

Arsalan Kahnemuyipour *The Syntax of Sentential Stress*

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## **1. Introduction**

Sentential stress is one of the most discussed issues in prosodic phonology and the syntax-phonology interface. The book under review is written from a syntactic point of view; based on the minimalist framework, Kahnemuyipour discusses an aspect of prosody, i.e. so-called sentential stress. This book is based on his dissertation, supervised by Diane Massam and submitted to University of Toronto in 2004. Kahnemuyipour has also published a number of papers on syntax and stress in Persian and Niuean (Malayo-Polynesian: Oceanic, coauthored with Diane Massam) including “Syntactic Categories and Persian Stress,” which appeared in *Natural Language and Linguistic Theory* (vol. 21, 2003).

I will present a summary of Kahnemuyipour’s arguments in Section 2; Section 3 is an evaluation of his proposals, and Section 4 concludes the discussion.

## **2. Summary of Kahnemuyipour’s arguments**

This book consists of six chapters: Chapter 1 Setting the Stage, Chapter 2 Sentential Stress: Phonological Accounts, Chapter 3 Sentential Stress: Syntactic Accounts, Chapter 4 Sentential Stress: A Phase-Based Account, Chapter 5 Sentential Stress and Information Structure, and Chapter 6 Conclusions and Implications. I will outline the discussion in each chapter in turn.

Chapter 1 “Setting the Stage” starts with an exposition of the framework in which the author presents his ideas. He assumes the minimalist program (Chomsky 1995 and subsequent work), which uses the notion of phases and multiple spell-out. Syntactic structure

is sent off to PF and LF in a phase-by-phase manner. Following Chomsky (2000), the author assumes that spell-out occurs only at the point of a strong phase (CP and transitive vP) and not at a weak phase (unaccusative/passive vP) (p. 5). He also assumes Kayne's (1994) theory of antisymmetry, which claims that the universal base order is SVO. The SOV order in languages such as Persian is derived by movement of O across V to a specifier position.

In Section 1.4 "Empirical Scope," Kahnemuyipour explains why this book only deals with sentential stress. He argues that sentential stress is different from the stress in syntactic phrases such as the noun phrase (DP) and the verb phrase (VP), the prepositional phrase (PP), the adjective phrase (AdjP) and the adverb phrase (AdvP). He claims that cross-linguistic variation is very limited in sentential stress, but not in phrasal stress. It is always the object that receives stress in SVO/SOV/VSO languages. However, he shows that the stress pattern of the DP in Persian is different from that in English, as shown in (1), where phrasal stress is marked by underlines.

- (1) in do ketaab  
this two book  
'these two books'

In (1) phrasal stress falls on the demonstrative in Persian rather than on the head noun, as it does in English (marked in the translation).

This chapter also includes a summary of the book's main proposals and an outline of the following chapters, which help readers to understand the main ideas of the book.

Chapter 2 "Sentential Stress: Phonological Accounts" is the first half of the author's review of previous studies. He illustrates the Nuclear Stress Rule (NSR) (Chomsky and Halle 1968), metrical grid theory (Halle and Vergnaud 1987) and phrasal phonology (Selkirk 1984; Nespor and Vogel 1986). He argues that the phonological accounts suffer from the overgeneration problem, in that they wrongly predict some stress patterns that are

not attested across languages (p. 26). For example, Halle and Vergnaud’s parameters predict unattested SOV and SOV as well as attested SOV. Kahnemuyipour also points out that the phonological accounts would need to have parameter settings for passive and unaccusative sentences (e.g. *My bike was stolen*) (p. 27).

Chapter 3 “Sentential Stress: Syntactic Accounts” is the second half of the author’s review of the literature on sentential stress. He examines and criticizes previous syntactic analyses by Cinque (1993), Legate (2003) and Zubizarreta (1998). Cinque’s theory of stress can be summarized as “the most deeply embedded element receives stress.” Kahnemuyipour argues that Cinque’s system has a number of problems; I will illustrate some of his arguments here. First, the system depends on the head parameter, which Kahnemuyipour claims is incompatible with the antisymmetric syntax proposed by Kayne (1994). If the head parameter is dispensed with, SOV is derived from SVO via movement. The object cannot be the complement of the verb; thus it cannot be the most deeply embedded element in its final surface position. Second, it predicts correctly that stress falls on adverbs rather than on objects, but only if we assume a different structure from the one Cinque (1999) assumes. For example, Cinque (1993) assumes the right-branching structure for AdvPs shown in (2).

