ACADEMIC ENGLISH SPEECH
INFORMATION CONTINUUM AND TEMPORAL STRUCTURE

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ABSTRACT
This study is an attempt to reveal the function of the temporal component of intonation in the actualization of the semantic ctructure of an oral academic discourse. Under examination are such temporal parameters as speech rate and pause distribution.

BASIC ASSUMPTIONS

It is argued that there is a certain correlation between the temporal and semantic structure of oral discourse and in particular it is asserted that tempo and pause distribution are major prosodic markers of the functional sentence perspective: a delimitative pause between a rheme and a theme and the slowing down of tempo in the rheme-containing syntagms /sense-groups/ are considered to be its main attributes. But in speaking as opposed to reading we face a whole range of psycholinguistic phonetic phenomena related to speech coding process which tend to disrupt this pattern. Moreover, the semantic structure of an individual utterance is conditioned by the semantic structure of the whole phonopassage in which it occurs, and ultimately, by that of the whole discourse which may be another reason for variations in tempo and pause distribution in an utterance.

METHOD AND EXPERIMENTAL CORPUS /EC/

The EC comprises 3 academic lectures delivered in a sound-proof studio by English speakers who are teachers by profession and have had extensive experience of public academic speaking. All the lectures had been delivered previously to a students' audience ; during the recording the speakers were told to make very little use of notes if any at all. the experiment included 3 types of analysis: semantic, auditory and acoustic.

SEMANTIC ANALYSIS. DATA OBTAINED

We followed the semantic analysis developed by T.M.Dridze /1/, which is based on the concept that any discourse can be viewed as a hierarchy of semantic units /predications/ of varying semantic value, among which the 1st & 2nd order predications have the highest semantic status since they include such informative elements as the main aim of discourse, one or several main propositions, their explication and situation evaluation. The 3d order predication os composed of illustrations to the 1st & 2nd order predication elements, while the 4th order predication represents a semantic background to the main aim of discourse.

In Fig.1 is shown the semantic macrostructure of Lecture 1 ("British Accents"). As is seen the aim of the lecture falls into a number of autonomous sub-aims, each one referring to a specific accent. For our purposes we focused only on the thematic fragment dealing with RP. As is evident Sub-aim 1 is expressed by 7 propositions (A-1a ... A-1g). Some of the propositions may be semantically amplified by explanatory (A-2a,A-2d,A-2f,A-2g), evaluative (A-3d), illustrative (B-1.1b,B-1.2f) elements, whereas the others do not receive any semantic amplification. A proposition with its semantic amplifiers, if any, forms a complex semantic unit which in discourse syntagmatics is realized as a phonosemantic complex /PSC/ possessing both semantic and prosodic integrity and varying in length from 1 to 4 phonopassages, the main proposition forming its nucleus (see PSC 1 & PSC 2
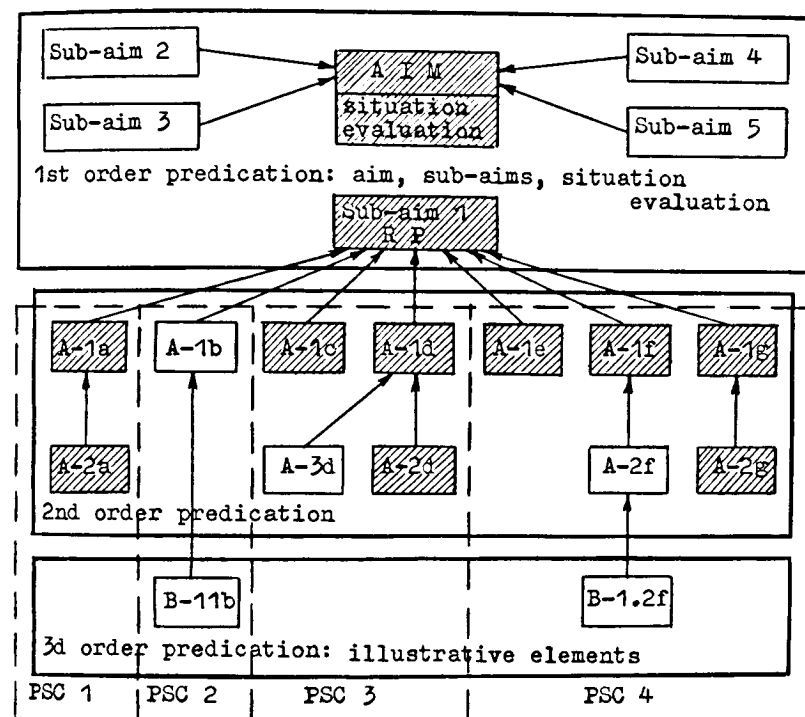

Figure 1. Semantic macrostructure of Lecture 1.

in Fig.1). A PSC may also be centered around a composite nucleus of several propositions if they are joined together in 1 phonopassage and thus make an indivisible phonetic unit (see PSC 3 & PSC 4). So the structural hierarchy of spoken discourse is: phonosemantic complexes - phonopassages - phrases - sense-groups (syntagms).

As is obvious this method helps to reveal the paradigmatic relations among predication elements of varying orders and may serve as a basis for discourse structural typology.

The EC is represented by 6 phonopassages composed exclusively of the 1st & 2nd order predications. (In Fig.1 the elements in question from Lecture 1 are shaded.) In each phonopassage theme-containing syntagms /TSC/ and rheme-containing syntagms /RSC/ are determined and subjected to auditory and acoustic analysis.

ACOUSTIC ANALYSIS. DATA OBTAINED

Under examination are:
1. general rate of speech (articulation rate & pauses)
2. location of temporal extremums
3. pause distribution.

