The present approach adopts language-independent patterns of modeling segmental and prosodic units of speech. Phonetic description of these units is based on experimentally contrastive analyses of Russian, English, French and German phonetic characteristics and is carried out within a single normalized range of acoustic parameters.

The prosodic program includes rules for letter-to-phoneme conversion, stressing and accent location rules, as well as algorithms for a prosodic contour choice and modification under varying contextual conditions.

ABSTRACT
The present program adopts language-independent principles of modelling segmental and prosodic units of speech. Phonetic description of these units is based on experimentally contrastive analyses of Russian, English, French and German phonetic characteristics and is carried out within a single normalized range of acoustic parameters.

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INTRODUCTION
Rapid improvement of speech synthesis technology over the last two decades has resulted in the emergence of new programs permitting a wide range of user-specified applications. The general trend toward greater flexibility of synthesis systems is well seen through the growing interest in text-to-speech synthesis designs, and is well seen through the growing interest in text-to-speech synthesis designs, and especially those fearing a variety of languages.

Multi-language systems apparently derive from programs suited to the needs of one particular language. Linguistically, this is justified by a universal, language-independent nature of phonetic categorization which predetermines a largely universal character of speech synthesis as an analog of natural spoken language. Thus any synthesis model will distinguish a single classification of a single set of phonemes and reflect coarticulation of these units as based on experience of interacting targets and transitional functions whose values are determined by the unit's inherent properties, by the environment on one hand, and the influence of its environment, on the other. Importantly, there are no constraints on a phoneme description either as regard parameter value modifications or the unit linear subsegmentation. It is clear that the portraits in question serve as a convenient tool for achieving allophonic contrast in the basis of phonemic input in conformity with the main principal of multi-language units' actualization in speech.

The same way, portraits of prosodies are built in accordance with the assumed language-independent structure of an independent unit. They provide a sort of modal for embodying qualitative and quantitative properties of the selected set of prosodic modifications depending on its linguistic universe and take account of its linguistic usage. Thus any synthesis model will distinguish a single classification of a single set of prosodies and reflect prosodic coarticulation of these units as a consequence of the phonological system's typological similarities — suggests a possibility of applying a single descriptive apparatus for indentifying the phonetic features of the languages in creating the data bases for multi-language synthesis.

The above general prerequisites find ample expression in the current program which is based on a model, originally devised for the Russian speech synthesis. This model's applicability for multi-language purposes is due to the linguistic nature of its design as its fundamental elements — portraits of phonemes and prosodies —/2/ Phonemes' acoustic portraits, in particular, incorporate a sufficient amount of parameters to convey exhaustive information about phonetically significant features of vowels and consonants of any language. The acoustic parameters, specifically, are presented as complexes of interacting targets and transitional functions whose values are determined by the unit's inherent properties, as well as by the environment on one hand, and the influence of its environment, on the other. Importantly, there are no constraints on a phoneme description either as regard parameter value modifications or the unit linear subsegmentation. It is clear that the portraits in question serve as a convenient tool for achieving allophonic contrast in the basis of phonemic input in conformity with the main principal of multi-language units' actualization in speech.

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action in producing (and consequently, no-
seems that informational effects are ultimate-
ly aimed at. Therefore, interaction of the
underlying principle for the model.
realization of an information includes se-
veral aspects. For one, connection between
the contours is accomplished on the post-nuclear
syllables and in their absence the given
configuration can be described as a wide
steep rise. The role of these factors has been
confirmed in a number of listening tests in
which some synthetic realizations of F0
contours displayed a markedly lower per-
centage of correct identification both of
the communicative meaning of the tone
unit (in terms of such dichotomies as com-
tative vs. incomplete, interrogative vs.
ducative, neutral, alike vs. categoric, expres-
sive, etc.) and the phonetic type of the
tonal pattern (in terms of pitch change-
directional types and phonetic-level gradia-
tions). The functional "deficiency" of these
contours clearly stemmed from insufficient
duration of the given sound—the pitch pattern
of the accent—unit; degree of prominence
of the given sound—the pitch pattern
(tone) of the accent—unit; degree of prom-
ounce from the point of view of verifying
the possible feature combinations are se-
lected, the latter being overlooked by
the models is insignificant. Each allo-
to produce a single correlation coefficient
which is a ratio of the phone
sequence lengthens. The latter
was identified with the duration of a
phone in each phoneme class is assigned a
parameter feature: the effect noted in numerous earlier writings.

This difficulty is overcome by supplying
multiple acoustic correlates to a single
functional type of contour. There is also positional and combinatorial
variation of tonal patterns. The former
achieved by assigning lower values to one
or more F0 peaks of the contour; the
latter is achieved by assigning a single
natural property of the contour. The
object of combinatorial variation is to
avoid monotony when two or more func-
tional types and pitch-level gradia-
tions are combined. The combinatorial
variability of the contours is accomplished by the
non-phonetic nature of perceptible pitch catego-
ries, e.g. major, minor, melodic, etc.

The temporal and dynamic algorithms start
with establishing inventories of duration-
al and intensity allophones, respectively,
in accordance with the adopted principles
of their classification. More detailed ac-
count will be given in this paper of the
duration rules.

In the suggested classification all allo-
phones (of vowels and consonants, alike)
are characterized by a single parameter
which has been shown to be signifi-
cantly correlated with the duration of al-
phones in each phoneme class is assigned a
parameter feature: the effect noted in numerous earlier writings.

Further efforts are required to achieve
better formalization in the linguistic
component of the program.

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