A TONOLOGICAL HYPOTHESIS ON THE ORIGIN OF PARADIGMATIC ACCENT SYSTEMS

The accent system reconstructed on the basis of Baltic and Slavic data is characterised by the following features:

Accent types. Non-derivatives have two accent paradigms (AP): AP 1 — immobile with accent fixed on the root; AP 2 — mobile, including two types of forms: (a) forms with stressed ending, (b) forms-enclinomena, unstressed in most syntactic positions, but initial-stressed in an absolute position. Derivatives have three accent types: type A — immobile stress on the root, type B — immobile stress on the suffix, type C — mobile stress (= AP 2).

Choice of accent types. Non-derivatives possess traditional accent paradigms, i. e. every root-base belongs to one of the two AP's, which is not predicted by any information contained in the synchronic system of the language. The choice of accent types by the derivatives is determined by two parameters: AP of the initial non-derived word and the class of the suffix (according to their effect on the choice of accent types, suffixes are divided into two classes, I and II), and is accomplished in the following way: root-bases of the AP 1 choose the accent type A, no matter to what class the suffix belongs; root-bases of the AP 2 choose type C with class I suffixes (i. e. the type containing ending-stressed forms and forms-enclinomena), but type B with class II suffixes (i. e. the type with stress fixed on the suffix).

Upon this system of accent types was superimposed a system of phrase modifications of the enclinomenal accent, the analysis of which leads to the conclusion that forms-enclinomena are to be viewed as phonologically unstressed forms.

This type of accentuation, in the practice of the Moscow accentological school, was named "paradigmatic accent type" (or "paradigmatic accent"). The traditional nature of the accent paradigm choice by non-derivatives was taken as the first principle of paradigmatic accent; the fact that the choice of accent types by the derivatives is conditioned by the AP of initial non-derived words was taken as the second principle of paradigmatic accent. Accent systems where both principles can where both principles can be traced were called "unreduced" paradigmatic accent systems; accent systems with only the first principle, "reduced" paradigmatic accent systems.

The "unreduced" character of the Balto-Slavic system permits us to draw a conclusion concerning the deep structure of such a system. Superficially heterogeneous characteristics of the system in question: the traditional nature of the AP choice by non-derivatives, rules of choice of the accent types by the derivatives, the kind of accent curves and the phonological status of forms-enclinomena — all are obviously deeply related to each other.

The fact that the traditional AP's of non-derivatives determine the choice of accent types by the derivatives shows that a certain (morphonologic) quality — "valency" — should be attributed to the root-morpheme (but not to the base or to the word as a whole). This quality determines the choice of accent types, and it turns out that there are two "valencies" of this kind: one of them determines the ictus placing on the root, both in derivatives and in non-derivatives (+"valency"), while the other does not (–"valency"). This division of root-morphemes corresponds to the grouping of suffixes: class II suffixes determine the ictus placing (if the root-morpheme has the second valency) — the first valency class; class I suffixes do not determine the ictus placing — the second valency class.

Finally, in analysing accent curves of the mobile accent type, we see that the same "valencies" may be attributed to morpheme endings: stressed endings (with roots and suffixes of the second valency) may be considered as having a valency of the first type (corresponding to the valency of non-derived AP 1 noun roots), unstressed endings (with roots and suffixes of the second valency) — as having a valency of the second type. Important in confirming such a division is the fact that forms consisting exclusively of type 2 "valencies" have the phonological status of "unstressed forms".

It is obvious that a hierarchical interdependence exists between the "valencies", which may be determined as a relation of "dominance — recessivity": when there is a morpheme of the first (+) valency, the placing of

ictus is determined by that morpheme, independent of the presence, number and order of morphemes of the second (–) valency.

Departing from this hierarchy it is easy to obtain a general rule of ictus placing which, by taking into account all morpheme combinations, may be formulated as follows: ictus was placed on the beginning of the first sequence of higher valency morphemes.

The examinations of similar accent systems with phonologically relevant "valencies" has led us to the conclusion that relations of this kind are in the process of being established between the ictus and syllabic tones in a number of tonal languages. The existence of cases intermediate between a system of syllabic tones and a system of "paradigmatic accent" (cf. Tubu, a language of the Central Sahara family, where, while syllabic tones are already disappearing, a new system of accent paradigms has developed) permit us to put forward the hypothesis that the Balto-Slavic accent system is a reflection of the Indo-European tones.

The examination of systems typologically close to Balto-Slavic led us to the accent systems of the Western Caucasus languages: Abkhaz and Ubykh. Analysis of their data in existing sources showed that they can be described with the help of two valencies (+, –) and a contour rule, according to which the ictus is placed at the end of the first sequence of higher valency syllables.

Recent studies of the accent systems of certain Caucasian languages provide new materials in support of the hypothesis formulated above.