The number of syntagms analyzed is 92 (the ratio TSC/RSC=1). As shown in Table 1 42% of RSC are pronounced at faster speech rate than the preceding TSC and in another 8% there is very little or

no change at all. At the same time in 43% of TSC a decrease of speech rate is observed as compared to the preceding RSC and in 9% of instances the rate remains stable.
Table 1.

Type of syntagm	General rate of speech		
	↓	↑	→
TCS	43%	48%	9%
RCS	50%	42%	8%

Moreover, 54% of all the temporal minimums in the EC fall on the TSC, while 46% of all the temporal maximums in the EC appear in the RCS.

This fact contradicts the well-known assertion that speech rate variation in an utterance is determined by its semantic structure, namely, speech rate usually slows down on the rheme and accelerates on the theme. We maintain that the reason for these speech rate fluctuations lies, on the one hand, in the distribution of pauses in speech flow and, on the other, in the integrative function of speech rate.

On the perceptive level 3 categories of pauses are identified: syntactical, emphatic and hesitation pauses. Oral academic discourse conveys both intellectual and volitional information, therefore the ample use of all sorts of phonation breaks for the sake of emphasis is relevant here. In the experimental data the following types of communicative phonation breaks used for this purpose are determined:
1.Micropauses and glottal stops (25 - 110 msec); occur exclusively in RCS, or occasionally in the initial syntagms of a phonopassage, are not normally perceived and serve as word boundary markers in RCS. Their function is to provide the listener with additional phonological signals which can help

him in decoding the message.
e.g. ... the   'content 'should | in'clude||| a ' central ?'element{ 'of{ 'ethics||.
2.Series of final delimitative pauses (75 - 290 msec); occur in one of the final syntagms of a PSC breaking it into a number of rhythmical groups thus creating staccato rhythm. Their function is to signal to the listener that the speaker has finished a certain theme (PSC) and is going to pass over to the next one.
e.g. ... my 'accent could dis'guise that very 'well | and 'people would 'not | detect that | 'fact |||.

Interestingly, the similar phenomenon was also detected in Russian discourse, its function however was not explained /2/.
3.Rhetorical pauses (50 - 745 msec); of their total number registered in the EC 74% appear in RCS. Very often they are placed between a form-word and the following lexical word so as to draw the listener's attention to the postpausal fragment. In 50% of instances the preceding form-word undergoes an emphatic lengthening.
e.g. I su'ppose that the | 'way that you could sum 'up | re'ceived pro'nunci'ation| ...

The number of communicative phonation breaks is twice as high as the number of hesitation pauses (30% versus 15%) but the latter tend to be longer. They last 64 - 2226 msec and in 58% of cases are preceded by segmental lengthening.
e.g. ... 'and | as I 'said | ...

The experimental data in dicate that communicative phonation breaks and hesitation pauses have a different distribution pattern: the former tend to appeare in RCS (80% of their total number), whereas the latter concentrate mostly in less informative TCS (81% of their number). The overall pattern of pause distribution for each lecture and the average data are shown in Fig.2.
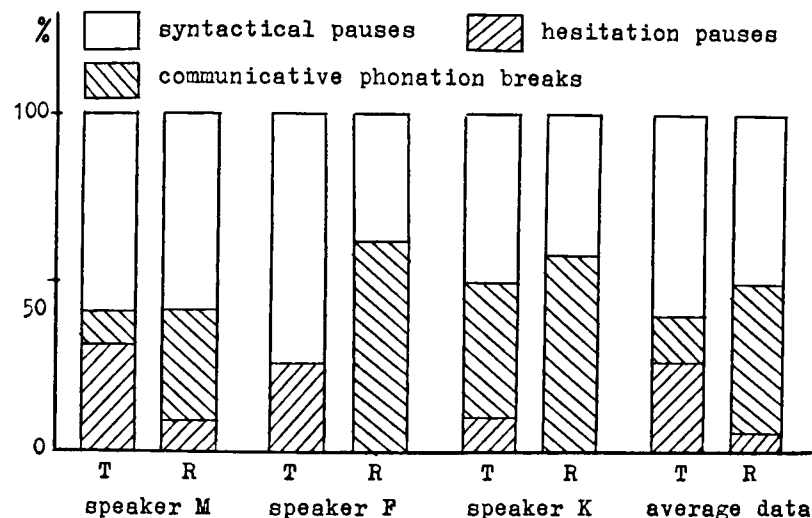
Figure 2. Pause distribution for each lecture and average data.

Thus the slowing down of speech rate in TCS may be attributed to the high incidence of hesitation pauses in them, the more so as hesitation pauses are usually accompanied by the overall decrease of tempo in a syntagm. Discourse temporal model which allows for hesitation pauses to occure predominantly in less informative TCS and is characterised by the distribution of communicative phonation breaks in more informative RCS is evidently optimal from the listener's point of view as it stimulates rather than hinders the decoding process.

IT has also been discovered that 64% of utterance-final syntagms are pronounced at a faster rate of speech that their immediate precontext. It is assumed that they mark a close retrogressive semantic link of the following utterance with the preceding one. In our case when rhemes are mostly in preposition (TCS - RCS), the temporal maximums fall on RCS.

CONCLUSION
Thus, the temporal structure of an individual utterance within a

phonopassage/PSC is conditioned by 2 factors: semantic and psycholinguistic. The former manifests itself in the fact that speech rate within an utterance is determined not only by the semantic structure of an utterance but also by that of the whole phonopassage/PSC. The latter is associated with a high prevalence of hesitation pauses in less informative utterance segments. Apparently, the model described may be held as the temporal invariant of prepared academic speaking.

REFERANCES
1.T.M.Dridze (1980), Language and Social Psychology, M., p.224
2.T.M.Nikolayeva (1977), Phrasal Intonation of Slavic Languages, M., p278.