

SOME REMARKS ON THE STABILITY OF LEXICAL STRESS
IN POLISH AND ENGLISH*

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In this paper I will try to account for the phenomenon of lexical stress shift in two sound systems that differ quite considerably as to their use of stress. Lexical stress in English has a phonemic function (it is non-fixed) whereas in Polish it is basically penultimate, thus it is never phonemic. However, the lexical stress systems of both languages show a certain degree of instability. Thus the stress can be shifted within the lexical item, and in specific constructions it can fall on the syllable which is never stressed when the word is pronounced in isolation.

It will be argued that in English the shift of lexical stress in constructions like:

I am talking about CONFirmation not about AFFirmation

is the case of so-called "hypostasis" (see Pike 1967: 63, 102, 107-8, 132, 292, 454, 484). This particular case may be called "focussing hypostasis" — language is used to probe itself rather than some other part of reality.

In Polish, on the other hand, the shift of stress:

Cheialbym podkreślić ważność komunikacji SAMochodowej.

is the case of emphasis, i.e., the shift of stress crucially contributes to the semantic interpretation of the sentence.

It will be suggested that the difference in the function of the phenomenon of stress shift in both languages follows from the differences in the two sound systems. Thus the relative (in comparison with English) instability of Polish stress is the result of the fact that in non-emphatic conditions Polish stress

* I would like to thank prof. Jacek Fisiak, Nick Clements and Bob Marek for comments on an earlier version of this paper.

does not contribute to the differentiation of meaning (it marks neither morphological nor syntactic categories). Hence when we want to emphasize some word in Polish we have two options to choose from:

1. we put an extra prominence on the lexically stressed syllable

...samochoDOWej...

2. we shift the stress

...SAmochoDOWej...

In English only the first option is used for emphatic purposes whereas the second is much more restricted and can be used only in these cases which have been labelled "hypostasis".

Finally I will attempt a formalization of the processes of stress shift in both languages. The thing that I will be looking for in my description is its explicitness. A generative grammar is one that is fully explicit. This means that the reader of the grammar is not required to use any knowledge of the language being described or any intelligent guesswork in determining what the grammar says about any given sentence — whether or not it is well formed and, if so, what its analysis is at all levels. The particular kind of generative grammar that will be used in this paper is "autosegmental phonology". Autosegmental phonology has been devised recently (Goldsmith 1974, 1976) partly as a result of a growing dissatisfaction of linguists: "first, because no totally satisfactory theory of suprasegmentals has been proposed in any framework yet, and secondly, because even the rudiments of a successful theory of suprasegmentals is not to be found in generative phonology" (Goldsmith 1976 : 26).

As it is the suprasegmental phenomena that I am dealing with, I will try to check what predictions the autosegmental approach allows me to make in this limited analysis.

PART I. SOME OBSERVATIONS ON THE LEXICAL STRESS SHIFT IN POLISH AND ENGLISH

A. THE DIFFERENCES BETWEEN POLISH AND ENGLISH STRESS

Jassem (1959 : 253) introduces the concept of stress in the following way: "Stress is a phonologically relevant feature, or a relevant set of mutually exclusive and complementary features, of a syllable which marks the syllable as "stressed" (if present) or "unstressed" (if absent) in the morphologic and syntactic system of the language." This statement, which I find representa-

tive of many recent presentations of stress, makes it apparent that stress can be defined in basically two ways: first, in terms of its phonetic properties; second in terms of its linguistic function. I will return to the phonetic properties of stress in both languages in the second part of this paper.

The differences between stress in Polish and English is transparent when we look at the function of it in both languages. The major distinction that runs among stress systems is that between free vs. fixed stress. In the first group (free stress systems), prominence can occur on different syllable, pending on the word. In English we have the following pairs of words:

pérvert	—	pervért
éxport	—	expórt
cónvict	—	convíct
cómbine	—	combíne

Since stress can occur on the first syllable in one word but on the second in another, stress is said to be phonemic in English, i.e., it performs an important function of differentiating these lexical items. It also has syntactic function: "A combination" "primary plus primary" contrasts with "primary plus secondary"

móving ván — móving vàn

in the former one syntagmeme qualifying the other as to the feature, and in the other as to purpose". (Jassem 1959 : 254).

In Polish, on the other hand, stress has no morphologic or syntactic function: its position is fixed and has been generally characterised in the following way:

- a) disyllables and trisyllables have stress on the penult
- b) quadrisyllables and words of more than four syllables have "primary" stress on the penult and "secondary" stress on the first syllable.

Exceptions may be found in any full description of Polish grammar or phonology.

Thus it has been generally assumed that the only linguistic function that the stress has in Polish is that of "delimitation", i.e., it usually signals the end of a word.

The purpose of this paper is to account for differences in the stability of stress in these two systems. A measure of the stability of stress position is how readily it yields to pressures to move it somewhere else. My analysis will be quite limited for two reasons:

- I will consider the position of lexical stress only
- Only one type of pressure to move the stress, which I will call "emphatic conditions" or "contrastive stress" will be paid greater attention to.

B. STRESS SHIFT IN ENGLISH¹

Although English words withstand the pressures to move the stress pretty strongly, the position of the stress is not absolute. This position can be affected when two or more items are contrasted and a preference indicated for some member or members of the group. Consider the following examples:

- (1) This whiskey was not EXported from Ireland, it was DEported.
- (2) It isn't what you PREtend, it's what you INTend.
- (3) The book refers to CYtology, not to HISTology.
- (4) I would call that legal action PERsecution, not PROsecution.
- (5) Which kind of compound is it, sulFATE or sulFITE?
- (6) You may DETain them but don't RETain them.
- (7) The phenomenon we are noting may be called the relationship between length and UNfamiliarity, or between condensation and FAMilarity (or even faMiliarity).
- (8) I am talking about CONfirmation not about AFFirmation.
- (9) I didn't say CONvert, I said DIvert.
- (10) I meant albuMEN, not albuMIN.
- (11) First we have to persuade our patient that he is a stalagMITE not a stalacTITE.
- (12) Favour foods that are DIgestible — avoid those that are INDigestible.
- (13) On the one hand you have the densest UNintelligibility and on the other the clearest INTelligibility (or inTElligibility).

From the above mentioned examples it is evident that there is no obvious structure or direction that can be attributed to the phenomenon of stress shift in these cases. It can move to the left (the majority of cases), but it can also move to the right as in (5), (10) and (11). It is usually shifted to the strong syllable, but as in (2), (6), (9), (10) it can appear on the syllable that in normal pronunciation has a reduced vowel. It can also shift over one, two or even three syllables from its usual place. I will try to group these examples into classes that have something in common.

I

Sentences (1), (2), (4), (6), (8), (9), and (12) show that when everything except the prefix is identical, it is the prefix that will get extra prominence. The large number of functionally active prefixes in English makes the phenomenon of leftward stress shift rather lively:

replace — displace
 transplant — implant
 reprint — imprint
 consent — assent — dissent etc.

¹ Most of the material presented in this section is taken from Bolinger (1961).

Though the independent meaning of these prefixes is difficult to establish they are still able to serve as differentiating elements.

II

In sentences (7), (12), (13) affirmative and negative of the same concept are contrasted. This process is no less lively than that in I., due to productive prefixes:

anti-, un-, in-, ir-, pre-, non-,

which have meanings that easily lend themselves to contrast. As we see from (7) and (13) the place on which the contrastive stress will appear is not as fixed as in I. Thus we have:

in (7) FAMilarity or faMiliarity contrasted with UNfamiliarity

in (13) INTelligibility or inTElligibility — UNintelligibility

It is also possible that only one member of the opposition is contrastively stressed, usually the negative. Our example:

(12) Favour foods that are DIgestible — avoid those that are INDigestible. if its coordinate elements are changed can be pronounced as

(12a) Avoid foods that are indiGEstible — favour those that are DIgestible. if saying one member of the opposition the speaker has not yet established the contrast. If contrast had been established, and there had been a shift in the first word, there might or might not have been a shift in the second member of the pair. The simplest situation obtains when the member of the pair that has the distinctive syllable comes last:

(12b) Favour foods that are diGEstible — avoid those that are INDigestible.

III

There seem to be no restrictions to the shift of stress if the differentiating syllable is strong. The stress can go both to the left as in (1), (3), (4), etc., and also to the right (5), (11). The relatively small number of examples of the second type is due to the fact that there are few English words ending with a full vowel. It is also conditioned by the fact that suffixes are much less productive than prefixes in English.²

IV

The situation is much more complicated in the cases where the differentiating syllable is weak. When this syllable is to the left of the lexical stress, the shift is usually possible:

(2) It isn't what you PREtend, it's what you INTend.

(9) I didn't say CONvert, I said DIvert.

² -less and -ful constitute possible exceptions — cf. Bolinger (1961: 109).

However this would not be possible if the contrasted units were pronounced with their reduced vowel:

It isn't what you 'p'tend, it's what you i'n't end
I didn't say [kénvə : t], I said [dévə:t].

The stress shift can be performed only if the vowel retains its full quality. J.H.D. Allen, Jr. (1956 : 252) calls these "reconstituted vowels"; Bolinger (1958) treats these as cases of spelling pronunciation. I do not find Bolinger's explanation particularly convincing (though it accounts for (9) nicely) as many languages do not have any spelling system and still have means of expressing contrast by means of "reconstituted vowels". I would not be surprised if these reconstituted vowels were comparable to the underlying representations (systematic phonemes) of various generative descriptions.³ Generative phonology could easily explain this situation by ordering the stress rule before vowel reduction.

Coming back to contrastive stress on weak syllables, we observe that in words where weak syllables after the normal position of the stress are the only contrasting elements, we do not as a rule shift the stress. The only example where the stress has been shifted is:

(10) I mean albuMEN, not albuMIN.

which I found in Bolinger (1961). Bolinger was not sure himself if the stress was shifted in this case. He summarised the situation in the following way: "If it appears that we can make our point by going almost the limit, we may shift. The limit would be to spell the words out". (1961 : 111).

