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Yuichi Endo

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# The Nuclear Tone of English Intransitives\*

Yuichi Endo

The purpose of this paper is to propose the underlying stress contour of “Johnson died”-type intransitive sentences in English and to give a good explanation for a variety of stress alternation it takes in actual speech. The general framework to be used here is Chomsky’s minimal analysis (1995). As phrase structure, I assume VP-internal hypothesis. My assertion implies that phrase stress is uniquely assigned by defining the constituent structure of the phrase.

## 1. Concept of Underlying Stress

Every word has a syllable that is pronounced stronger than the other syllables. In the word thirteen, word stress falls on the second syllable. This is the stress contour of thirteen in (1), when it is pronounced in isolation without any context. When it is used in actual speech with context, however, the situation changes. If (2) is used in a basketball game, stress would fall on the first syllable of thirteen, as well as fourteen. Assigning main stress to the second syllable of thirteen and fourteen would not help to make a clear distinction between them. (3) shows a eurhythmic stress alternation in the phrase. By moving s(trong) stress from the second syllable to the first in thirteen in (3), the sws stress pattern is more eurhythmic than wss, which shows clashing of stress.

(1) thirtéén

(2) thírteen, fóurteen

(3) thírteen mén

(4a) and (4b) illustrate the different stress

contours of phrasal category (i.e., noun phrase) and lexical category (i.e., compound noun). Stress falls on board in (4a) and on black in (4b). If context is considered, their unmarked stress forms may be changed. In (5), contrastive stress falls on black and blue, and so black is pronounced stronger than board in the noun phrase “a black board.” Also in (6), contrastive stress falls on the second part of the compound nouns, and so board carries strong stress in the compound noun “blackboard” in this particular context.

(4) a. [black bóard]NP

b. [bláckboard]N

(5) I want a bláck board, not a blúe board.  
(cf. (4a))

(6) Did you say “blackbóard” or  
“blackbírđ”? (cf. (4b))

## 2. The NSR and the Underlying Stress Contour of “Johnson Died”

It might be supposed that intransitive sentences in English also have the unmarked stress form and show a variety of stress alternations, depending on their contextual meaning in discourse. So what should be the underlying stress contour of “Johnson died”? Traditionally, the stress contour of English phrases and sentences has been explained by the so-called Nuclear Stress Rule (henceforth, NSR). (7a) is the NSR proposed by Chomsky and Halle (1968), which shows how [1 stress] on the right-hand word in a phrase remains as it is to the end of its derivation. (7b) is the NSR by Liberman and Prince (1977). In their metrical analysis, s(trong) stress is assigned

to the right node of the tree diagram, so that they can get w(eak)-s(trong) stress contour. (7c) is the NSR by Halle and Vergnaud (1987). Their analysis is based on the theory of principles and parameters. The point is that their theory also mentions the right-headedness of the phrasal category.

- (7) a. NSR (Chomsky and Halle, 1968, p. 90)

$$V \rightarrow [1 \text{ stress}] / [ \# \# X \_\_\_\_\_\_ Y \# \# ]$$

1 stress

where Y contains no vowel with the feature [1 stress]

- b. NSR (Lieberman and Prince, 1977, p. 257)

In a configuration [cAB]c:

If c is a phrasal category, B is strong.

- c. NSR (Halle and Vergnaud, 1987, p. 264)

(I.) Parameter settings on line N

( $N \geq 3$ ) are [-BND, +HT, right]

(ii.) Interpret boundaries of syntactic constituents composed of two or stressed words as metrical boundaries.

(iii.) Locate the heads of line N constituents on line N+1.

However, a problem arises when it comes to the stress contour of “Johnson died”-type intransitive sentences. Contrary to the theoretical anticipation of the NSR’s, the linguistic fact is that strong stress falls on the subject of the sentence, but not in the second sentence. Namely, the unmarked stress form of “Johnson died” is considered to be (8a), but not (8b). And the problem seems to be that the unmarked stress form of (8a) does not observe the end-focus principle. So the topic I would like to

discuss in this paper is the apparent peculiarity of the stress assignment of “Johnson died”-type intransitive sentences to propose the underlying stress form be obtained by defining their syntactic constituent structure.

- (8) a. Jóhnsón died.  
b. Johnson díed.

### 3. Some Descriptive Approaches to the Stress Placement of “Johnson died”

According to Selkirk (1995, p. 559), (9a), (9b)=(8a), (10a), and (10b) can be answers to (11a) or can be embedded in the subordinate clause of (11b), each of them as a whole expressing new information. F in (11b) stands for the focus of the sentence.