(2) [<sub>IP</sub> They [<sub>I<sub>r</sub></sub> are [<sub>VP</sub> [<sub>V<sub>r</sub></sub> following [<sub>VP</sub> the lecture [<sub>V<sub>r</sub></sub> V [<sub>AdvP</sub> attentively]]]]]]]]

Here, the adverbial is more deeply embedded than the object, and as predicted by Cinque’s system, it receives sentential stress. However, Cinque (1999) proposes that adverbials are preverbal at Merge and that their postverbal surface position is the result of the movement of the lower VP (the verb and its argument) around them. Third, it makes a wrong prediction in cases where the subject DP has more layers of embedding than the predicate, as shown in (3).

(3) [The author of [many popular articles on [the effects of [senescence]]]] [kissed [Mary]]

Fourth, it has problems in explaining Persian stress in a sentence with an adverb and an object as shown in (4).

(4) Subj [Adv Obj V]

Here Cinque's system wrongly predicts that stress falls on the element immediately preceding the verb, i.e. Object. Fifth, it cannot straightforwardly explain unaccusative/passive sentences.

(5) a. (What happened yesterday?) My bike was stolen.

b. (What happened?) The mail arrived.

The stress on the subject in the passive example (5a) and the unaccusative example (5b) is unexpected under Cinque's theory, as the subject does not qualify as the most deeply embedded element in the clause.

Kahnemuyipour also criticizes Legate's (2003) analysis, which claims that a Cinque-style sentence stress rule should apply in a phase-based manner. Thus, Legate's system inherits all the problems raised in Cinque's theory. Moreover, it relies on the sensitivity of the stress rule to the underlying position of elements. Although this sensitivity enables us to explain unaccusative/passive sentences, as Legate argues, it raises a problem with topicalized objects and wh-objects.

(6) a. \* What did John buy?

b. \* Beans, I like. (under the topicalized reading)

Here Legate's system wrongly predicts that the moved element receives stress which is inherited from its copy in the original position.

Kahnemuyipour argues that Zubizarreta's (1998) modularized NSR, consisting of C(onstituent-driven)-NSR and S(election-driven)-NSR, has both conceptual and empirical problems. Conceptually, it has redundancy in explaining certain facts and fails to account for secondary stress. Empirically, sentential stress in Persian is not sentence-final, nor does it fall on an element predicted by the selectionally sensitive S-NSR. In addition, Kahnemuyipour points out that ditransitives in German are also problematic for Zubizarreta's theory.

Chapter 4 “Sentential Stress: A Phase-Based Account” gives a lucid exposition of Kahnemuyipour’s theory. The sentential stress rule he proposes (p. 68) is (7).

(7) Sentential stress is assigned at the phase to the highest phonologically non-null element (i.e. the phonological border) of the spelled out constituent or the SPELLEE.

[<sub>HP</sub> XP [H YP]]: if HP is a phase, YP = SPELLEE

Assuming Kayne’s (1994) universal base hypothesis, Kahnemuyipour derives transitive sentences in English and Persian as in (8) and (9), where a SPELLEE (abbreviated as SP) is boxed and the unpronounced copies of a moved constituent are shown in outlined text.

(8) a. [<sub>CP</sub> C [<sub>TP</sub> T [<sub>VP</sub> John [<sub>v</sub> v [<sub>AspP</sub> Asp [<sub>VP</sub> bought a book]]]]]]

b. [<sub>CP</sub> C [<sub>TP</sub> T [<sub>VP</sub> John [<sub>v</sub> bought+v [<sub>AspP</sub> a book Asp [<sub>VP</sub> bought a book]]]]]] SP 1

(9) a. [<sub>CP</sub> C [<sub>TP</sub> T [<sub>VP</sub> Ali [<sub>v</sub> v [<sub>AspP</sub> Asp [<sub>VP</sub> xarid ye ketaab]]]]]]

Ali bought a book

b. [<sub>CP</sub> C [<sub>TP</sub> T [<sub>VP</sub> Ali [<sub>v</sub> v [<sub>AspP</sub> ye ketaab Asp [<sub>VP</sub> xarid ye ketaab]]]]]] SP 1

Both SVO and SOV languages start with the base order SVO. Kahnemuyipour argues that O moves to the Spec of Asp(ect) in both languages. In SVO languages (8), V moves out of the SPELLEE 1 to incorporate into v. In SOV languages (9), V stays in the base position in the SPELLEE 1. Thus, in both SVO and SOV languages, stress is assigned to O, which is the highest element in the SPELLEE 1, AspP. The word order difference between SVO and SOV languages is explained by the presence or absence of the V-movement to v across the O in the specifier position of Asp.