In the sentences:

(14) Did you say adventurous or adventuresome?

(15) Would you rather be reverend or reverent?

(16) The word I used was not regiment but regimen!

the stress is not shifted (Bolinger's judgement). The contrast is brought about by other means. In (16) we can exaggerate the release of [t]: [rédzimnt^h]. In (15) the contrast can be established by releasing [t] in [révərənt^h] and fully voicing [d] in [révərənd].

The phenomenon of stress shift is not a recent one and it has left many traces in the English sound system. A permanent shift of stress has been observed in a number of pairs of words whose members are more often encountered together than separately. Thus:

rétail	coupled with	whólesale
éxtroverted	with	íntroverted
éxhale	with	ínhale

³ Cf. SPE on the similarities between English spelling and underlying representation.

The stress is also shifted in the names of nationalities that end with -ese. One sometimes hears: Pórtugese, Chínese, Jápanese (especially in parallel structures). There is also a large number of wavering pairs of the type:

outside — inside
outdoors — indoors
upgrade — downgrade

where the shift has not been established yet, but speakers are very likely to shift stress when they have the opposite at the back of their minds.

In the preceding sections I noted the various similarities between the examples quoted at the beginning. Still I did not note the striking similarity between all of them. Examples from (1) to (13) exhibit the same structure. This structure which Chomsky (1971 : 205) called "parallel construction" caused many problems for linguistic theory. What is so troublesome about these "parallel constructions" is the fact that:

"In most examples of this type the contrast being made is phonological rather than semantic, in that the speaker is trying to correct the hearer's mistaken impression of what words were just said". (Jackendoff 1972 : 242).

This shifted, contrastive, stress is not "phonemic" in the sense that shifting stress to some other syllable will not change its meaning, causing it to point to something completely different in the world beyond language. Thus the shift from normal [expórt]j to contrastive EXport in:

(1) This whiskey was not EXported from Ireland, it was DEported.

does not contribute to the change of the lexical category of the item which is contrastively stressed. The shifting of stress does not contribute anything to the semantic interpretation of the sentence either. The cases where the language is used to probe itself rather than some other part of reality have been called "hypostasis". The non-semantic character of hypostasis is very troublesome for generative grammar, which, as any other grammatical system, attempts at providing the correspondence between sound and meaning, and also pertains to describe the linguistic competence of a speaker hearer. If hypostasis is non-semantic then it should be excluded from such a grammar, but if grammar is required to describe competence adequately hypostasis must be included, since "parallel constructions" form an active part of language. Jackendoff (1972 : 242) summarised this problem in the following way:

"There seem to be three alternatives: first, accounting for these cases with an entirely different rule; second, extending the Emphatic Stress Rule to these cases; third, calling these cases ungrammatical but necessary to say sometimes, and hence derivatively generated by a temporary weakening of the conditions on the Emphatic Stress Rule."

This problem is interesting, however, the discussion of it would lead us too far afield.

I would not like to leave the impression that hypostasis is the only case which determines the shift of lexical stress in English. Bolinger (1972 : 643) observes:

"In excitedly emphatic speech the pressure toward the right frequently interferes with the lexical stresses of the words that fall there. I have recorded dozens of examples:

They will follow up their enthusiásm.
I found great enthusiásm.
They center around the sacrament of baptísm.
This altered the program somewhát.
That's where the more tars and nicotínes are."

As these cases are due to intonation they will not be accounted for in this preliminary discussion. For the moment we state that the shift of lexical stress is due to "hypostasis" in English.

C. STRESS SHIFT IN POLISH

As in English, "hypostasis" is fairly common in Polish. Thus similarly to the examples of I. in section B., we find the cases of "hypostasis" in Polish where two prefixes are counterbalanced:

- (1) Nie chciałem go PRZEgadać, chciałem mu PRZYgadać.
- (2) Prosiłem o ODpowiedź, nie o PODpowiedź.
- (3) Ten facet to nie INTrowertyk, to EKStrawertyk.
- (4) Nie wystarczy ZAróbć, problem to się DOróbć.
- (5) Dowody się PRZEprowadza, nie WYprowadza.

If everything but the prefix is identical then the contrastive stress falls on the prefix. The high frequency of productive prefixes in Polish creates the possibility of shifting.

When the negative and the affirmative of the same concept are contrasted the stress is liable to shift as well:

- (6) Mówiłem, że to jest WARtościowe (warTOściowe), nie NIEwartościowe.
- (7) Ten pies nie jest NIEspokojny, jest bardzo SPOkojny (spoKOjny).
- (8) Źle mnie zrozumiałeś; nie byłem NIEzadowolony, mówiłem już wtedy, że jestem ZAdowolony (zaDOwolony).

The situation here is exactly like that encountered in English.

The stress can be shifted to the left when the differentiating syllable precedes the penult. (1) to (5) exemplify the shift to the first syllable. Many more come to mind:

- (9) Ja zajmuję się HISTologią, nie PSYchologią.
- (10) Nauka o której mówimy to ANdragogika, nie PEdagogika.

It can also appear on the second syllable:

- (9a) Ja się zajmuję histTOlogią, nie psyCHologią.
- (10a) Nauka o której mówimy to anDRAgogika, nie peDAgogika.
- (11) Chciałem powiedzieć, że to, co Nixon wniósł do polityki, to nie rozWinięta demokracja, lecz rozMInięta demokracja.
- (12) Nie mówiłem zaMIErzony, tylko zaWIERzony.

The stress can also be shifted to the right. I have recorded the following "parallel constructions":

- (13) A więc śpiewajcie studenci uniwersyteTU, awueFU, waTU i wuesWU.

This is the final line of the popular song "Student żebrak ale pan". This instance of hypostasis does not aim at bringing about the differences between heavily stressed syllables but points to the similarity among them.⁴ The other examples of rightwards shifted stress are the following:

- (14) Nazywam się karGOL, nie karGÓL.
- (14) was pronounced by one of my students when I mispronounced her name.
- (15) Moje nazwisko FiSIAK.

(15) Was produced by the editor of this journal while making a telephone call. Examples (1) to (15) all point out that the speakers may shift stress to any syllable when they want to correct a misinterpretation or even when they anticipate a possible misinterpretation.

Polish has also many pairs of words which more often than not appear together and have undergone a permanent shift of stress:

SOcjalizm	—	KApitalizm
EKSpresjonizm	—	IMpresjonizm
DEdukcja	—	INdukcja etc.

However, initial stress in Polish is not limited to the "parallel constructions" exclusively. Consider the following examples:

- (16) Chciałbym podkreślić ważność komunikacji SAmochodowej.
- (17) Należy zwracać uwagę na Ideologiczne wartości kształcenia.
- (18) ARtystyczna zabudowa plakatu jest tym, czego poszukuję.
- (19) Wzmóżona działalność DEMagogiczna po śmierci Mao...

⁴ Chomsky (1971 : 205) quoted similar example:

(72) John is neither easy to please, nor eager to please, nor certain to please, nor inclined to please, nor happy to please, ...

- (20) SPOkojniejsza starość to to, co nasz dom zapewnia.
 (21) Tego typu zachowanie jest po prostu NIEdopuszczalne.

Examples (16) to (21) do not have anything that they are contrasted with. My interpretation of this case of the shift of stress is that the initial stress signals the special semantic quality of the items that bear it. It is not the morphological structure of that item that we are focussing our attention on (like in the case of "hypostasis") but its special semantic value within the sentence. Examples (16)–(21) are the cases of what has been usually called emphasis. Summarising this observation it is claimed that initial stress is a case of emphasis in Polish.

There are a few lexical items in Polish that are almost always emphasized when they appear in sentences. An example of this may be "fasyzm" (lexical stress on the first syllable) the derivatives of which will almost always have an initial stress:

FAszystowski
 FAszyzujące etc.

If we review Polish political speeches we are likely to find that lexical items like: polityka, gospodarka, społeczeństwo, ideologia, and their derivatives are more often than not initially stressed. Similarly, I do not think it would be an exaggeration to say that hardly any Pole participating in this conference has the main stress on the penultimate in words like: językoznawstwo, fonologia, fonetyka, etc.

The assumption that strong initial stress in Polish marks emphasis, causes difficulty in interpreting the initial cases of "hypostasis": examples (1) to (8) p. 70. In these cases the distinction between emphasis seems to be blurred. I would not be able to decide for sure if the presence of extra prominence on the initial syllable in (1) to (8) causes the reinterpretation of the meaning of the whole sentence (emphasis) or not (hypostasis). I will return to this problem in Part II — section D.

D. ENGLISH AND POLISH STRESS IN CONTRAST

Pulling together the results of this preliminary discussion we can draw the following conclusions:

1. The position of lexical stresses is absolute neither in Polish nor in English.
- 2.a) In English stress can be shifted to any syllable in "parallel constructions" if this is the only syllable which establishes the contrast between the counterbalanced lexical items. The shift of stress within a lexical item contributes nothing to the semantic interpretation of a sentence within which this lexical item is encountered.

2.b) In "parallel constructions" in Polish stress may be shifted to any syllable which differentiates the lexical items which are being counterbalanced. Such a shift of stress contributes nothing to the semantic interpretation of a "parallel construction".

3. In Polish if the stress is shifted from its normal position (the penult) to the initial syllable it crucially contributes to the semantic interpretation of a sentence in which this item is encountered.

4. Lexical stress in English shows a much greater degree of stability than lexical stress in Polish (due to 3).

A tentative explanation of 4. might be that English lexical stress is already phonemic, whereas Polish lexical stress has not such a function. As the primary function of stress is to mean contrast, the Polish speaker can use this function in some specific conditions. In the case of Polish lexical stress these conditions may be labelled "emphatic". The behavior of lexical stress "under emphatic conditions" in both languages can be summarised in the following way:

English: extra prominence is placed on the syllable marked by primary stress.

