

ON THE INTERACTION BETWEEN END-WEIGHT AND END-FOCUS*

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English allows an NP to appear in sentence-final position separated from the verb that subcategorizes it:

- (1) a. He threw [_{NP}the letters from the principle decoder] into the wastebasket.
 b. He threw _ into the wastebasket [_{NP}the letters from the principle decoder].
 (Zec and Inkelas 1990:376)

The sentence in (1b) is considered to be derived from the canonical counterpart in (1a) and is referred to as a ‘‘Heavy NP-shift’’ or ‘‘Focus NP-shift’’ sentence (cf. Ross 1967, Rochemont 1986). This paper shows that English Heavy NP-shift is motivated by End-Weight, not by End-Focus, by looking at the sentences with *extremely* heavy NPs, and argues that weight should be measured in prosodic terms.

1. English NP-shift is motivated by End-Weight

Quirk et al. (1985) describe the motivations for Heavy NP-shift sentences in terms of End-Weight and End-Focus:

- (2) End-Weight
 ... to achieve a stylistically well-balanced sentence in accordance with the norms of English structure; in particular to achieve END-WEIGHT.
- (3) End-Focus
 ... to achieve an information climax with END-FOCUS. (Quirk et al. 1985:1398)

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What is the relation between End-Weight and End-Focus? Let us look at Heavy NP-shift sentences with *extremely* heavy NPs to sort out the factors of weight and focus. I use the following definitions of focus for present purposes:

- (4) Working definition of focus (cf. Rochemont 1998:337-338)
- a. [Informational] Focus is identified through Question-Answer pairs: in a well-formed information question-answer pair, the focus is the constituent in the answer that corresponds to the constituent that is wh-questioned.
 - b. Phonological Focus is a constituent in the sentence that contains a pitch accent and satisfied the diagnostics for focus in (4a).

Now let us look at the data:^{1,2}

- (5) Q: What did John give to Sue?
- | | | |
|-----|--|--------------------|
| A1: | He gave [<u>a REPORT</u>] to her. | V - <u>NP</u> - PP |
| A2: | *He gave to her [<u>a REPORT</u>]. | V - PP - <u>NP</u> |
| A3: | ?*He gave [<u>the REPORT on Jim which was completed by the PTA members several days ago</u>] to her. | V - <u>NP</u> - PP |
| A4: | He gave to her [<u>the REPORT on Jim which was completed by the PTA members several days ago</u>]. | V - PP - <u>NP</u> |

¹ Here is a list of notations used in this paper:

[] (brackets) for NP
focus (underline) for informational focus
FOCUS (capitals) for accented, phonological focus
FOCUS (bolded capitals) for heavily accented, phonological focus

e.g. Q: What do you like?

A: I like [**DOGS**].

² The acceptability scale used here is the following: no mark or √ = completely acceptable; ? = not quite fully acceptable; ?? = relatively unacceptable; ?* = only barely acceptable; and * = completely acceptable. The mean value of judgments by 2-6 English native speakers is indicated in this paper. This can be done justly because every speaker showed the same pattern of acceptability judgments while they may differ in the degree to which they accept each sentence. For example, if 4 people judge a sentence as √, √, ?, and ??, the acceptability of the sentence is indicated as √-?.

- (6) Q: Who did John give a report to?
 A1: He gave [it] to SUE. V - NP - PP
 A2: *He gave to SUE [it]. V - PP - NP
 A3: ?*He gave [the report on Jim which was completed by the PTA members
 several days ago] to SUE. V - NP - PP
 A4: He gave to SUE [the report on Jim which was completed by the PTA
 members several days ago]. V - PP - NP

The question in (5) identifies the informational focus as “the thing which was given to Sue by John”. The unacceptability of (5A2) suggests that an informational focus does not always license NP-shift. The unacceptability of (5A3) and the acceptability of (5A4) show that an excessively heavy NP *must* appear in sentence-final position. The question in (6), on the other hand, identifies the informational focus as “the person who was given the report by John”. The unacceptability of (6A3) and the acceptability of (6A4) show that an excessively heavy NP *must* appear in sentence-final position even when the NP does not have an informational focus. In other words, End-Weight *is* a sufficient condition for NP-shift whereas End-Focus is neither necessary nor sufficient for NP-shift. Note that elaborating on the content of *report* should not be the source of unacceptability of (6A3) because (6A4) is acceptable with the same NP.