1. Abkhazo-Adyg languages

Field-work with the Abkhaz language revealed a system of paradigmatic accent as described above. We will take as an example two noun paradigms: *gwə* 'heart', *cvə* 'ox'. The set of morphemes needed in demonstrating paradigms is the following:

(1) *gwə* 'heart' (+), *cvə* 'ox' (–)
(2) *a* 'prefixed article' (+) , *kwa* 'suffixed plural morpheme' (+)

The combination of these morphemes yields the following paradigms:

(1) *gwə́*, *á-gwə́*, *á-gw-kwá*

(2) cv*ə́*, *á-*c*v́*, *á-*c*v́-kwa*

When the root has more than one syllable and when auxiliary morphemes of different valencies are involved we obtain more complicated accent curves within a paradigm.

The system of Abaza accent had not been described until now. Investigations carried out by one of the authors showed that in the Abaza language (Tapant dialect) (1) there is a generally similar model of paradigmatic accent (with some differences which we will not consider here); (2) on the stressed syllable two tones — high and low — are distinguished, thus presenting a system of tonal (musical) stress. It appears that the rule of choosing high or low tone on the stressed syllable depends on the valency of the syllable in question: the + valency corresponds to high tone, the — valency to the low tone. The paradigms presented above thus have in Abaza the following shape:

(1) *gwá*, *a-gwá*, *a-gw-kwá*
(2) *čwà*, *á-čw*, *á-čw-kwa*

Cf. also the following paradigms of roots with more than one syllable:

(1) *wa̱sa̱* ‘sheep’: Abkh. *wasȧ*, *a-wasȧ*, *a-wasa-kwȧ*
Abaz. *wasá*, *a-wasá*, *a-wasa-kwá*

(2) *b(a̲)ga̲* ‘fox’: Abkh. *bgȧ*, *ȧ-bga*, *ȧ-bga-kwa*
Abaz. *bagà*, *á-baga*, *á-baga-kwa*

(the –valency of the syllable *ga* is also proved here by external data, cf. Ubykh *ba̲ža̲-šwȧ̱* ‘a little fox’)

(3) *ža̲msa̱* ‘eye-lash’: Abkh. *žəmsȧ*, *ȧ-žəmsa*, *ȧ-žəmsa-kwa*
Abaz. *žəmsá*, *á-žəmsa*, *á-žəmsa-kwa*

Thus the Abaza system presents an intermediate stage where (on the phonological level) ictus rules are no longer dependent on the tonal structure of the wordform, although on a stressed syllable accent “valencies” still have a phonetic tonal expression.

The evolution of the Abkhazo-Adyg tonal system may consequently be presented in the following way:

Stage 1. Existence of tonal oppositions relevant for every syllable. In fact this stage is reconstructed when we attribute to each syllable one of the two accent valencies[1].

Stage 2. Ictus rules arise, formulated in general as above; thus, e. g.:

C$\underset{+}{\text{V}}$C$\underset{+}{\text{V}}$C$\underset{+}{\text{V}}$C$\underset{+}{\text{V}}$ → C$\underset{+}{\text{V}}$C$\underset{+}{\text{V}}$C$\underset{+}{\text{V}}$C$\underset{+}{\acute{\text{V}}}$
C$\underset{+}{\text{V}}$C$\underset{+}{\text{V}}$C$\underset{-}{\text{V}}$C$\underset{+}{\text{V}}$ → C$\underset{+}{\text{V}}$C$\underset{+}{\acute{\text{V}}}C\underset{-}{\text{V}}C\underset{+}{\text{V}}$
C$\underset{-}{\text{V}}$C$\underset{-}{\text{V}}$C$\underset{-}{\text{V}}$C$\underset{-}{\text{V}}$ → C$\underset{-}{\text{V}}$C$\underset{-}{\text{V}}$C$\underset{-}{\text{V}}$C$\underset{-}{\text{V}}$ etc.

At the end of this stage a system develops in which tonal oppositions become relevant only on the stressed syllable but are already neutralised in other syllables. Such a system is to be seen in the Abaza language.

Stage 3. The final loss of tonal oppositions, thus giving rise to a "pure" system of paradigmatic accent. Such a system is characteristic for Abkhaz and, judging from descriptions and texts, for Ubykh. An analogous system seems to exist in the Adygh language, as seen from its word-composition system, cf.

L$\underset{+}{\text{ə}}$ 'meat': *m*$\underset{+}{\text{ə}}$*L*$\underset{+}{\text{ə}}$-*L*$\underset{+}{\text{ə̀}}$ 'mutton', *q*$\underset{-}{\text{w}}$*a*-*L*$\underset{+}{\text{ə̀}}$ 'pork', *b*$\underset{+}{\text{ə}}$*L*$\underset{+}{\text{ə̀}}$*m*ə*L* 'beef'
św$\underset{-}{\text{a}}$ 'skin': *m*$\underset{+}{\text{ə}}$*L*$\underset{+}{\text{ə}}$-*św* 'sheepskin', *q*$\underset{-}{\text{w}}$*a*-*śwà* 'pig-skin' etc.

2. Avaro-Andian languages

The system of Avar accent paradigms is of particular interest because it presents a significant analogy with the Slavic languages.