Note that in both languages Subject also gets sentential stress when the derivation proceeds to spell out TP as the SPELLEE 2, in which Subject is the highest element, as shown in (10).

(10) [<sub>CP</sub> C [<sub>TP</sub> Subj T [<sub>VP</sub> Subj [<sub>v</sub> v ...]]]] SP 2



The contrast between unergative and unaccusative/passive is explained by assuming that only CPs and transitive vPs constitute phases, as Legate (2003) argues. Unaccusative/passive verb phrases are crucially not taken to induce phasal boundaries.

- (12) a. [CP C [TP a boy disappeared]]  
 b. [CP C [TP T [vP John [v' is+v [AspP Asp [vP is laughing]]]]]]

The first phasal head is C, with its complement or SPELLEE being TP. The highest element in the TP domain is the subject, which receives sentence stress (p. 104). Kahnemuyipour's explanation does not rely on the sensitivity of the stress rule to the underlying position of elements, as Legate's (2003) does. Unergative verbs behave like transitive verbs and receive sentence stress as the topmost element in the SPELLEE 1.

Chapter 5 "Sentential Stress and Information Structure" is a discussion of focus and sentential stress. Kahnemuyipour proposes the Focus Stress Rule, which also applies in a phase-based manner (p. 129).

(13) At the phase HP, mark a focused constituent C to receive focus stress.

Kahnemuyipour argues that the Sentential Stress Rule (7) and the Focus Stress Rule (13) apply independently in a phase-based manner and in no particular order (p. 130). For example, they apply to a sentence with focus on Subject and a sentence whose domain of focus is the whole clause, as shown in (14) and (15).

- (14) a. [<sub>FOC</sub> John] kissed Mary.  
 b. John kissed Mary → John kissed Mary  
 FS, SS<sub>2</sub>    SS<sub>1</sub>            1            2

- (15) a. [<sub>FOC</sub> John kissed Mary]  
 b. John kissed Mary → John kissed Mary  
 SS<sub>2</sub>            SS<sub>1</sub>            2            1

In (14), the Sentential Stress Rule applies at the vP phase and the CP phase, and the Focus Stress Rule applies at the CP phase only. Kahnemuyipour argues that an element marked for focus stress receives higher prominence than one marked for sentence stress. He claims that in the broad focus case (15), the Focus Stress Rule fails to mark any constituent for focus stress in the sentence.

Kahnemuyipour tries to solve the classic puzzle of focus in wh-questions: the focus of a wh-question can be considered to be the wh-phrase, which does not receive SS in English (p. 151; see Erteschik-Shir (1986) for a different view in which the wh-phrase is the focus only in echo questions).

- (16) a. What did Hellen review?  
 b. \* What did Hellen review?  
 c. Who reviewed what?  
 d. (I didn't quite catch you!) Who reviewed the book?

Kahnemuyipour suggests that wh-phrases do not receive stress in these languages due to the fact that wh-words move out of the stress position to satisfy a wh-feature, as shown in (16a). Kahnemuyipour also defines a typology of wh-questions based on stress and movement (p. 153).

(17)

Stress \ Move	+	-
+	focus-fronting	wh-in-situ
-	wh-movement	*

In (17), “focus-fronting” means languages with wh-phrases that move to the specifier of a focus position where they also receive the main prominence of the sentence. Persian and Hungarian are such languages; an example from Persian, is shown in (18), where contrastive focus is indicated by capital letters.

(18) Ali KOJAA raft?

Ali where went

‘Where did Ali go?’

Kahnemuyipour also argues that his theory fares better with the empirical facts than Selkirk’s focus projection theory, which he claims has conceptual and empirical problems.

Chapter 6 “Conclusions and Implications” gives a summary of Kahnemuyipour’s proposals and a discussion of the theoretical implications and remaining questions, which include the relation between phases and other phonological/syntactic phenomena.

### **3. Discussion**

The value of a theory can be judged with two questions: How successful is the theory in explaining a broad range of facts? How simple and beautiful is the theory? To answer the first question, Kahnemuyipour’s book is a respectable attempt to explain a lot of facts from a number of languages. Considering the wide variety of languages in the world, the number discussed here is still small, but the book should be highly valued because it has broadened the scope of prosodic analysis to languages other than the Germanic and Romance languages discussed by Zubizarreta (1998). Kahnemuyipour has succeeded in producing a typological study of the syntax-phonology interface by looking at his native Persian and other languages such as Eastern Armenian. Moreover, he discusses most of the sentential stress phenomena that have been analyzed in the literature so far, which include unaccusative/passive sentences, the argument/adjunct distinction and the focus effects on stress. Kahnemuyipour also shows the stress difference between specific and non-specific objects in Persian, which is a new fact in the linguistic interface.