Polish: 1) extra prominence is placed on the penult, the syllable marked by primary stress.

2) in quadrisyllabic words and words containing more than four syllables extra prominence may be placed on the initial syllable.

The factors determining the shift of lexical stress in both languages may be so strong that they cause a permanent shift of stress.

This is what is going on in the languages. A requirement of explicit grammar is that specific rules be formulated. Providing such explicit rules in the framework of generative phonology of the sixties and early seventies would mean struggling with the obvious inadequacies of that descriptive framework. What I mean to say is that generative phonology of the SPE type did not create even the rudiments of a successful theory of suprasegmentals. Its incompatibility with the phenomena discussed in this paper has been acknowledged generally.⁵ Recently a new approach has been proposed, which, among other things, claims to provide an explicit analysis of suprasegmental phenomena, within a slightly modified generative framework. I will try to test this new hypothesis on the data sketched in Part I. Finally a tentative account of emphatic stress will be presented with the use of this new theory.

Since the publications concerning the theory of autosegmental phonology are not easily accessible yet, I will start by summarizing its more important assumptions.

⁵ Cf. Halle (1973), Liberman (1975), Marek (1975).

PART II. AUTOSEGMENTAL INDEX OF EMPHASIS

A. AUTOSEGMENTAL PHONOLOGY - BASIC ASSUMPTIONS

Autosegmental phonology is a particular theory of phonological representations which claims that this type of representation does not consist of one linear string of feature bundles. Phonological representation contains several concurrent levels of structure, each consisting of a string of single-column matrices called subsegments or autosegments. This theory has recently been developed for the generative treatment of suprasegmental phenomena. "It is an interesting realization that the formalism of generative phonology is insufficient, and that a multi-linear geometry is needed to deal with what traditionally have been called suprasegmentals." (Goldsmith 1976 : 274 - 5).

Autosegmental theory is a suprasegmental theory in a sense that it recognizes some features as having the domains longer (or shorter) than a segment (a systematic phoneme, for instance). Thus together with other suprasegmental theories it states that: "...the pitch melody of a word or phrase constitutes an independent linguistic level" (Goldsmith 1974 : 172). In contrast to other suprasegmental theories autosegmental phonology claims that each level of this multi-level representation consists of full-fledged segments in their own right, which never lose their identity throughout the derivation. Hence the names: autosegment, autosegmental tier and autosegmental phonology.

The immediate consequences of this are:

- a) in tone languages "...there are two simultaneous segmentations of the phonological representation: there is one string of non-tonal (standard) segments, and one (parallel) string of tone segments, or tonemes." (Goldsmith 1974 : 172).⁶
- b) in languages exhibiting vowel harmony the two segmentations will be: standard representation, and (parallel) string of harmony determining features. (cf. Clements 1976).
- c) in languages where nasalization is suprasegmental (autosegmental) the segmentations will be: standard representation, and (parallel) string of "velic closure" specifications. (cf. Leben 1973; Goldsmith 1976).

Formally these will be represented:

- a) C V C V — syllabic tier
L H — tonological tier
- b) C V C V — syllabic tier
±ATR ±ATR — autosegmentalised Tongue Root tier

⁶ The same is incidentally true of all natural languages — cf. Goldsmith (1974, 1975), Liberman (1975).

- c) C V C V — syllabic tier
O N — autosegmentalised nasalization tier

The autosegments of related levels are formally associated with each other by convention. In case (a) when the syllabic tier is associated with the tonological tier the convention reads as follows:

Well-Formedness Condition

1. All tones must be associated with some syllable and all syllables must be associated with some tone.
 2. Association lines may not cross. (cf. Goldsmith 1976 : 216).
- This convention has two functions:
- a) that of defining a set of well-formed associations;
 - b) that of monitoring the well-formedness of representations through the course of a derivation.

As a result every rule application has a unique output, and every derived representation has an unambiguous interpretation with respect to subsequent rule applications and to phonetic interpretation.

The application of this Well-Formedness Condition to various suprasegmental phenomena has produced very promising results (on tone, accent and nasalization cf. Goldsmith 1974, 1976; on intonation cf. Liberman 1975; on vowel harmony cf. Clements 1976). The theoretical implications of autosegmental phonology are no less interesting.⁷ Now I will try to use this theory to interpret some of the findings of Part I of this paper.

B. AUTOSEGMENTAL ANALYSIS OF POLISH AND ENGLISH WORD ACCENT

Throughout Part I. I have been using the term "stress" without providing any phonetic definition of what this term means. In this section, after Bolinger (1958) and Jassem (1959), I will refer to the melodic pattern of Polish and English words as "accent". Thus I want to stress the fact that pitch extrusion (rather than loudness or intensity) is the main clue to establishing which syllable is given an extra prominence.

I assume after Goldsmith that the tone melody for English words spoken in isolation (under neutral intonation) is:

H L or M H L

The corresponding tone melody for Polish words is:

H L — for mono and disyllabic words

⁷ I lack space to present them here. The interested reader should consult Goldsmith (1976 : 264 - 275).

M H L — for trisyllabic words

H M H L — for quadrisyllabic words and those containing more than four syllables.⁸

Both Polish and English are accentual, i. e. they distinguish one syllable as perceptually prominent. Autosegmental phonology will mark this prominent syllable with an abstract mark: a star (*). The assignment of the star is accomplished by the following rules:

English.

$$V \rightarrow * / _ Q(VC_0(+y)) \# \#$$

Condition: $Q \neq [+stress]$

(cf. Halle 1973)

Polish.

$$V \rightarrow * / _ (C_0V)C_0 \# \#$$

But placing the star on some syllable does not constitute a word melody. The second thing is to provide rules that will associate tonological and syllabic tiers of autosegmental representation. This association may be carried out in the following way in English:

$$\text{Rule 1. } \hat{V} \approx \hat{T} \quad (\text{"}\approx\text{" means "is associated with"})$$

$$\quad \quad \quad (\text{"T" means "toneme"})$$

The melody for English neutral declarative intonation is — H L — or — M H L. The star (accent) is on the H — cf. Goldsmith (1974 : 174) Leben (1976 : 74). Thus rule 1 for this melody will be:

$$\hat{V} \approx \hat{H}$$

The association will precede:

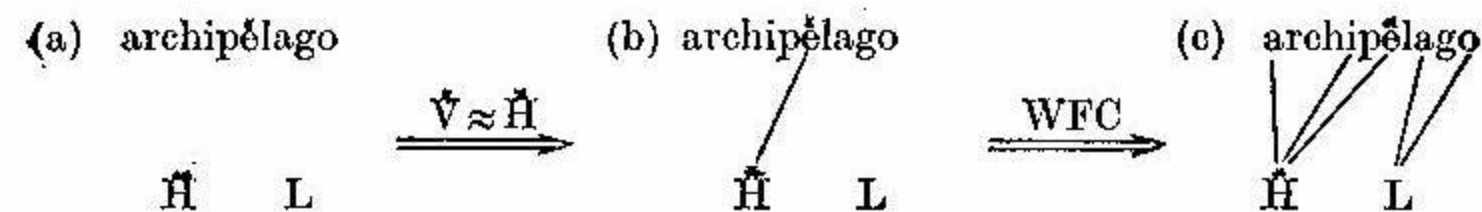
$$\begin{array}{cccccc} C & V & C & \hat{V} & C & V \\ \downarrow & & & & & \\ M & & & & & \\ \downarrow & & & & & \\ \hat{V} & \approx & \hat{H} & & & \end{array} \xrightarrow{\text{Rule 1}} \begin{array}{cccccc} C & V & C & \hat{V} & C & V \\ & & & \downarrow & & \\ & & & \hat{H} & & \\ \downarrow & & & & & \\ M & & & & & L \end{array}$$

The WFCondition will associate M and L tones producing:

$$\begin{array}{cccccc} C & V & C & \hat{V} & C & V \\ | & & | & & | & \\ M & & \hat{H} & & L & \end{array}$$

⁸ This is my tentative interpretation of the phonetic findings presented in Jassem (1959).

Taking a real word like "archipelago" we get the following derivation — cf. Goldsmith (1976: 215 - 17):



(c) satisfies the WF Condition, but so do (d) and (e)



While (d) contains (c) in itself, as it is not the minimal way to fulfill the WFCondition, it is ruled out by the evaluation metric. (e) on the other hand, while not violating the WFCondition is still an incorrect derivation. To capture this we must make reference to the star; for (e) would have been the correct structure, had the star been on the fourth syllable rather than the third. Goldsmith (1976 : 216) suggested emending the WFCondition in accentual systems in the following way:

(2) "Given ambiguity in ways to fulfill the Well-Formedness Condition, do not reassociate a starred segment."⁹

This buys us two things: firstly, it secures the function of the star (*) as indicating prominence, or accent; secondly, the more general the WFCondition is, the less language specific rules are necessary, and the autosegmental phonology as a theory of wellformedness of linguistic structures makes more sense. I shall call the WFCondition with (2) a strong version of WFCondition in accentual systems.