The Proto-Slavic system of two accent paradigms was transformed later to a three-accent-paradigm system, which was conditioned by the shift of accent from a short "(+)–valency" syllable (including syllables with short diphthongs) to the next syllable (law of Illich-Svitych).

Avar possesses a system of three accent paradigms — two with immobile stress on the root (stress on the first syllable — paradigm A, stress on the second — paradigm B) and one with mobile stress (paradigm C).

The immobile accent paradigm A is not connected directly with original tonal oppositions. External evidence shows that words having this

[1] The real reconstruction of Abkhazo-Adyg tones is, of course, different from a morphonological record with "pluses" and "minuses": in particular, there are reasons to suppose that the proto-language possessed a more-than-binary tonal opposition, which allows us to explain some peculiarities of the accent curves in individual languages.

paradigm in Avar in Proto-Daghestanian possessed a combination of two features: "pharyngealisation (or, more generally, every kind of post-uvular articulation) + labialisation", cf.:

Avar *miḳ* (gen. *miḳil*) 'oak' — Proto-Lezghian **maqIwä* id.
Avar *ʕeč* (gen. *ʕečil*) 'apple' — Proto-Lezghian **Hämča* id.
Avar *ħor* (gen. *ħóril*) 'pool' — Proto-Lezghian **ʕwera* id. etc.

It is known that pharyngealisation is often preserved in forms with labial articulation, even if it disappears in other positions (cf., e. g., the situation in Ubykh, where only uvulars and labials may be pharyngealised; a similar situation may be observed in Agul (Lezghian family)).

Therefore it's only natural to suppose that Avar first lost the pharyngealisation in all cases when there was no parallel labial articulation. Elsewhere it was preserved and caused the appearance of accent paradigm A.

Thus the distribution between Avar paradigms A and B is rather similar to the one found in Slavic: we may suppose that originally words of both paradigms were stressed on the first syllable, but later the stress shifted to the second syllable from the first non-pharyngealised one (in Avar pharyngealisation thus plays the same role as length in Slavic). One should, however, also note the difference: while in Slavic such a split characterised only root-morphemes of the original first paradigm (+valency), in Avar we must first suppose a transition of pharyngealised roots uniformly into the immobile paradigm and only later a split into A and B paradigms (something analogous may be seen in Hirt's law for Slavic languages, but a discussion of this would take us too far away).

The two other Avar accent paradigms (B and C) may be analysed in terms of "valencies" as follows:

B: *čẹ̲ṭ* 'flea' — gen. *čọ̲ṭ-ọ́l*, nom. pl. *čṵ̲ṭ-ú̲l* (< **čúṭ-ul*, **čóṭ-ol*)
C: *ce̲r* 'fox' — gen. *ca̲r-á̲l*, nom. pl. *cú̲r-du̲l*

Starostin's paper [Starostin 1978] shows that the (+)–valency corresponds to Tindi level and rising tones, while the (–)–valency corresponds to Tindi falling tone. This system must have developed in a way similar to the Abkhazo-Adygh one described above, but the ictus placing rule was the same as in Balto-Slavic (stress on the beginning of the first sequence of higher valency morphemes).

The comparison of different Caucasian accent systems with those of Balto-Slavic is most significant because here we are confronted with a non-trivial typological analogy, primarily in the comparison of Abkhazo-Adyg languages: different contour rules parallel to identical systems of valencies. Under the influence of prosodic features characterised by a "dominance-recessivity" relation to the ictus the effect of these rules on the beginning (in one case) and on the end (in another case) of the sequence of pluses (and, correspondingly, on the beginning and end of the word in case of its homogeneous structure) makes us suppose that in both cases we are dealing with a phonologised restructuring of different types of demarcation accent: initial in Balto-Slavic and Avar and final in Western Caucasian[2]. (Such a quality is probably a tonal prerogative.) The fact that tonal systems have been found in some modern Caucasian languages seems to be a good proof of this hypothesis.

The possibility of finding a typological analogy to tonal systems even in those systems with paradigmatic accent where analysis in terms of "accent valencies" cannot be applied allows to formulate the problem in a more general manner: are not all systems of paradigmatic accent "reflections" of tonal systems? E. g. the Tagalog accent system may be a "reflection" of a system of the Japanese Nagasaki dialect type (two tonal contours: one low with ascending tone on the last syllable, the other one high with falling tone on the last syllable). If we assume a contour rule determining the place of accent on the last high syllable, we obtain a system which, with certain additions, namely metatony (change of one contour to its reverse) in certain cases and a restriction of contour choice according to L. Bloomfield's rule, may be viewed as a tonal prototype for the Tagalog accent system.

Thus there are reasons to suppose that accent systems of Greek and Indo-Iranian, which may be characterised in general as systems of reduced paradigmatic accent, and not easily analysed in terms of "accent valencies", together with the Balto-Slavic system of unreduced paradigmatic accent, go back to a Proto-Indo-European system with tonal oppositions. This possibility is further strengthened by recent comparisons of the Balto-Slavic and Greek-Iranian accent systems.

[2] It is worth noting that in Andian languages all words (or nouns at least), as a rule, bear the stress on the initial syllable — if they are stressed at all.