To answer the second question, in its clear presentation of the theory this book is one of the best studies in the field. It is written in the minimalist framework with a number of

well-defined rules and definitions, thus the theory itself has refutability, which is important for the advancement of language science. The theory is fairly simple in that it basically consists of only two rules, the stress assignment rule and the focus stress rule.

This book is very readable, firstly because each section and chapter is preceded by and concluded with a summary of its contents, and secondly because the basic notions of generative syntax and sentential phonology are carefully explained, step by step. The overall structure of the chapters is clear and easy to follow. The only typographical error I found was “is turn” for “in turn” in line 14 on page 51.

The author’s clear presentation of the theory helps me to raise a number of questions about it. First, putting aside the technical details, Kahnemuyipour’s proposals can be summarized as (19) and (20).

(19) Multiple Spell-Out breaks sentences into units, i.e. SPELLEE, which corresponds to a prosodic domain.

(20) In a prosodic domain (SPELLEE), the highest element is assigned sentence stress.

I believe that Kahnemuyipour’s approach is correct in performing prosodic phrasing by (19) as well as sentence stress by (20). However, phase-based phrasing has shortcomings in that it does not explain variable intonational phrasing, which can divide a sentence into smaller units than a phase unit, IP or AspP (cf. Tokizaki 2005, 2008).

(21) a. # We don’t want any #

b. # We # don’t # want # any #

In (21b) each word has a sentential stress although there are only CP and vP phases that only give sentence stress on *we* and *any*.

Second, the most striking point of the author’s theory is that sentence stress is assigned to the leftmost/topmost element in a unit. This is contrary to the traditional idea of stress theories, which assumes that sentential stress is on the rightmost/lowest element in a

prosodic unit. Analysis of SOV languages such as Persian seems to lead the author to his novel idea about stress assignment. However, this idea can only give the right result if the complement receiving sentence stress moves to the specifier position of a SPELLEE. As we have seen in (8) and (9), Kahnemuyipour argues that this complement-movement takes place both in SVO and SOV languages. Kratzer and Selkirk (2007) question whether the object movement to AspP obligatorily applies to all objects and PPs (cf. Ortega-Santos 2010). Moreover, in the case of head-initial languages such as English, the head must move to the next higher phase in order to get the head-complement order, i.e. VO. The motivation for these movements needs to be shown independently of the stress facts.

Third, the range of Kahnemuyipour's study is limited to sentential stress. It does not include other phrasal stress such as stress in VP, NP, PP, etc. He argues that "the system governing sentential stress may be different from that of lower phrasal levels" (p. 11). However, this limitation of the research may miss important generalizations among categories, which can be captured by Cinque's (1993) theory, if we assume a sentence is an IP. Do we want to go back to the age before X-bar theory when sentences (S) were treated differently from phrases (XP), e.g. exocentric construction vs. endocentric construction? I raise this question because Kahnemuyipour's argument for dividing sentence stress from phrasal stress is based only on the stress pattern in DP in Persian. As we saw in (1), Kahnemuyipour argues that in DP the stress falls on the demonstrative rather than on the head noun, e.g. *in do ketaab* "these two books." However, Lazard (1992: 42) observes that "in nominal phrases the main (or the unique) stress falls on the last stressed element," e.g. *dar ân ruzhâ* "in those days"; *modir-e madrese* "the director of the school." He also observes that "in phrases formed of a noun with a preposed numeral, demonstrative, indefinite determiner, etc., the main (unique) stress may fall on the first element," e.g. *do nafar* "two people" (but *do nafar* "the two people"); *in madrese* "this school." Then, the stress on the demonstrative in

(1) may be due to the focus on a deictic word. Kahnemuyipour himself notes (p. 11) that “some speakers report equal stress on the demonstrative and the head noun.” He needs to show more data than is presented in the book in order to convince readers of the difference between sentential stress and phrasal stress.

## **5. Conclusion**

Since the minimalist program became the main research guideline for generative linguists, the syntax-phonology interface has attracted their attention. We now have phoneticians, phonologists, syntacticians, and psycholinguists working in the field of interface. This is a welcome situation for linguistics because one of the goals of linguistic theory is to explore the relation between sound and form. I hope that the book under review will be read by a wide range of linguists and become a touchstone for our future research on the linguistic interface.

If you are a phonologist, this book will give you an idea of how your field is related to recent developments in generative syntax; if you are a pure syntactician, it will provide a good introduction to the current topics in the syntax-phonology interface; and if you are a researcher of linguistic interfaces, this book is a must.

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