2. What is End-Weight?

2.1. Prosodic weight

2.1.1. “Heavy” NP-shift

In section 1, we saw that English NP-shift is motivated by End-Weight. The task of this section is to define the notion of weight. Based on the data in (8) and (9) below, I claim that weight should be measured by the number of “prosodic words” defined as in (7) (Shiobara 2000, 2001, Selkirk 2001), not syntactic words or phrases (Hawkins 1994, Wasow 1997).

(7) Working definition of English Prosodic Words (cf. Selkirk 1996)

A lexical word forms a prosodic word (PWD) on its own whereas a mono-syllabic function

word does not unless it carries a stress.

- (8) Q: What did John give to Sue?
 A1: He gave [the REPORT on Jim] to her. V - NP - PP
 A2: ?He gave to her [the REPORT on Jim]. V - PP - NP
 A3: He gave to her [the REPORT on HIM]. V - PP - NP
 (pointing at Jim in front of the speaker)
 A4: *He gave to her [the REPORT on him/?im]. V - PP - NP
 (pointing at Jim in front of the speaker)
- (9) Q: What did John give to Sue?
 A1: He gave to her [the REPORT on ME].
 A2: *He gave to her [the REPORT on me].

(Shiobara 2001, partly based on Inkelas 1989:17-18)

In (8), the proper name *Jim* and the stressed pronoun *HIM* in the NP license the NP-shift sentences, whereas the unstressed pronoun *him/im* cannot. The same contrast is observed with the inherently deictic pronoun *ME/me*. It is not plausible, if not impossible, to give a syntactic explanation to the difference between proper names and stressed pronouns on the one hand, and unstressed pronouns on the other. Their difference is prosodic in nature: the former can form a prosodic word on its own, whereas the latter cannot (see the definition in (7)). Assuming the prosodic measure of weight, NP-Shift must be a PF-phenomenon, triggered by a prosodic feature, say [heavy].³ Let us look at the data more closely:

- | | | | | | | |
|-----|-----|------------------------------|---------------|----|---------------|------------------|
| (8) | A3: | ?He gave to her [<u>the</u> | <u>REPORT</u> | on | <u>HIM</u>]. | # of PWds |
| | | | PWd | | PWd | 0 in PP; 2 in NP |
| | A4: | *He gave to her [<u>the</u> | <u>REPORT</u> | on | him/?im]. | |
| | | | PWd | | | 0 in PP; 1 in NP |

³ The existence of phonologically-motivated movement is never a new discovery and has been argued for, for example, in Rochemont (1978), Zubizarreta (1998), Chomsky (1999), Ndayiragije (2000), and so on. They examine different sorts of data and differ in implementation of phonologically-motivated movement: Rochemont (1978) and Chomsky (1999) argue that movement occurs in the phonological component, whereas Zubizarreta (1998) and Ndayiragije (2000) argue that movement occurs in narrow syntax.

Given the contrast between (8A3) and (8A4), and given that the canonical V - NP - PP order is also acceptable (see (8A1)), it should be the case that [heavy] *can be* inserted (with other phonological features) in the phonological component when NP is heavier than the intervening element (i.e. PP in this example) by more than 1 PWd.⁴

Let us go back to the *obligatory* NP-shift case:

- (6) A4: He gave to SUE [the report on Jim which was completed by the
 PWd PWd PWd PWd PWd
 PTA members several days ago]. # of PWds
 PWd PWd PWd PWd PWd 1 in PP; 9 in NP

Based on this example, I tentatively assume that [heavy] *must be* introduced in the phonological component when NP is heavier than PP by more than 8 PWd's.

Additional support for NP-shift as a PF-phenomenon comes from the data which suggests that the left edge of a shifted NP corresponds to the left edge of an Intonational Phrase (IntP). This is indicated by the position of a parenthetical phrase such as 'I think' that forms an IntP on its own:

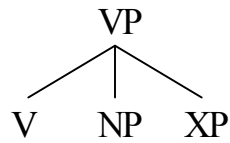
- (10) a. John bought for Mary, I think, [a picture of her father in a weird costume].
 b. *John bought, I think, for Mary [a picture of her father in a weird costume].
 (Rochemont and Culicover 1990:119)

This is to say, [heavy] signals the left edge of the IntP corresponding to the heavy NP.

