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**SUBJECTIVE MEANING OF THE HIGHNESS-TEMPORAL PARAMETERS OF ACOUSTIC EVENTS**

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*The psychological model of subjective meaning acquisition of an acoustic fragment is presented in this article. The old term of psychic energy is defined anew as the information resource. Two additional dimensions of subjective meaning are postulated: demand for psychic energy and the level of energy available. Their connection with traditionally distinguished emotional states is considered. The mechanism of connection between the two aforementioned functions and highness-temporal parameters of the sound is proposed.*

Considerable growth of the interest in detection of emotion in speech on the base of frequency and temporal parameters could be admitted in the past few years [1]. As a rule, scientists try to detect specific emotions, most often so called basic emotions like: anger, fear, joy, disgust and search for the patterns of acoustic parameters that could reliably discriminate one basic emotion from the other and from the neutral expression.

In general, in contemporary psychology there are two paradigms of description of various psychic phenomena. They could be called a typological and dimensional one. Speaking more specific about the description of emotional states, by the typological approach we face the necessity to map the multidimensional space of the sound characteristic onto very few discrete basic emotions the names of which are at the same time considerably determined by specific culture. Such an approach is undoubtedly rather restricted in its ability of identification of the *tendencies* to this or that state being expressed in speech. Moreover, isolated considering of emotions impoverish the possibility of links with some other characteristics like temperament, some personal traits and even some kinds of the cognitive activity those are easily detected by the humans. Dimensional approach most often is represented by the dimensions like: intensity, pleasure, and control [2] those stem to the works of Osgood et al. [3].

In any case the scientists proceed from the emotion and find its correlates in acoustic parameters.

On the contrary, in our works ([4]Almayev, 2000, [5]Almayev, in press) it was proposed to consider the meaning of sound as it is. To say it in another words, we tried to answer the question of how it can be that sound may have some meaning at all? The next immediate question is how should we describe such meaning that evidently can not coincide with this or that word of a natural language. What is the psychological mechanism of ascribing meaning to a sound?

The task of our approach is, therefore, to enable the possibility of mapping of the continuum of acoustic events characteristics into the isomorphic continuum of the subjective meanings characteristics instead of existing mapping into discrete loci of the separate emotions.

Here we face the problem that was discussed in several of our works and that is not sufficiently realized in the contemporary psychology and philosophy ([6]Almayev, 1999, [4] Almayev, 2000, [5] Almayev, in press). The problem is that we possess no means for fixation of subjective meaning except the words of a natural language. At the same time the natural language words are often fit very bad for this purpose.

For the solution of the problem of meaning fixation without being ultimately bond to the natural language we have proposed to turn to the entities of meaning those are of a finer grain then the words. In this attempt we've followed E. Husserl's (1859-1938) teaching about intentions with its main idea that the meaning of a word is being constituted out of intentions – those he understood as directedness of consciousness towards any content whatever. In more general sense of Husserlian teaching intentions are that which enable the possibility of identification of any content of psyche with itself. It is obvious that without such acts of identification no representation, no consciousness of duration, no time perspective, object or scene, etc. could be constructed in our psyche.

In an experimental study (please see [6]Almayev 1999 for references) we've obtained data confirming that intentional structures of visual scenes and words of natural language are common and serve as the ground for choosing appropriate words for the description of the perceived reality. (see also Almayev 2000 – Proceedings of ISAPL 7). Nevertheless, we've found some considerable limitations in the Husserl's means for the description of subjective experience. Particularly, Husserlian terms could not describe why some intentions might realize themselves in consciousness in spite of the ego's will, while the other can not do the same despite all the ego's desire. To say it in another words Husserlian Phenomenology lacks the term for descriptive characteristic of **potentiality of realization** of intentions. It impoverishes his way of Phenomenology and makes many philosophers and psychologists to turn to another variants of the phenomenological paradigm.

Taking this into account we've proposed to bring the potentiality of intentions fulfillment to consideration and signify it following the long tradition as the “psychic energy”.

Energy in the sense that is common for both physics and metaphysics – is that which makes potential being actual. This term in respect to psychic events was used by the great variety of authors from the fathers of Church up to psychoanalysts and what not. More precisely by this term we understand certain information resource that is necessary for the acts of identification those are necessary for this or that activity. What is the neurological basis for this resource is not discussed now.

It should be mentioned that despite of the long popularity in the past now “psychic energy” sounds like something not completely scientific and there is a clear tendency to avoid it among the representatives of academic science. The cause of such a state of affairs is seemingly in the fact that energy is not clearly divided from the intentionality. Intentionality is characterized with directedness while information resource for future intentions, possess as it is no directedness, but is being reserved by intentional structures. No intentional modification is possible without sufficient information resource. Very often this resource is being reserved in severe competition between several functional systems. We can easily find it in our subjective experience when we turn from one occupation (suppose more difficult) to another suppose more simple. More difficult requires greater resource while more simple is experienced with the higher level of available psychic energy.

On the contrary if we shall ascribe some intentional or appraisal characteristics to energy like “positive” or “negative” the whole discourse immediately begins resembling some shamanic or paranoid constructions. We think that it is useful to divide intentional and energetic processes and to analyze them separately while having in mind that in reality they are indissoluble. In general, any intentional structure can have any energetic resource but in each moment of objective time each one has its own. In our works on the psychology of music (Almayev, 2000[3], Almayev, in press [4]) we have proposed to distinguish at least two variables of psychic energy management. These are: 1) the demand of energy that might be characterized by both quality and quantity of the systems being engaged into it; 2) the estimation of the level of energy (presently available to that system(s) with which ego is presently connected).

