Features for consonants in English

|     | p | t | k | b | d | g | f | v | s | z̃ | ź̃ | ĺ̃ | j | Ө | ə | m | n | n̄ | w | y |
| cont| - | - | - | - | - | - | - | - | + | + | + | + | + | -/+ | -/+ | + | + | - | - | - |
| strid.| - | - | - | - | - | - | - | + | + | + | + | + | + | + | + | + | - | - | - | - |
| lips | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + |
| blade| + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + |
| body | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + |
| ant  | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + |
| nas  | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| voic | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |

Table 1. Articulator-free features for some consonants in English

Table 1. Articulator-free features for some consonants in English

\[ t,d \quad s,z \quad 0,\delta \quad n \]

continuant \[-\quad +\quad +\quad -\]

sonorant \[-\quad +\quad +\]

strident \[+\quad -\]

\[ t,d \quad s,z \quad 0,\delta \quad n \]
Table 2. Seven articulators and the features that specify phonetic distinctions that can be made with each articulator. The articulators are divided into three groups: those that can form a constriction in the oral cavity, those that control the shape of the airway in the laryngeal and pharyngeal regions, and the aspect of vocal-fold adjustment relating to stiffness.

<table>
<thead>
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<th>Articulator</th>
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<td>[constricted glottis]</td>
</tr>
<tr>
<td>vocal folds</td>
<td>[stiff vocal folds]</td>
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</tbody>
</table>
voicing:

+: b d g v ð z ŋ j
-: p t k f ð s ś č

coronal (blade)

+: t ð ð s z ś ʃ ʃ j n
-: p k b g f v m n

strident

+: s z ś ʃ ʃ j f v
-: t ð g n ð m n p k b

English plural

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</table>

Nasal Assimilation

| land | lamp | lan k |

Suffix /jan/

commune | communion
hell | hellion
million

confess + jan | confession
deride | derision
contrite | contrition
Egypt | Egyptian
divide | division
Table 5. Lexical representations for the words help, debate and wagon. The syllable structure of each word is schematized at the top (σ = syllable, o = onset, r = rime).

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LSPECTO: 256-pt DFT, smart AGC  6.4-ms Hamming window every 1 ms
Possible model for lexical access
Speech intelligibility for various speech units

Figure 2: Dependence of word identification score on speech to noise ratio for keywords spoken in sentences (five per sentence) and for the same words spoken in isolation (from Miller, Heise, and Lichten, 1951).

![Graph showing the dependence of word identification score on speech to noise ratio for keywords spoken in sentences versus in isolation.](image1)

Figure 1: Dependence of intelligibility on the number of items (monosyllabic words) in the test vocabulary (from Miller, Heise, and Lichten, 1951).

![Graph showing the dependence of intelligibility on the number of items in the test vocabulary.](image2)
Spin Test: Influence of context

**Examples:**

**PH:** The boat sailed across the bay

**PL:** We were talking about the bay
Confusion matrices for consonants in CV syllables

Table V. Confusion matrix for $S/N = +6$ db and frequency response of 200-6500 cps.

<table>
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<th>f</th>
<th>k</th>
<th>d</th>
<th>r</th>
<th>m</th>
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Table III. Confusion matrix for $S/N = -6$ db and frequency response of 200-6500 cps.

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Table II. Confusion matrix for $S/N = -12$ db and frequency response 200-6500 cps.

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| n | 1 | 4 | 2 | 18 | 7 | 1 | 11 | 8 | 11 | 1 | 109 | 60 | 1
Simplified model for speech production

Figure 2

Phonological Representations

Planning Stage

Gestural Calculations

Vocal Tract

Sound Output

Discrete Output

Continuous Gestures
Figure 4

Model for speech production with "enhancement" and "overlap".