The question then arises: why should English show the End-Weight effect at all? A plausible speculation is that the effect is ground in processing considerations (cf. Hawkins 1994, Shiobara 2000, 2001): the human parser prefers minimizing the time elapsed between the constituents of the first immediate constituent (e.g. V in this particular case) and the last immediate constituent (e.g. NP in the V - XP - NP order) of a mother node (e.g. VP):

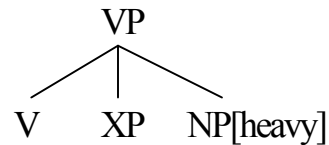
⁴See Hawkins (1994), Wasow (1997), and Shiobara (2000, 2001) among others for the argument that it is *relative* weight of NP, not absolute weight, that is relevant to NP-shift.

(11) a.



⇒

b. NP-shift



NP-shift, i.e. the insertion of [heavy] in the phonological component, is *optional* only in the sense that its occurrence is subject to individual variation, possibly depending on to what extent speaker's working memory tolerates a heavy intervening NP. This issue is to be further examined.

2.1.2. "Light" NP-shift

There is a case where a prosodically light NP can license NP-shift:

(12) Q: Did John give the letter to Sue?

A: No. %He gave to her [a **REPORT**], not the letter.

cf. (5) Q: What did John give to Sue?

A2: *He gave to her [a REPORT].

A2': He gave to her [REPORT], but not a letter or anything else.

This sentence in (12A) is accepted only by some speakers; and only those who realize an obligatory heavy accent (e.g. a **REPORT**, *not the letter*). Comparing the sentences in (5A2) and (5A2'), we notice that a contrastive focus, but not an informational focus, can license NP-shift even if the number of PWD in the NP is one.

Based on this observation, I propose that the feature [heavy] *can be* introduced when an NP is contrastively focused and hence carries obligatory prosodic prominence. Notice that the introduction of [heavy] is optional here in the sense that it is subject to individual variation, depending on the degree to which a speaker can accommodate a context where the shifted NP can be focused contrastively.

2.2. Unification of “heavy” and “light” NP-shift

In 2.1, we saw two types of NP-shift: in “heavy” NP-shift, [heavy] can be or must be inserted due to the number of PWd; and in “light” NP-shift, [heavy] can be inserted due to a contrastive focus that is prosodically realized as a heavy accent. An informational focus is neither necessary nor sufficient for NP-shift. Here is the summary:

- (13) Three factors potentially related to NP-shift
 (i) contrastive focus > (ii) heaviness > (iii) informational focus
 (A > B means that factor A overrides factor B.)

In looking for a key to unify two types of NP-shift, it is helpful to refer to Zubizarreta’s (1998) observation:

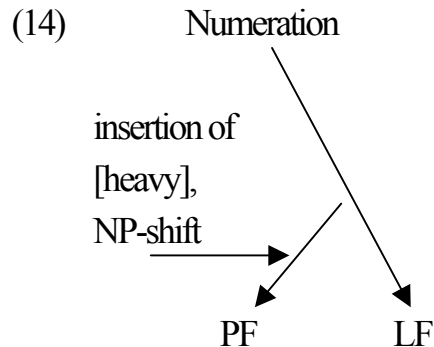
‘[Heavy NP-shift] applies only when the rightmost constituent is analyzed as metrically “heavy”, owing to its syntactically complex structure [...] or to *the heavy accent* that it carries [...]. Notice furthermore that the heavy constituent is preceded by *an intonational boundary*.’ (Zubizarreta 1998:149, italics are mine.)

My observation of NP-shift agrees with Zubizarreta’s except that one way of achieving heaviness is *prosodic* complexity, not syntactic complexity. The point to note is that the left edge of an IntP seems to be the key to the question of when and where [heavy] is inserted: NP-shift is possible if and only if the left edge of the shifted NP corresponds to an intonational boundary, which is the case when the NP is prosodically heavy (= heavy NP-shift) and/or the NP carries a contrastive focus (=light NP-shift). The prediction is that the left edge of the NP with an informational focus does not always correspond to the left edge of the IntP and hence an informational focus does not always license NP-shift. This needs to be tested.

