THE LEXICON AND ITS FEATURES


COURSE NUMBER: 24.941J (Linguistics); 6.543J (EECS); HST 727J; 9.587J (BCS)

SHORT DESCRIPTION: Overview of the distinctive features which distinguish sound categories of languages of the world. Theories which relate these categories to their acoustic and articulatory correlates, both universally and in particular languages. Models of word recognition by listeners. Features and phonological structure. The course offers a variety of perspectives on these issues, drawn from Electrical Engineering, Linguistics and Cognitive Science.

CLASS TIME: Thursday 5-8

CLASS LOCATION: 32-D831

<table>
<thead>
<tr>
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TEXT: readings on the website

PREREQUISITES: instructor approval

Supplementary sessions: background material in phonology and possibly phonetics and psycholinguistics of lexical access will be presented for those who are interested (esp. students lacking a background in these fields) in separate sessions to precede the relevant lectures.

COURSE REQUIREMENTS:
- doing the readings;
- class participation;
- a research paper, presented in one of the last two sessions and written up.

We encourage inter-disciplinary teams of students doing joint work. We will set aside some time early in the term to discuss with the class the logistics of such collaboration.
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| 2-8  | (KS) Course overview | a. distinctive features: phonological evidence and evidence from production, acoustics and perception; articulator-free features and articulator-bound features  
   b. basics of acoustics of speech production: acoustic sources from airflow, filtering of sources by the vocal tract  
   c. some basic anatomy: breathing, lungs, larynx, oral tract, nasal cavities  
   d. basics of hearing; hearing for speech  
   e. air flow and its control in speech production  
   f. introduction to quantal theory, enhancement  
   Stevens, K.N. 1998, *Acoustic Phonetics* (Ch. 1-2)  
   Stevens & Keyser 2006 – manuscript (Paris, France)  
   Clements & Ridouane 2006, ISCA Tutorial Workshop, Greece |
| 2-15 | (KS) Features for vowels and sonorant consonants | a. vowel systems, relation between acoustics and articulation; vowel nasalization, glottal source for vowels  
   b. waveform displays, spectrum displays, spectrograms  
   c. sonorant consonants: glides, liquids, nasals  
   Stevens, 1998, *Acoustic Phonetics* (Ch.3-6)  
   Stevens & Keyser 2006 – manuscript (Paris, France)  
| 2-22 | (KS) TBA | TBA |
| 3-1  | Why features (DS) | a. learning phonology with distinctive features  
   Albright & Hayes 2003 *Cognition* 90, 119–161  
   Nielsen 2006 *ICSLP*; Peperkamp et al. *Cognition* 2005  
   b. inferring features: Mielke *Phonology* 2005, 22, 169  
   c. natural classes: Flemming *Lingua* 2003 |
| 3-8  | Feature values in lexical entries (DS) | a. experimental evidence for underspecification  
   Steriade 1995 in Goldsmith (ed.) *Handbook of PhonTheory*  
   Nevins 2004 MIT PhD  
   b. evidence for underspecification in lexical access vs. phonological evidence  
   Steriade 1993 in Huffman & Krakow (eds.) *Nasals*  
   Steriade 2000 in Broe & Pierrehumbert (eds) *Labphon* 5  
   Albright 2007 ms. on releases |
| 3-15 | Features vs. contrasts (DS) | Phonological relevance of non-contrastive features: release, syllabic, timing  
   Steriade 1993 in Huffman & Krakow (eds.) *Nasals*  
   Steriade 2000 in Broe & Pierrehumbert (eds) *Labphon* 5  
   Albright 2007 ms. on releases |
| 3-22 | Features vs. contrasts (EF, DS) | a. Syllable structure:  
   b. Contrast as an alternative theory of features  
   Flemming 2004 in Hayes, Kirchner & Steriade (eds) *Phonetically Based Phonology* |
| 3-29 | Vacation | |
### Theories of speech perception (EF, DS)

Objects of speech perception

- Remez 1997 in *Handbook of Speech Perception*;

Models of speech perception – relation to lexical access, the role of ‘intermediate’ representations, Nearey’s typology of intermediate representations.

Neary 1997 *JASA* 101(6).

### Context effects (DG)


### Normalization (DG)


### Feature-cue integration and assimilation (DG)


### Student presentations
