

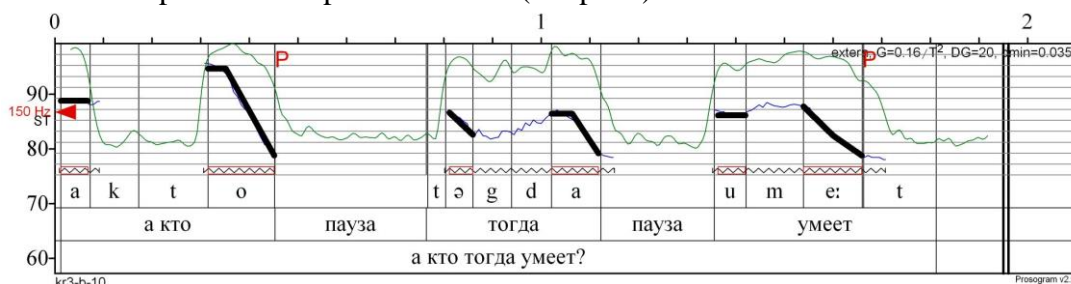
Pauses and pitch contours in spontaneous speech processing: Evidence from Russian

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It is argued that discourse is organized as a sequence of certain quants (segments, steps, portions, pulses, etc.) and that a speaker somehow marks the boundaries of these quants for a listener to be able to segment speech. The analysis of the acoustic information that corresponds to the boundaries of elementary discourse units has become a focus of many linguistic studies (Svetozarova, 1982; Pierrehumbert & Hirschberg, 1990; Selting, 2000; Vol'skaja & Stepanova, 2005, etc.).

We manually marked all pauses in 93 minutes of spontaneous Russian monologues and dialogues extracted from radio interviews and TV talk shows in order to study the correlation between prosodic and syntactic-semantic organization of spontaneous Russian. According to the results, around 30% of all syntactic-semantic units (elementary discourse units) are broken by pauses in our material. Moreover, up to six pauses can occur inside one syntactic-semantic unit.

The instrumental analysis of the pitch contours of the “broken” utterances has shown that some fragments of the “broken” utterances analyzed have a pitch contour similar to the contour of an independent complete utterance (see pic.1).



Pic.1. *A kto* ('and who') – *pause* – *togda* ('then') – *pause* – *um'ejet* ('can')?

Then, to check whether the pitch contours of the parts of a “broken” utterance can help listeners understand that these are not separate discourse units, but the fragments of a bigger discourse unit, we performed two psycholinguistic experiments.

In the first one, 55 participants were asked to listen to the fragments of “broken” utterances (given both auditory and in orthography) and to decide whether each of the stimuli could be a separate (and complete) utterance in a dialogue. To exclude the influence of semantics and grammar, we used only ambiguous parts of “broken” utterances, i.e. the syntactic-semantic structure of which could be interpreted both as a complete utterance and as a part of a bigger syntactic-semantic unit. Questions and declarative utterances without any inner pauses were used as control. The results showed that the pitch contour cannot provide sufficient cues for the utterance to be considered finished or not: none of the stimuli was reported to be a part of a bigger utterance by all of the participants.

In the second experiment, we removed all inter-utterance pauses from twenty three “broken” utterances and asked 65 native speakers of Russian to listen to the stimuli and report whether the utterances sounded natural or not. Three utterances that did not have any inner pauses in the initial context were used as control. Only eleven out of twenty three stimuli did sound natural for 60% or more of the participants. So, the pitch contour seems to unite the parts only of some of the “broken” utterances analyzed.

Thus, according to the results of the instrumental analysis and psycholinguistic experiments, the prosodic information is not always crucial for an adequate processing of spontaneous speech by a listener, semantic and syntactic context often playing the more important role. In the presentation, we are going to compare the results of the instrumental analysis and the experimental data and to focus on the discussion of the stimuli that were considered unnatural by the participants of the experiment.

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