- (9) a. Jóhnsón díed.  
b. Jóhnsón died. (=8a))  
(10) a. The sún came óut.  
b. The sún came out.  
(11) a. What’s been happening?  
b. I was only thinking that [ . . . ]F

We see that stress accent falls only on the subject in (9b) and (10b) and on two words in (9a) and (10a) would be described as integrative, and (9a) and (10a) as non-integrative. In the above description by Selkirk, it is still not clear which pattern should be recognized as basic or underlying.

She simply says both patterns are possible. According to Fabor, the stress pattern of eventives is integrative; that is, there is only one strong stress in a sentence, except when the eventives have human agentives. The non-integrative pattern, as is shown in (12(ii)-(vi)), is used in definitionals, contingency uses, allegorical, hyperbolic, and eventives with human agentives. Following (12), only (9b) would be

supposed to be the unmarked stress form of “Johnson died” because the sentence seems to belong to eventives in (12(I)) instead of in (12(vi)). In other words, the subject “Johnson” alone has the nuclear tone of this sentence in its unmarked pattern. In this framework, (9a) cannot be rival of (9b) as the underlying stress form of “Johnson died.”

(12) Integrative

(I) Eventives

(Except for (vi))

Non-integrative

(ii) Definitionals (e.g. Pénquins swím.)

(iii) Contingency Uses (e.g. Tréspassers will be prósecuted.)

(iv) Allegoricals (e.g. Tíme pássed.)

(v) Hyperbolicals (e.g. My féet are fréezing.)

(vi) Human agentives (e.g. Jésus wépt.)

Schmerling (1976) compares (9a) with (9b) to conclude (9b) to be without any presupposition and focus. According to Schmerling, the stress contour of (13b) allows presupposition and focus based on knowledge about the events and happenings of the world, and (13a) does not. In (13b), “Truman” is considered to be the presupposition and “died” to be the focus. Cinque (1993, p.260) writes “As Schmerling recalls, when (13b) was uttered, President Truman had been written and spoken of by the news media for some time because of his ill health; so it was appropriate to consider him as part of the presupposition, whereas the news was the termination of his critical state. President Johnson, instead, died somewhat unexpectedly. He was not on people’s minds as Truman had been, so it would have been inappropriate to take him

as part of the presupposition.”

(13) a. Jóhnsón died. (= (8a)) (9b))

b. Truman died. (cf. (8b))

This interpretation of (13) corresponds well with the observation that the unmarked stress contour of “Johnson died” is (8a (=9b)), but not (8b).

Concerning the end-focus stress of (13b) or the non-integrative stress pattern of (12(vi)), we will take a brief look at Quirk (1985). According to Quirk, constituents of a sentence are liable to be placed in observance of the order of communicative value. Namely, from the beginning to the end of a sentence, communicative value of the sentence constituents (i.e, the words) gradually tends to increase. In this sentence, constituents of intransitive sentences are insufficient in number. From the viewpoint of communicative dynamism, (14a) and (15a) require some more words with new information after the verbs. (14a) and (15b) are more stable in construction.

(14) a. Mary sáng.

b. Mary sang for hours.

(15) a. My friend cóoked.

b. My friend cooked enthusiastically.

It is noteworthy that Fabor and Quirk set different unmarked terms for (12(vi))-type eventives. This is another issue to be dealt with. In this paper, however, I will not go into these details. Going back to Selkirk’s (9a) and (9b), we take (9b) as the underlying stress contour of “Johnson died.” In Tokizaki (1996), the problem of (9a) and (9b) is relationally dealt with by separating stress and tone, which we will see in the next section.

#### 4. Past Accounts for the Apparent Idiosyncrasy

So far, several explanations have been given as to why the underlying stress contour of “Johnson died”-type intransitive sentences should be integrative with main stress on the subject. Among them are Tokizaki (1996) and Cinque (1993).

The intention of Tokizaki is to make clear why Selkirk recognizes two different kinds of intonational phrases for one sentence. His paper does not seem to be interested in deciding which of the two should be the underlying stress contour of the sentence, but it tries to describe why two nuclear tones can be possible in (16a) and why only one nuclear tone can be used in (16b).

(16) HLM HL  
a. (Jóhnsón)IP (díed)IP (cf. (9a))

H ML  
b. (Jóhnsón díed)IP (cf. (9b, 8a))

According to Tokizaki, the fall-rise plus fall intonation pattern of (16a) is typically seen in sentences with Topic-Comment semantic structure. One new piece of information given in one intonational phrase is an ideal correspondence from the viewpoint of semantics. But the sentence is too short to be divided into two intonational phrases. Consequently (16b), which is pronounced integratively in one intonational phrase, will be more economical and natural than (16a). In any case, Tokizaki concludes, as Selkirk does, that either pronunciation will do in this particular sentence.