Turning to Polish we observe that Polish is accentual, exhibiting the major pitch extrusion in accordance with the following rule:

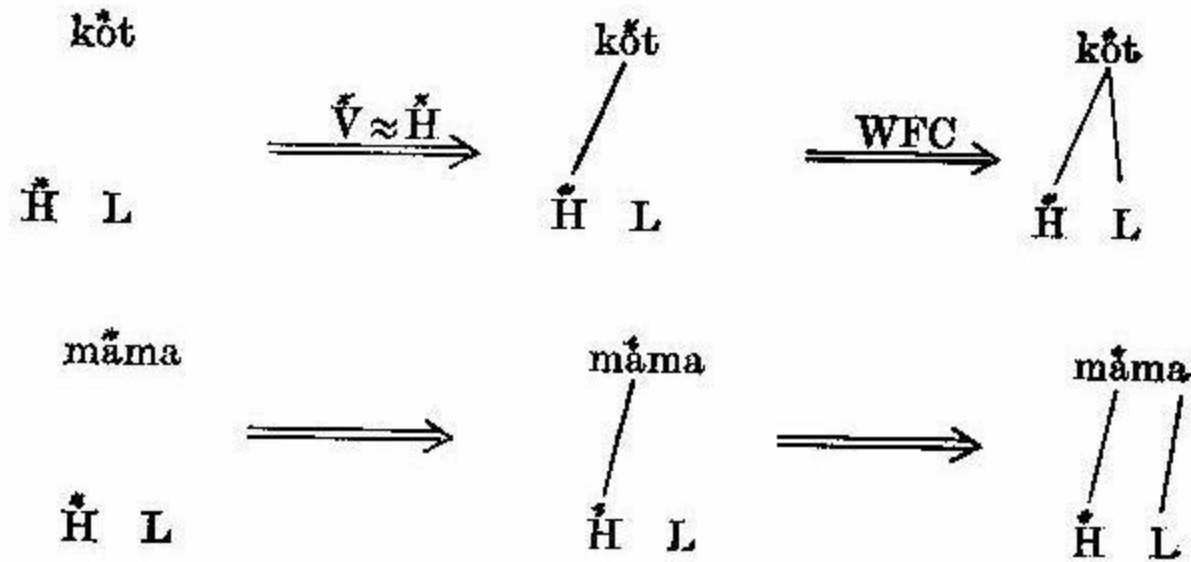
$$V \rightarrow * / _ (C_0V)C_0 \# \#$$

Under neutral declarative intonation the star is on the High, followed by Low and the word boundary. Polish words are characterised by the following melodies:

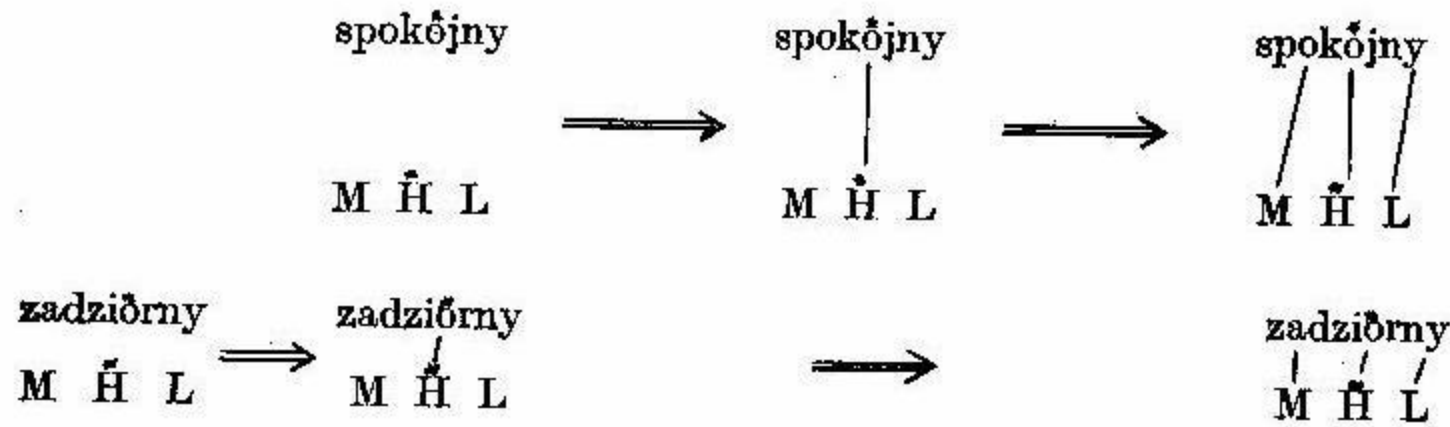
(a) in mono and disyllabic words — $\hat{H} L$ — illustrated by derivations like:

⁹ Clements in his work on vowel harmony found that this condition should be more general:

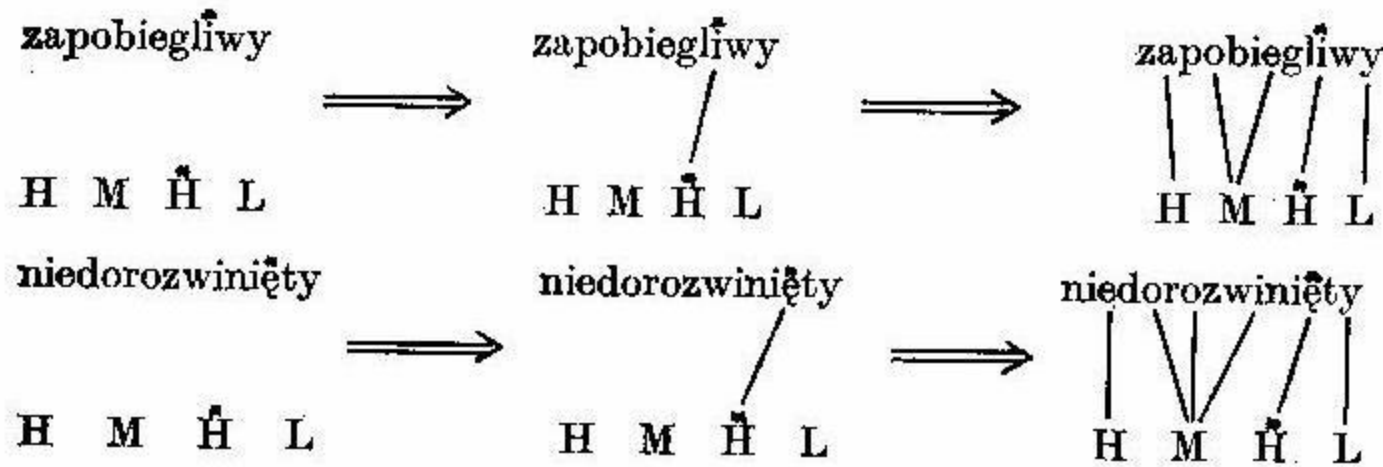
"WFCondition requires unbound autosegments to take priority over bound autosegments".



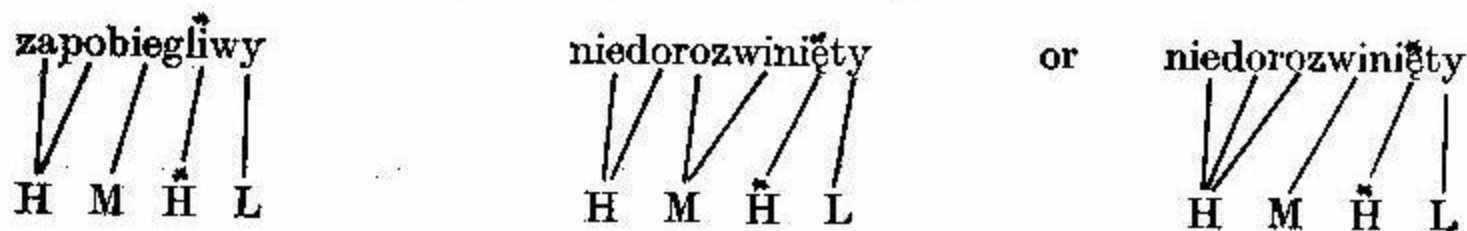
(b) in trisyllabic words the melody is: M H L



(c) in quadrisyllabic words and words containing more than four syllables the melody is — H M H̄ L — illustrated by the following associations:



Notice, however, that even the strong version of the Well-Formedness Condition may not rule out deviant associations like:



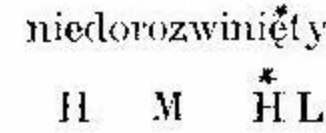
I propose to wriggle out of this problem by suggesting that after the melodic association rule:

Rule 1. $\check{V} \approx \check{H}$

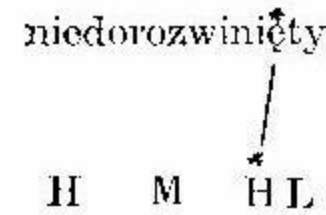
we develop the tone melody for Polish words that contain more than four syllables according to the strong version of the WFCondition:

- (1) All tones must be associated with some syllable and all syllables must be associated with some tone.
- (2) Association lines may not cross.
- (3) Unbound (unassociated) autosegments take priority over bound (associated) autosegments.

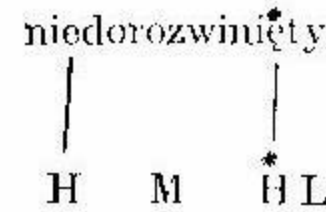
by matching the tones up with the syllables one-to-one starting from the left. I will exemplify this by repeating the association of "niedorozwinięty":



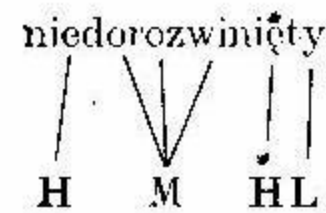
Rule 1. $\check{V} \approx \check{H}$



Rule 2. (left to right spreading) $V \approx T / \neq X \begin{matrix} V \\ T \end{matrix}$

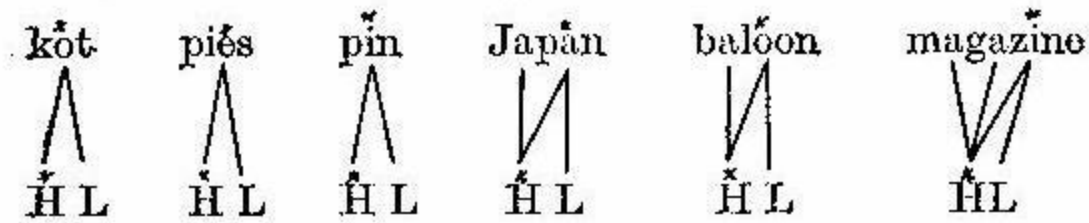


WF Condition

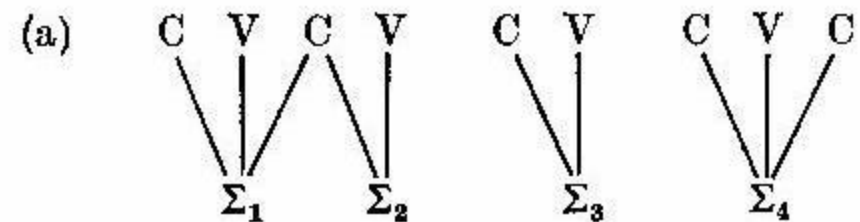


In this section I have illustrated the first function of the Well-Formedness Condition, i.e., that of defining the set of well-formed association. Moreover, I hope to have presented arguments that autosegmental analysis has clarified the insights of Bolinger (1958) and Jassem (1959), that accented syllables in Polish and English are manifested as pitch extrusions, either up or down.