These functions can have the following correspondence with the emotional states: intensive demand for energy combined with the high level of available energy characterizes high level of directed activity. Low demand for energy with high level of available energy is characteristic for joy, relief, and sense of might. Intensive energy demand while level of available energy is low states for intensive grief, high level of anxiety while depression. Low level of demand for energy combined with the low level of available energy is being signified as apathy, being powerless.

Any state of psyche might be allocated within the aforementioned dimensions. Addition of appraisal (intentional) characteristics like pleasant-unpleasant, must be – must be not and intentional reference to the objects may describe with the high level of detailing not only abstract emotions but also concrete living through processes.

Now we have to answer the crucial question: how do physical and psychological properties of sound may bond? How can acoustic events that are measured in Hz, milliseconds and dB acquire subjective meaning? Unfortunately, we failed to trace any specific theory in psychology of music and speech concerning the mechanism through which it can take place. Most of the psychologists of music (see Lavy 2000 [7]) agree that music can conduct emotion through its ability of inducing tensions and relieves. Nevertheless how does tensions and relieves are induced is not considered in psychological details [7]. We suppose that the connection between physical and psychological characteristics of the sound is mediated through the mechanism of resonance. Sounds may possess subjective meaning stemming from the association with the parts of body to which they are “tuned in” through resonance.

Taking into consideration that acoustic events consist most often of the waves of many frequencies this statement refers first of all to those frequencies that have the greatest volume.

Further, we proceed from the following basic assumptions.

We can easily observe that the lower sounds resonate with the chest or even the stomach, while the higher with the throat and this or another section of the cranium. Throughout all of the Indo-European tradition beginning from the Vedas the chest (heart) is associated with the will and passions, while the stomach with drives or desires (unconscious and relatively more abundant in energy), and the head—together with some sapient, controlling division—with reason or the mind (conscious but very often lacking energy).

Every content, in order for it to continue being active in the psyche, needs a certain amount of energy. This is precisely why we can consider every sound as demanding a certain amount of energy just for being perceived. Later this demand is expected and is being compared with the next event which can be the next sound as well as the pause or continuation of the previous sound. Although, many philosophers (Husserl, Myer, Levi-Stross) admitted the last principle in respect to the «sound» we specified what namely is expected and compared for the constitution of subjective meaning.

While the higher tones appeal to the more controlling divisions of psyche the rising of the tune corresponds to the ego's more intensive demand for energy, while its falling to the ego's energy demand of reduced intensity. The next equally important characteristic of a sound is its duration. According to Husserl's teaching on inner temporality [8] sound is subjected to subsequent modifications within a very short period of time (less than 1 sec., according to some of our observations). Correspondingly, even a little change in duration of this or that frequency in acoustic event may affect on the emotional meaning of the whole. The next following is the role of tempo: higher is the tempo the more frequent is the demand for energy which most often leads to the increase of its level (independently on what levels of psyche - more controlling or more instinctive are demanding). It is not surprising, therefore, that tragic music is most often is written in a low tempo and cease to be perceived as those while being played with considerable increase of velocity.

Depending on duration and highness of the main tone changes the meaning of two essential possibilities of the development of the acoustic event: namely going of the tune down or up. Going down may be perceived as the relief i.e. signifies that the controlling instances experience surplus of energy and don't need it more, or on the contrary it may signify that the energy whiles being necessary is not available for them. The last case presupposes longer pause or shorter duration of the higher tone, greater interval between higher and lower tone, and in general the context of slower tempo.

The going of tone up also may acquire different meaning depending on the frequency of the first tone the time till the beginning of the next tone and, to some extent, the highness of the second tone. Relatively quicker rise produces the feeling of sufficient amount of energy available for the ego, more slower one begins to express tension i.e. such a state when relatively more intensive search for the energy leads to relatively humble results.

Exact identification of the temporal parameters that are crucial for the senses of 1) surplus or 2) lack of energy and 3) necessity to intensify demand for it or 4) the absence of such necessity may facilitate the solution of the task of identification of the psychic states being conducted through the intonations of speech and music. The overall impression of music or intonations of speech is based on the quantitative ratio of the 4 aforementioned senses and the character of their distribution in the whole of an audile fragment

We should also take into consideration the context of the highness of pitches and perhaps such parameter as their “stability” or “instability” that also may have some parallel in the sounds of speech. The quality of stability reflects the measure of matching of intentions and their fulfillment in representation. The sense of stability is greater the more intentions have found their fulfillment, whereas, instability is the sense of non-sufficient fulfillment of intentions.

Taking above into consideration we may say, that less stable is the pitch more psychic energy it is demanding, whereas, the stable pitches are more likely to produce the sense that they share energy.

The new approach to description of subjective meaning of audile fragments permits interpretation of arbitrary audile material and scaling it with any scales of subjective meaning whatever (For description of empirical study Almayev, 2000 see [3]). What could be of great value here is automatic registration and obtaining of statistical data concerning the features of audile fragment like numbers and duration of rises and falls, the “velocity” of rises and falls. Later on that data may be subjected to multiple regression analyses in order to determine the role of this or that audile parameter in this or that verbal characteristic. Let me express hope that the proposed model of subjective meaning of audile fragments might be of some value for the interpretation of empirical data.

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