In my view on the underlying level of stress, the problem with this kind of

argument lies in the parallel treatment of (16a) and (16b). They do not make a distinction between the underlying level and the level of performance. Only at this level of performance could it be said that both (16a) and (16b) are possible or probable. Since both “Johnson” and “died” are lexical words, each of them probably carries some degree of sentence stress and could be pronounced with nuclear tone. But my view is that there may be only one main stress underlying a single sentence. If we allow two main stresses in one sentence, we face a theoretical defect. If we have only two possibilities, i.e., (16a) and (16b), we have to conclude that the underlying stress should be (16b). Another question might arise as to why (17) cannot be the underlying stress contour of “Johnson died.”

(17) M HL  
(Johnson díed)IP

In Cinque (1993), the unmarked stress of the form of the phrase is well determined by its syntactic constituent structure. Stress prominence in a phrase is treated as a mere reflection of depth of embedding. The right-most location of the most deeply embedded phrase (as determined by the direction of branching). And this approach makes it possible that languages with right-branching structure like English can be treated or analyzed in the same way as ones with left-branching structure like Italian. However, even in Cinque the unmarked stress contour of the sentence concerned is still determined by predictability among its sentence constituents, since no postverbal subject is possible in English. The word order of “Johnson died” cannot be converted to “\*Died Johnson” with phrase stress on “Johnson.” So he claims that the subject

position is occupied by the least-predictable element, which is to be the focus of the sentence, and the predicate position is occupied by the most-predictable element, which is to be the presupposition of the sentence. Namely, “dying is one of the possible accidents that may occur to someone.” In Cinque, this apparent deviation of the intransitive construction in stress assignment is beyond the scope of his syntactic theoretical explanation.

### 5. Stress Assignment by Defining the Constituent Structure

My proposal is that the stress contour of intransitive sentences in English should be uniquely assigned by its syntactic information.

The general framework to be used here is Chomsky’s minimal analysis (1995).

As phrase structure, I assume VP-internal subject hypothesis. My assertion implies that phrase stress is uniquely assigned by defining the constituent structure of the phrase. I claim that phrase stress be assigned by (18b). By definition (18b(I)), I treat constituent structure (19). Complement receives strong stress in its minimal domain.

(18) a. Assumptions:

General framework in Chomsky  
(1995, Ch3) for minimal analysis  
Phrase Structure

-VP-internal subject hypothesis

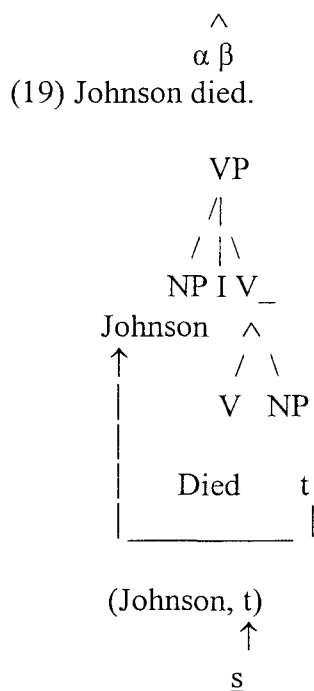
b. Definitions:

(I.) Internal Domain

If  $\beta \in \text{MinD}(\alpha)$ ,  $\beta$  is stressed.

(ii) Functional Projection is not in stress domain.

I treat the following constituent structure as reflecting definition (18b(I)).



In the relationship between Head and Complement, I assume strong stress is to be assigned to the Complement. In other words, in (19)<sub>s</sub> falls on the trace, so that the relative prominence may be on NP instead of V in the framework of VP-internal subject hypothesis. [Johnson]NP and [t]NP make a chain in this analysis.

-VP-internal subject hypothesis

b. Definitions:

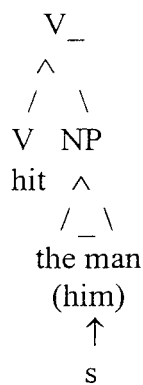
(I) Internal Domain

If  $\beta \in \text{MinD}(\alpha)$ ,  $\beta$  is stressed.

(ii) Functional Projection is not in stress domain.

I treat the following constituent structure as reflecting definition (18b(I)).





## 6. Conclusion

This paper has centered around “Johnson died”-type intransitive sentences in English.

I claimed that apparent idiosyncrasy of the stress contour of “Johnson died” could be well explained in the framework of minimal analysis. The proper treatment of personal pronouns was also reconfirmed. My argument suggests that the underlying stress contour of the phrase in general is uniquely determined by its syntactic information.

\*This is a revised version of Endo (1997) written in Japanese. I would like to thank Masayuki Oishi, Kuniya Nasukawa, and James M. Vardaman, Jr., for their insightful comments and suggestions.

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