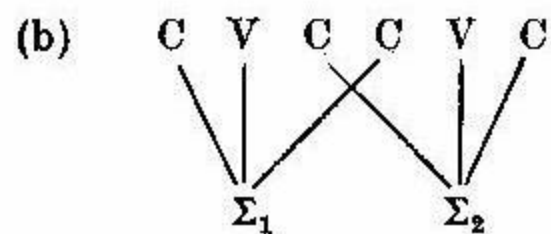
Furthermore the autosegmental analysis of word accent given above specifies that extrusions are essentially level in tone, except in the cases when the main accent is word final, in which case the WFC will create a gliding tone:



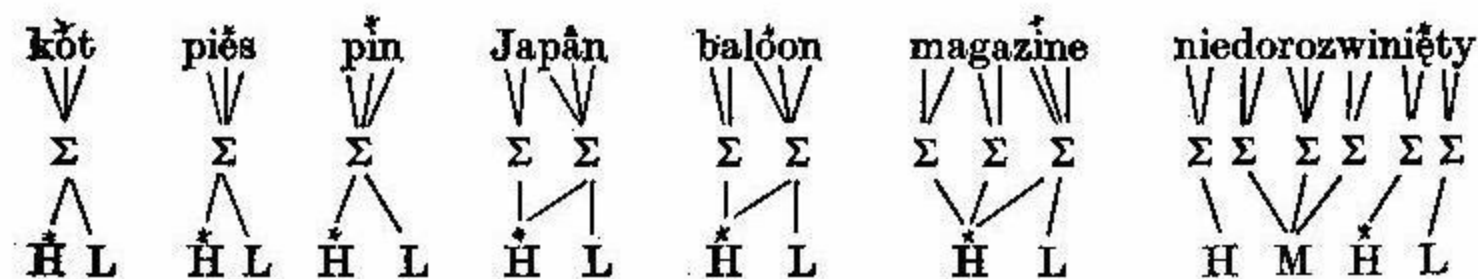
Another interesting aspect of the WFC is the way in which it describes syllables. The syllable has always created problems for linguistic theory. Many schools have not been able to provide adequate definitions of it, and Generative Phonology ignored it completely. In non-linear generative phonology the syllable may be considered an autosegmental level. The string of C and V segments can be broken into an autosegmental representation where the second tier is composed of syllables:



The WFC permits structures like (a) but not like (b):



All segments occur in at least one syllable. It is not only the formalism that is an advantage of this system. However, I can not go into the details of this interesting discussion — cf. Goldsmith (1976: 6-9). Syllabic tier will be necessary in the account of the emphatic stress in sentences which have been presented in Part I of this paper. Anticipating that, and in order to avoid formal incoherence I will stipulate that tones everywhere are associated with syllables rather than with vowels. Thus the derivations presented above now look like the following:



Accordingly I will reformulate melodic association rules 1 and 2 which will now assign tones to syllables and not to vowels:

$$\text{Rule 1. } \overset{\nabla}{\ddot{H}} \approx \sum / X \sum X$$

$$\text{Rule 2. } H \approx \sum_1 / \# \sum_1 \sum_n \# \quad n \geq 4$$

Now I will turn to the more complex function of the WFC; that of monitoring the well-formedness of associations through the course of a derivation.

C. AUTOSEGMENTAL APPROACH TO EMPHASIS

I suggest that emphasis can be realised on the accent contour by associating an "extra" toneme E with the appropriate syllables. The circle around E means that this toneme is optional.

I mark it with an arbitrary "E" symbol because I have not been able to carry out any experiment to point out the detailed characteristics of this tone. However, some arguments will be presented that point at certain characteristics of "E".

Consider example (7) from page 11:

(7) Ten pies nie jest NIEspokojny, jest bardzo SPOkójny.

The final word of this sentence—spokójny—is characterised by the melody M H L when pronounced with neutral declarative intonation:

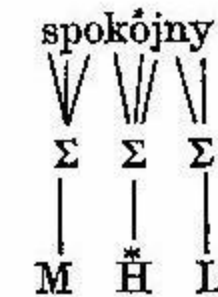
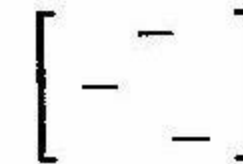


diagram 1.



When under emphatic conditions the melody is like the one illustrated by the following diagram:

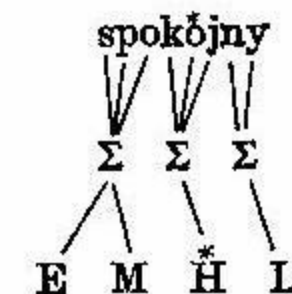


diagram 2.



The diagram 2 suggests that the emphatic toneme E is high as it causes the downstep of the following H tone. Furthermore it suggests that the tonological sequence (E M), which now equals (H M) is realised as High phonetically in Polish.

Consider now the cases of "excitedly emphatic speech" presented in Bolinger (1972 : 674):

They will follow up their enthusiasms.

I found great enthusiásm.

They center around the sacrament of baptísm.

This altered the program somewhat.

That is where more tars and nicotínes are.

Under neutral intonation the melodic association rules and the Well-Formedness Condition will create the following associations for the final elements of the sentences given above:



In the excitedly emphatic speech the emphatic toneme E will be associated with the final syllable:



Notice that the (E L) sequence on the final syllable is perceptually felt as a gliding, falling tone:

- enthusiasm
- baptísm
- nicotínes

This suggests that E is intrinsically high, i.e., the result is as that coming from the previous analysis.

For the time being we can observe that from the perceptual point of view the toneme E seems to be a forceful extrusion in pitch, which is level in tone

except in the case when the emphatic accent is phrase final. In this case the "extra" toneme E may be associated by the WFC creating a gliding tone.

Having assumed that E means a major pitch extrusion, and that pitch is the basic clue to accent in Polish and English, I will argue that E always carries a star (*) with it. This is natural as the function of the star is to explicitly indicate the most prominent syllable in a phrase. Now I turn to the analysis of the two cases of emphatic stress presented in Part I.

Hypostasis; or emphatic stress in parallel constructions

Chomsky (1971 : 205) claims that what is involved in parallel constructions is the parallelism of the surface syntactic structure. To say this is not enough, which is easy to see on the examples that have been already discussed in Part I. For the sake of clarity I will repeat them here:

English:

- (1) This whiskey was not EXported from Ireland, it was DEported.
- (2) It is not what you PREtend, it is what you INTend.
- (3) The book refers to CYtology, not to HISTology.
- (4) I would call that legal action PERsecution, not PROsecution.
- (5) Which kind of compound is it, sulFATE or sulFITE.
- (6) You may DETain them but do not RETain them.
- (7) The phenomenon we are noting may be called the relationship between length and UNfamiliarity, or between condensation and FAMilarity (or even farMiliarity).
- (8) I am talking about CONfirmation not about AFFirmation.
- (9) I did not say CONvert, I said DIvert.
- (10) I mean albuMEN, not albuMIN.
- (11) First we have to persuade our patient that he is a stalagMITE not a stalacTITE.
- (12) Favour foods that are DIGestible — avoid those that are INDigestible.
- (13) On the one hand you have the densest UNintelligibility and on the other the clearest INTelligibility (or inTElligibility).

Polish:

- (1) Nie chciałem go PRZEgadać, chciałem mu PRZYgadać.
- (2) Prosiłem o ODpowiedź, nie PODpowiedź.
- (3) Ten facet to nie INTrowertyk, to EXTrowertyk.
- (4) Nie wystarczy ZARobić, problem to się DORobić.
- (5) Dowody się PRZEprowadza, nie WYprowadza.
- (6) Mówilem, że to jest WARtościowe(warTOściowe, nie NIEwartościowe).
- (7) Ten pies nie jest NIEspokojny, jest bardzo SPOkojny.
- (8) Źle mnie zrozumiałeś; nie byłem NIEzadowolony, mówiłem już wtedy, że jestem ZAdowolony.

- (9) Ja się zajmuję HISTologią, nie PSYchologią.
 (10) Nauka o której mówimy to ANdragogika, nie PEdagogika.
 (11) Chciałem powiedzieć, że to co Nixon wniósł do polityki to nie rozWInięta demokracja, lecz rozMInięta demokracja.
 (12) Nie mówiłem zaMIErzony, tylko zaWIErzony.
 (13) A więc śpiewajście studenci uniwersyteTU, awueFU, waTU i wuesWU.
 (14) Nazywam się KarGÓL, nie KarGOL.

