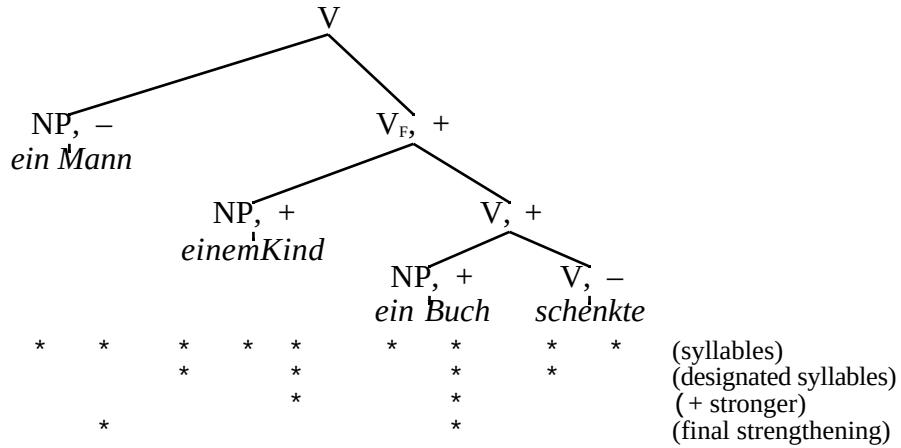
b. If no element in a set of sister constituents has a feature F,
all the ones that are neutrally accentable (= not pronominal etc.) get an "+"

c. If no element in a set of sister constituents has a feature F,
and the set is integrated, then "+" is assigned to the integrated constituent,
if accentable,
otherwise to the integrating constituent (i.e., the head).

The assignments of "+" are spelled out by prominence rules that guarantee that

- the designated syllables of any +-element of a set of sister constituents are stronger than the other syllables,
- the final designated syllable of a set of sister constituents gets an additional beat.

(118)



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