3. Implications of the prosodic weight approach

3.1. NP-shift does not feed LF

My claim is that NP-shift is motivated prosodically by End-Weight, and [heavy] is inserted in the phonological component, not in the Numeration (cf. Chomsky 1995):



One of the predictions by this claim is that NP-shift does not feed LF. The apparent counterexamples to this prediction are binding effects observed in (15)-(16):

- | | | |
|---------|--|--------------------------------|
| (15) a. | *I recommended [himself] to Bill. | ... anaphor ... antecedent ... |
| b. | ?I recommended to Bill [himself]. | ... antecedent ... anaphor ... |
| (16) a. | *I gave [a copy of his _i grades] to every _i boy. | ... variable ... QP ... |
| b. | I gave to every _i boy [a copy of his _i grades]. | ... QP ... variable ... |
- (Williams 1994:154-155)

In (15b) the NP *himself* appears in sentence-final position, which renders the binding of anaphor possible.⁵ In (16b), the NP *a copy of his grades* appears in sentence-final position and the pronoun *his* can have a bound variable reading. These (b) sentences, however, are not “NP-shift” under the present definition of NP-shift, because the NP is not prosodically heavy or contrastively focused. As is seen in the following examples, the real heavy NP-shift does not show the change in binding

⁵ Williams (1994:189) notes that placing heavy stress on *himself* improves the sentence in (15b) (*I recommended to Bill [HIMSELF]*), which can be taken as an instance of light NP-shift. Still, the contrast between (15a) and this sentence remains to be explained.

effects:

(17) Q: What did the artist give to the customers?

A1: He gave [every_i PICTURE that described the beautiful nature of Vancouver] to its_i buyer.

A2: ?He gave to its_i buyer [every_i PICTURE that describes the beautiful nature of Vancouver].

(18) Q: Who did the artist give the pictures to?

A1: He gave [every_i picture that describes the beautiful nature of Vancouver] to its_i BUYER.

A2: He gave to its_i BUYER [every_i picture that described the beautiful nature of Vancouver].

When the shifted NP is prosodically heavy, (b) sentences are as good as corresponding (a) sentences.^{6,7}

3.2. *An apparent counterexample: parasitic gap*

Another apparent counterexample to the argument that NP-shift happens in the phonological component is found in the licensing of parasitic gaps. The agreed observation is that a parasitic gap is licensed by overt A'-movement:

(19) This is the book which John filed _ without reading _.

NP-shift appears to license a parasitic gap (cf. Engdahl 1983):

(20) John offended _ by not recognizing _ immediately [his favorite uncle from Cleveland].

However, it is not clear whether this example is an instance of NP-shift or not because it is pointed out that NP-shift resists preposition-stranding as in (a) in (21)-(22), whereas Right Node Raising can

⁶ Williams (1994:187) shows examples with a heavier NP where the contrast in acceptability is smaller:

(i) a. ?I gave [some pictures of himself] to Bill.
b. I gave to Bill [some pictures of himself].

⁷ It remains as a problem what the (b) sentences in (15)-(16) are if they are acceptable at all. (Thanks to Martha McGinnis for directing me to this issue.)

strand prepositions as in (b) in (21)-(22).

- (21) a. *John listened to _ with Mary [his favorite sonata].
 b. John listened to _ without recognizing _ immediately [his favorite Beethoven sonata].
 (Kayne 1994:74)
- (22) a. *I talked to _ about love [the tall woman in the black dress].
 b. Mike may have talked to _ about love and certainly talked to _ about marriage
 [the tall woman in the black dress]. (Postal 1998:195)

The example in (20) is likely to be a Right Node Raising sentence, not an HNPS with a parasitic gap. If so, it does not raise a problem for the analysis of NP-shift as PF movement (see also Williams 1998/99:267).

3.3. *Why is End-Weight given priority over End-Focus?*

The question remains why End-Weight is given priority over End-Focus in English. This may be attributable to the fact that English can mark a focus with prosodic prominence without relying on grammatical displacement, as is shown by the following examples.

- (23) Q: What did John give to Sue?
 A: He gave [a REPORT] to her. (=5A1))
- (24) Q: Who did John give a report to?
 A: He gave to SUE [the report on Jim which was completed by the PTA members several days ago]. (=6A4))

For future research, the interaction between End-Weight and the structural focus (e.g. cleft) in English, and languages with syntactically designated focus positions are worth investigating because they make the distinction between weight and focus clearer.

4. Summary

This paper showed that English NP-shift is motivated by End-Weight, not by End-Focus (section 1). Based on the close examination of the weight effect, I argued that (i) End-Weight is formalized as a prosodic feature [heavy], which is inserted in the phonological component and signals the left edge of the shifted NP (section 2.1), and (ii) [heavy] can be inserted in two ways: due to the prosodic heaviness (Heavy NP-shift, section 2.1.1) and/or a contrastive focus (Light NP-shift, section 2.1.2).

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