The highly annotated surface syntactic structure of the Extended Standard Theory would show nothing about the parallelism of the above examples, and would explain even less the reason why there might be a need to shift the stress.¹⁰ Facts like shift of stress in the sentences above could not be explained unless specific reference to the syllabic structure had been made. Having hinted at the possibility of the syllable as an autosegmental level of non-linear phonological representation we can construct a formalised association rule for hypostasis in Polish and English:

Rule 3. (association of toneme E in parallel constructions)

$E \approx \dots \sum_{\alpha} \dots \sum_{\beta} \dots / \# X \# (\sum_i)_n \sum_{\alpha} (\sum_j)_m \# X \# (\sum_i)_n \sum_{\beta} (\sum_j)_m \# X \#$

- 1) # means phrase boundary
- 2) # means word boundary
- 3) $i=i; j=j; \alpha \neq \beta$

Now the derivations will look something like the following: Consider the word "CONFIRMATION" in (8)

(8) I am talking about CONFIRMATION not about AFFIRMATION.

confirm^ätion
 $\begin{array}{cccc} \vee & \vee & \vee & \vee \\ \Sigma\alpha & \Sigma i & \Sigma i & \Sigma i \end{array}$
 M $\overset{\ast}{H}$ L

Rule 1. $\overset{\ast}{H} \approx \sum / X \sum X$

¹⁰ I will argue in the final word of this paper that the cases involving stress shift are of no interest to semantic interpretation in generative grammar. Notice that in the case like:

(a) Max [IMports]s and Rix [EXports]s. (shifted)

(b) Mack's [IMports]S and Rick's [EXports]S. (not shifted)

While both (a) and (b) are parallel constructions, the fact that stress is shifted in (a) results in an ambiguous structure. It is rather the fact (a) is a sentence, and (b) a NP that will be of any use in semantic representation of both. (This observation is due to Tom Wachtel).

confirm^ätion
 $\begin{array}{cccc} \vee & \vee & \vee & \vee \\ \Sigma\alpha & \Sigma i & \Sigma i & \Sigma i \end{array}$

Ⓔ M $\overset{\ast}{H}$ L

Rule 3.

confirm^ätion
 $\begin{array}{cccc} \vee & \vee & \vee & \vee \\ \Sigma\alpha & \Sigma i & \Sigma i & \Sigma i \end{array}$
 $\begin{array}{cccc} | & & | & \\ E & M & \overset{\ast}{H} & L \end{array}$

WFC

confirm^ätion
 $\begin{array}{cccc} \vee & \vee & \vee & \vee \\ \Sigma\alpha & \Sigma i & \Sigma i & \Sigma i \end{array}$
 $\begin{array}{cccc} | & | & | & | \\ E & M & \overset{\ast}{H} & L \end{array}$

We also need an extra rule referring to the star. This rule will provide that the star is always associated with the E toneme and is placed on the peak of the syllable with which this toneme is associated.

Rule 4. $V \rightarrow \ast / \sum$
 $\begin{array}{c} (\text{C}) \quad \vee \quad (\text{C}) \\ \quad \quad \quad \downarrow \\ \quad \quad \quad \sum \\ \quad \quad \quad E \end{array}$

The application of the rule will produce the following result:

c^äonfirmation
 $\begin{array}{cccc} \vee & \vee & \vee & \vee \\ \Sigma & \Sigma & \Sigma & \Sigma \end{array}$
 $\begin{array}{cccc} | & | & | & | \\ E & M & H & L \end{array}$

This result is counter intuitive. The reason for this is that the derivation above has been in error.¹¹ Notice that we have analysed a single lexical item in which stress has been shifted. From the examples 1 - 13 above and rule 3

¹¹ I wish to thank Nick Clements (personal communication) for pointing it to me. The analysis that will proceed is largely due to his observations and suggestions. Naturally all oversights and analytical errors are my own responsibility.

it is easy to see that the basic requirement for the stress to be shifted in English the two similar (morphologically) lexical items have to occur in the same sentence, i.e., the parallel construction. In isolation we never get the shifted stress. Thus what we need to do is analyse the tune of the whole parallel construction, rather than some chunks of it. Clements (personal communication) has tested his own intuitions and the intuitions of three other native speakers on the following sentence:

I said **A**ffirmation, not **C**ONfirmation.

Two speakers agreed in placing H on the stressed syllables (capital letters) and L on everything else (one had a slight extrusion, barely noticeable, on *not*). The third speaker (a native of Georgia) placed H on *A***F** and *not*, M to rising tone on *C***O***N* (with slight downdrift between the two H peaks on *not* and *C***O***N*) and L on everything else. Clement's own intuitions (prior to the inquiry) agreed with the first two speakers. This would suggest that the usual pattern for parallel emphasis might be something like L H L, with H starred; the third speaker might be putting an independent pitch-accent on *not*, though this sort of thing has been very poorly investigated.

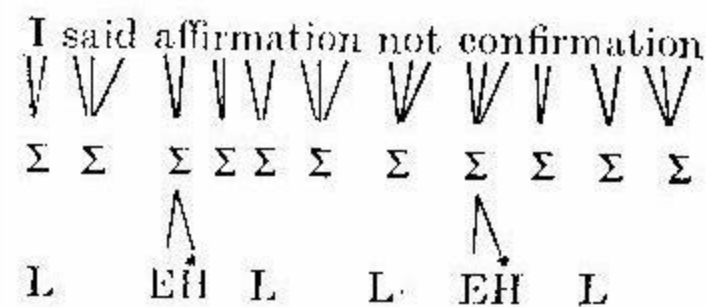
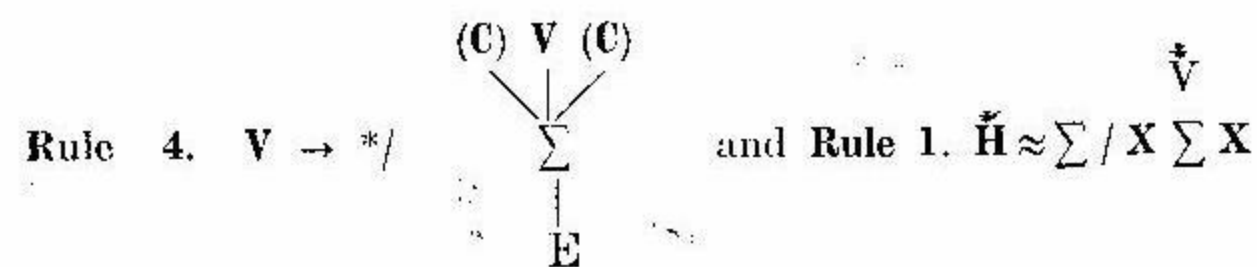
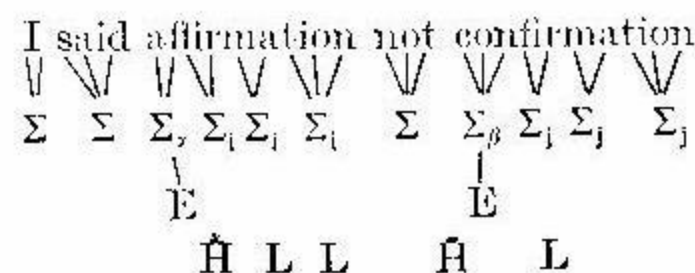
Notice that these results are explicitly described by the formal apparatus constructed for the tune-text association in parallel structures developed in this paper. Given the syllabic tier and the tonological tier; by the application of rules 3, 4, 1, and WFC we get the result as described in the experiment.

Syllabic representation: I said affirmation, not confirmation.
 $\begin{array}{cccccccccccc} \vee & \vee & \vee & \vee & \vee & \vee & \vee & \vee & \vee & \vee & \vee & \vee \\ \Sigma & \Sigma & \Sigma & \Sigma & \Sigma & \Sigma & \Sigma & \Sigma & \Sigma & \Sigma & \Sigma & \Sigma \end{array}$

Tonological representation: \textcircled{E} L H L

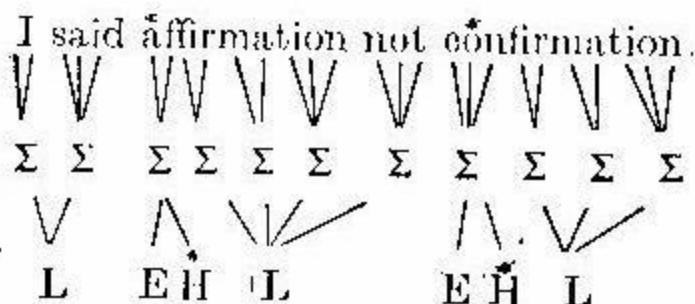
We match up these two representations applying first rule 3.

$$E \approx \dots \Sigma_x \dots \Sigma_\beta \dots / \# \times \# (\Sigma_i)_n \Sigma_z (\Sigma_l)_m \# \times \# (\Sigma_j)_n \Sigma_\beta (\Sigma_l)_m \# \times \#$$



Well-Formedness Condition and Leben's (1973) Obligatory Contour Principle: "At the phonetic level any contiguous identical tonemes must be collapsed into each other."

will secure the well-formedness of the tune-text associations like the following:



This preliminary analysis presented above can be extended to all the cases of hypostasis in Polish and English that have been discussed in this paper.¹² However, many things have to be clarified before such an analysis is descriptively adequate. For instance; rule 3 refers explicitly to syllables but the question of what these syllables are has not been fully answered in autosegmental theory as yet. Until it is, we will not be able to say why the accent does not shift in:

(14) Did you say adventurous or adventuresome?

(15) Would you rather be reverend or reverent?

(16) The word I used was regiment not regimen!

or why the shift is arbitrary as in:

(13) On the one hand you have the densest UNintelligibility, and on the other clearest INtelligibility (or inTElligibility).

Before the syllable is clearly defined and its structure explained, cases like these will resist clear explanation.

Emphatic accent in non-parallel constructions

In English declarative sentences emphasis is realised as a forceful pitch extrusion on the accented (starred) syllable¹³ — the tune being L H L. Consider the following examples:

¹² For the more extended analysis, including, among others, the analysis of parallel question — cf. Dogil (in preparation).

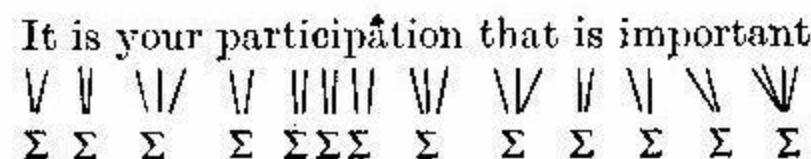
¹³ For the analysis of question — cf. Sag and Liberman (1975), Dogil (1977), Dogil (in preparation).

It is your particiPAtion that is important.
Our AUtomobile industry must be improved.

The rule which takes care of these cases is fairly simple:

$$\text{Rule 5. } E \approx \Sigma / X \overset{\check{V}}{\Sigma} X$$

The association will precede in the following fashion:

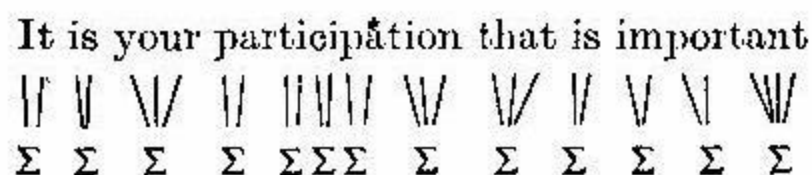


Ⓔ L H L

$$\text{Rule 5. } E \approx \Sigma / X \overset{\check{V}}{\Sigma} X$$

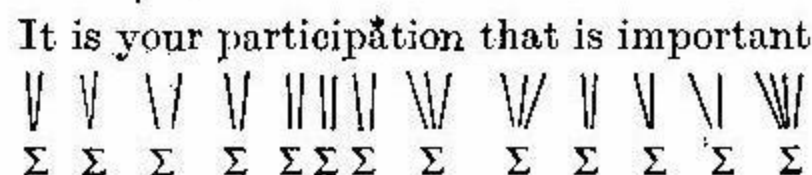
and

$$\text{Rule 1. } \overset{\check{H}}{H} \approx \Sigma / X \overset{\check{V}}{\Sigma} X$$



L E H L

WFC



L E H L

(C) V (C)

Rule 4. $V \rightarrow * / X \overset{\check{V}}{\Sigma} X$ applies vacuously here.

E

The situation in Polish declarative sentences, when the emphatic stress is on the word containing less than four syllables, is identical. Consider the following sentences:

To jest MÓJ pies.
To nie WASza znajoma.
Nie drażnij moJEgo psa.

The derivations will be exactly like those presented above.

If in Polish declarative sentences emphasised element contains four or more syllables there are two ways in which emphatic toneme E can be associated with the text. Firstly, it may be associated with the penult, i.e., the accented syllable of the emphasised element. This may be illustrated on the following examples:

- (i) Chciałbym podkreślić tutaj ważność komunikacji samochoDowej.
- (ii) Wzmóżona działalność demagoGiczna po śmierci Mao.

The natural way in which these are intoned is L H L, thus it is pointless to repeat the derivation as it is the same as in the English sentences analysed above.

Another option of emphatic stressing of such cases is to highlight not the penult but the initial syllable of the emphasised element. Consider the following examples:

- (ia) Chciałbym podkreślić tutaj ważność komunikacji SAmochodowej.
- (iia) Wzmóżona działalność DEmagogiczna po śmierci Mao.

The derivations in these cases will look like the following:

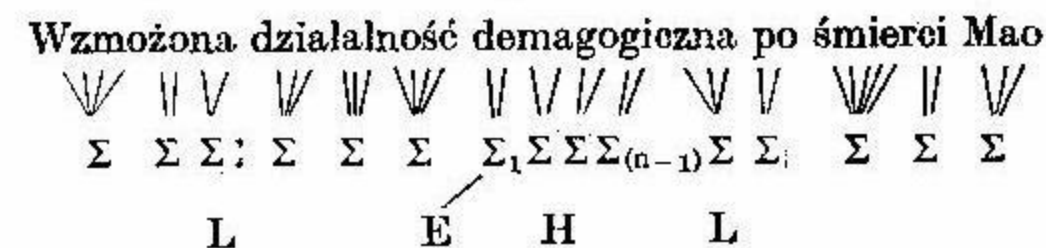


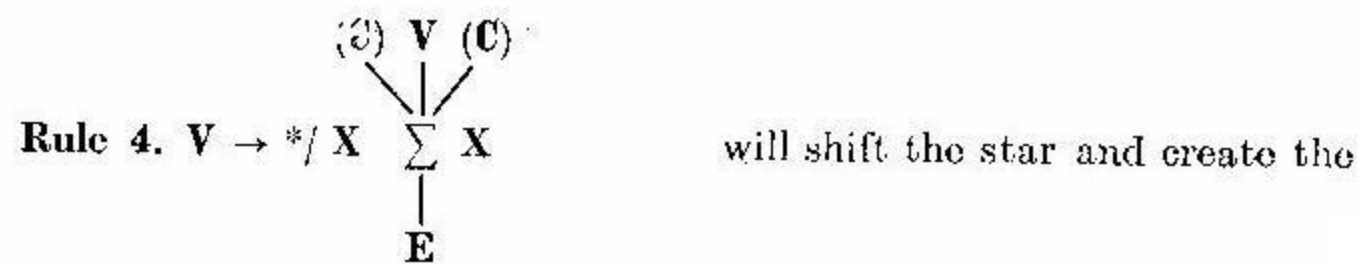
The proper association of E will be taken care of by rule 6:

$$\text{Rule 6. } E \approx \Sigma_1 / \# \overset{\check{V}}{\Sigma_1 \Sigma_{(n-1)} \Sigma_n \#}$$

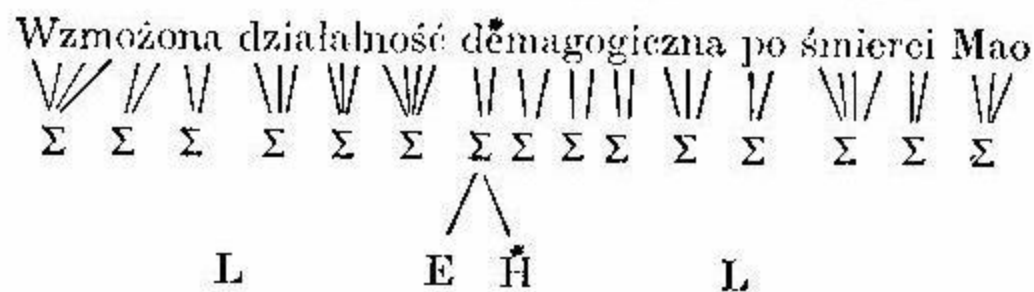
where $n \geq 4$

This rule yields the following result:

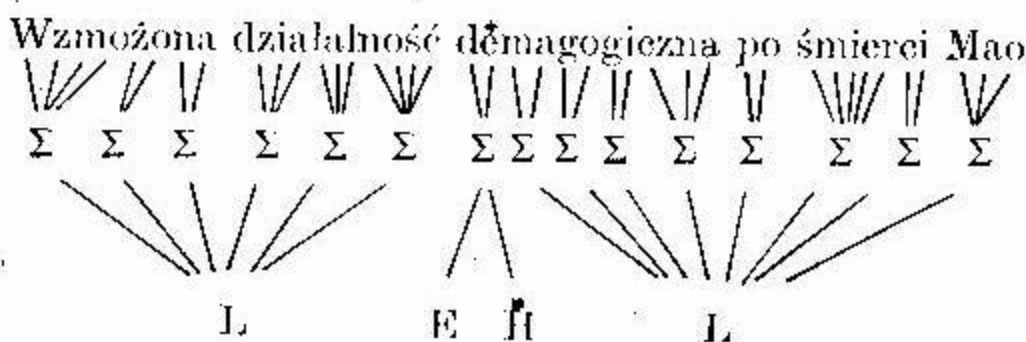




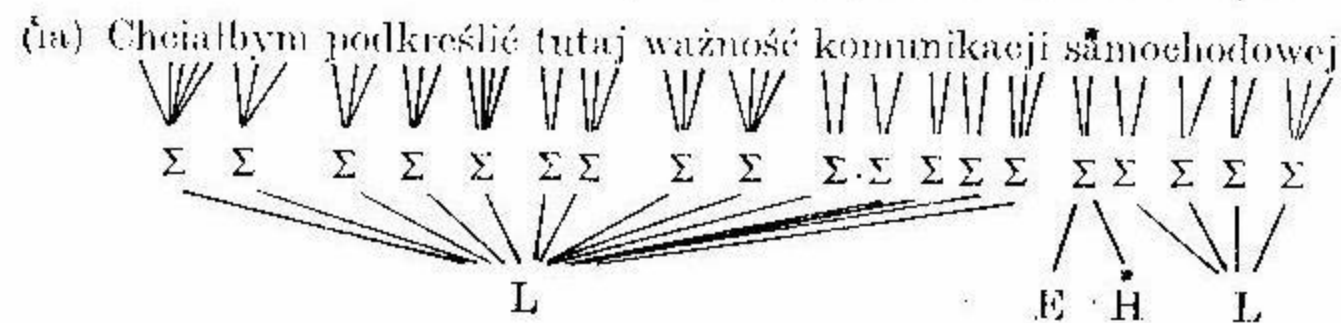
environment for **Rule 1.** $\hat{H} \approx \sum/X \sum X$ to apply:



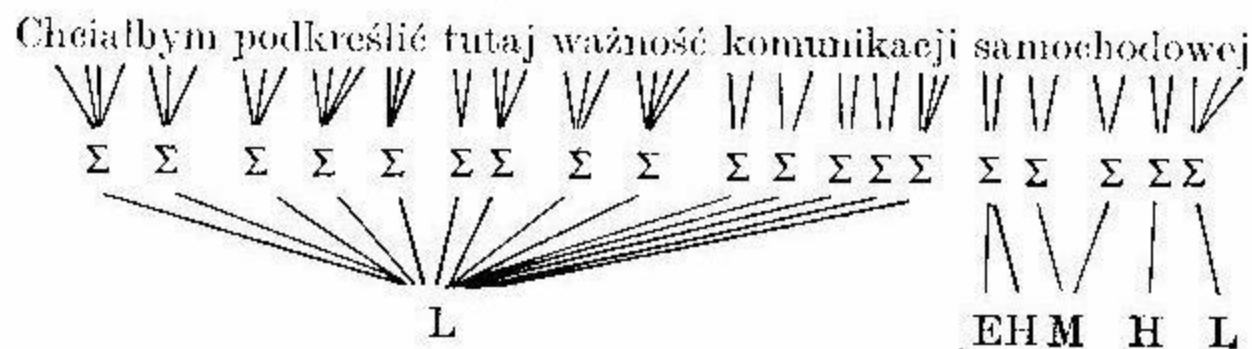
The **WFC** will assign the well-formed tune-text association like the following:



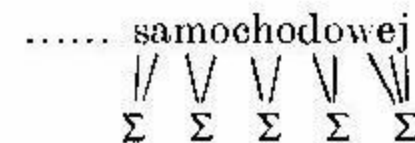
There is a possibility of an alternative tune-text association especially if the emphasised element is rightmost in the sentence. (ia) is an example of such a sentence. Apart for the phonetic representation derived as above:



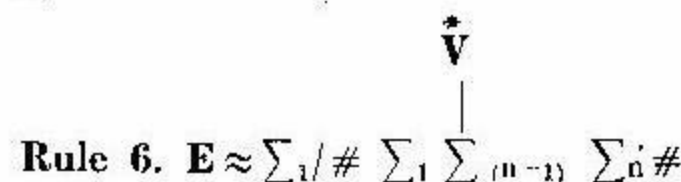
There is an alternative, more "wailing", pronunciation which should be represented like the following:



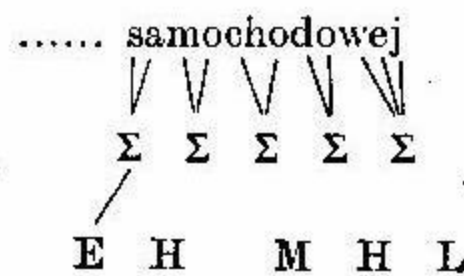
In this case "samocho-dowej" is pronounced as if it were in isolation. The derivation of it follows without much ado from the principles of tune-text association developed in this paper.



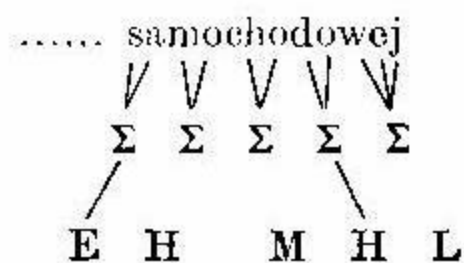
Ⓔ H M \hat{H} L



$n \geq 4$

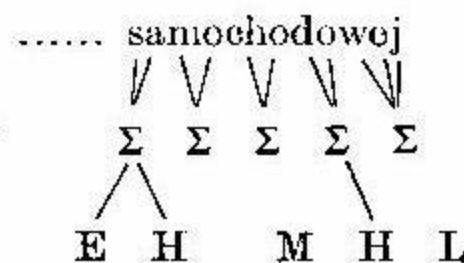


Rule 1. $\hat{H} \approx \sum/X \sum X$

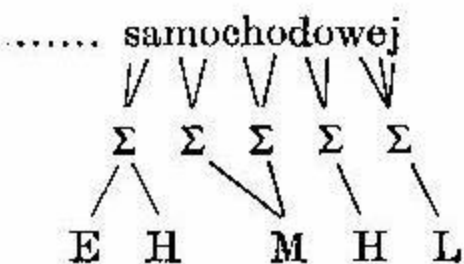


Rule 2. $H \approx \sum_1 / \# \sum_1 \sum_n \#$

$n \geq 4$



WFC



To finish this discussion I just want to point to the fact that there is an interesting difference in the semantic interpretation between the sentences in which stress has been shifted and those in which it has not been shifted in Polish — cf. Dogil (1977).

D. English and Polish word accent in contrast

Now comparing again the stability of word accents in Polish and English we may state the following:

- (1) The position of word accent is not absolute in either of the two language.
- (2) In parallel constructions accent can move according to the autosegmental rules 3 and 4.

Rule 3. $E \approx \dots \sum_{\alpha} \dots \sum_{\beta} \dots / \# \times \# (\sum_i)_n \sum_{\alpha} (\sum_j)_m \# \times \# (\sum_i)_n \sum_{\beta} (\sum_j)_m \# \times \#$
 where: # means phrase boundary
 # means word boundary
 $i=i; j=j; \alpha \neq \beta$

Rule 4. $V \rightarrow * / X \sum X$
 (C) V (C)
 |
 E

The WFC will secure that the tonological and syllabic tiers are properly associated, thus producing a set of well-formed phonetic representations.

- (3) In non-parallel constructions accent does not move in English under emphatic conditions. In Polish it may move, and this movement is governed by the autosegmental rules 6 and 4.¹⁴

Rule 6. $E \approx \sum_i / \# \sum_1 \sum_{(n-1)} \sum_n \#$
 $n \geq 4$

Our explanation of the data sketched in Part I, which was made possible by the autosegmental analysis, would get a lot more support if it could be phonetically established that the toneme E is characterised by the upward extrusion in pitch. This seems to be intuitively true. If it is so, we might say that the toneme E is much more likely to associate with the H toneme, as the interaction between the autosegmental rules 1-6 stipulates, since this is the least costly modification of the contour — L H L; ^{*}H M ^{*}H L (for the “wailing” pronunciation).

¹⁴ We disregard the “wailing” pronunciation which is the special, stylistic case.

I would like to finish this paper by alluding once again to the distinction between emphasis and hypostasis. This distinction has been kept throughout for the purpose of exposition. I assumed that it would make the contrast between Polish and English more transparent. As we saw, however, the distinction in Polish has been blurred. It is also difficult to say that emphatic accent in English parallel constructions is non-semantic in character (hypostasis). Compare the following:

- a) I said Affirmation, not CONfirmation. (hypostasis)
- b) I want confirMAtion. (emphasis)

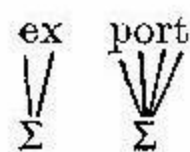
In (b) emphatic accent highlights the lexical (semantic) content of “confirmation”. In (a) emphatic accent highlights just the lexical entries “confirmation” and “affirmation”, but lexical entries themselves are meaningful too. Notice that “emphatic stress rule” has been used in generative grammar to define the presuppositions of sentences like (b) — cf. Jackendoff (1972: ch. VI). Hypostasis (emphatic accent in parallel constructions) was not assumed to have this function — cf. Jackendoff (1972: 242). Recently the status of presupposition as semantic category has been questioned in literature — cf. Kempson (1975); Wilson (1975). It is argued that presuppositions (logical or pragmatic), have no role to play in formal grammar. It is claimed that semantics should be truth-conditional and based on two-valued logic. Kempson and Wilson defend this claim against the obvious charge that such a semantics cannot handle questions, imperatives, promises and other non-truth-functional sentence types. Emphasis and hypostasis are non-truth-functional too. It would be an interesting realization of the theory of autosegmental phonology if it could be argued that some of these non-truth-functional or “attitudinal” meanings have their own structure which is realised on the melodic contour. I argued that Polish and English speakers distinguish between two autosegmental tiers, syllabic and tonological. It can be claimed that these separate sequences of segments:

syllabic [[CV CV]_{NP} [CV CV CV]_{VP} [CV CV CV CV]_{NP}]_S
 tonological # H L # M H L # H M H L #

would then each constitute items that would have separate entries in the lexicon. Thus there will be entries (syllabic in character) that function in truth-conditional semantics: ex., NP, VP, COMP, t, etc., and lexical entries (tonological in character) for non-truth-functional concepts like question, imperative, promise, emphasis, hypostasis, etc. The lexical entries for these will be the specific sequences of tonemes.¹⁵ Thus the syllabic entry [expórt]_V

¹⁵ Nick Clements (personal communication) pointed to me an oversimplification that this suggestion carries with it. We can have segmental entries for non-truth-functional concepts, as well as tonal entries for truth-functional concepts (e.g., verb system in Tiv or Akan, where affirmative and negative verbs are distinguished primarily by tone).

and the separate tonological entry H L (declarative), may form the following representation:



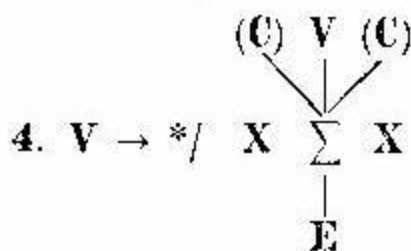
Ĥ L

The autosegmental phonology would develop melodic association rules to link these two lexical entries together. When [export]_v appears in emphatic environment the tonological declarative pattern associated with it will be modified by rule 5.:

Rule 5. $E \approx \Sigma / X \overset{\uparrow}{\Sigma} X$

When it appears in a parallel construction (for instance contrasted with "import" or "deport") the tonological pattern is modified by rules 3 and 4.:

3. $E \approx \dots \Sigma \alpha \dots \Sigma \beta \dots / \# \times \# (\Sigma_i)_n \Sigma \alpha (\Sigma_j)_m \# \times \# (\Sigma_i)_n \Sigma \alpha (\Sigma_j)_m \# \times \#$



If such a view of linguistic theory can be defended, then the distinction between hypostasis and emphasis is not that one is semantic and the other non-semantic, but that it is the difference between the rules of emphatic toneme assignment.

It should be stressed that autosegmental phonology, a theory which differs in many ways from standard, linear views of phonology, is a theory still in puberty whose consequences for many other areas of research still remain to be explored.

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