

Foundations

Phonetics

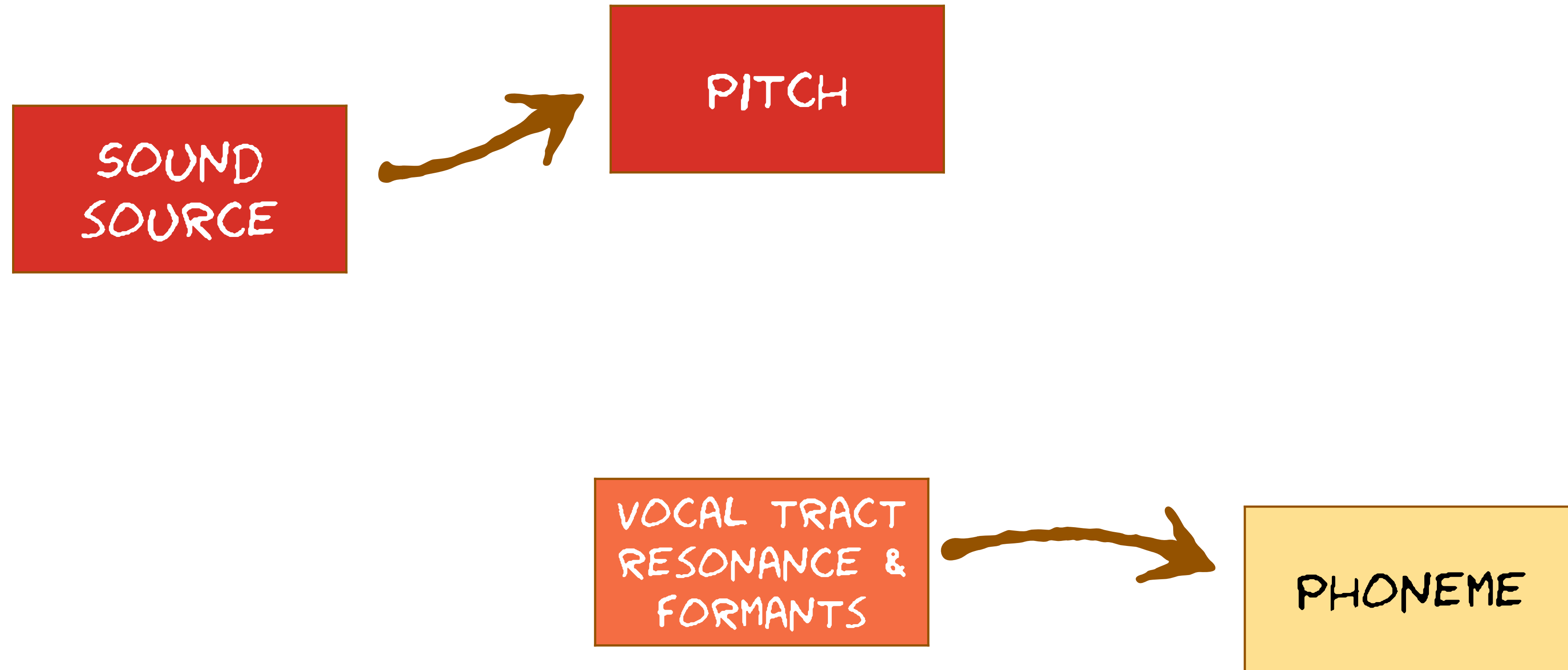
Roadmap

- Modules 1-2: The basics
 - Modules 3-5: Speech synthesis
 - Modules 6-9: Speech recognition
- Block 1 Week 2
 - Module 1: a brief look at speech production and perception
 - Block 1 Week 3
 - Foundations: signals
 - Module 2: speech signals and the source-filter model
 - Block 1 Week 4
 - Foundations: phonetics

Today's topics - Foundations: phonetics

	THEORY					APPLICATION					
	SPEECH			SIGNAL PROCESSING	PROBABILISTIC MODELLING	SPEECH SYNTHESIS		AUTOMATIC SPEECH RECOGNITION			
	SIGNALS	PRODUCTION	PERCEPTION			FRONT END	WAVEFORM GENERATION	FEATURE EXTRACTION	PATTERN MATCHING	HIDDEN MARKOV MODELS	CONNECTED SPEECH
CONCEPTS	TIME DOMAIN	SOUND SOURCE	PITCH	DIGITAL SIGNAL	DESCRIBING DATA	TOKENISATION & NORMALISATION	WAVEFORM CONCATENATION	SERIES EXPANSION	EXEMPLAR	GENERATIVE MODEL OF SEQUENCES	HIERARCHY
	PERIODIC SIGNAL	HARMONICS	COCHLEA	SHORT-TERM ANALYSIS	DISCRETE & CONTINUOUS VARIABLES	PRONUNCIATION	DIPHONE	FEATURES	DISTANCE		SUB-WORD UNIT
	FREQUENCY DOMAIN	VOCAL TRACT RESONANCE & FORMANTS	MEL SCALE	SPECTRAL ENVELOPE	JOINT, CONDITIONAL, BAYES' FORMULA	PROSODY		FEATURE ENGINEERING	SEQUENCE	HIDDEN STATE SEQUENCE	N-GRAMS
MODELS & DATA STRUCTURES	FILTER	RESONANT TUBE	FILTERBANK	IMPULSE TRAIN	GAUSSIAN	FINITE STATE TRANSDUCER		FEATURE VECTOR	SEQUENCE OF FEATURE VECTORS	HIDDEN MARKOV MODEL	
	IMPULSE RESPONSE	SOURCE-FILTER MODEL	PHONEME	PITCH PERIOD	GENERATIVE MODEL	DECISION TREE			GRID	LATTICE	GRAPH
ALGORITHMS & ANALYSIS				FOURIER ANALYSIS	FITTING A GAUSSIAN TO DATA	HANDWRITTEN RULES	OVERLAP-ADD	MFCCS	DYNAMIC PROGRAMMING (DTW)	DYNAMIC PROGRAMMING (VITERBI)	COMPOSITION ("COMPILING")
				CEPSTRAL ANALYSIS	CLASSIFICATION	LEARNING DECISION TREES	TD-PSOLA			BAUM WELCH	APPROXIMATION (PRUNING)

Today's topics - Foundations: phonetics



See slides from: Foundations for Speech Processing > Phonetics

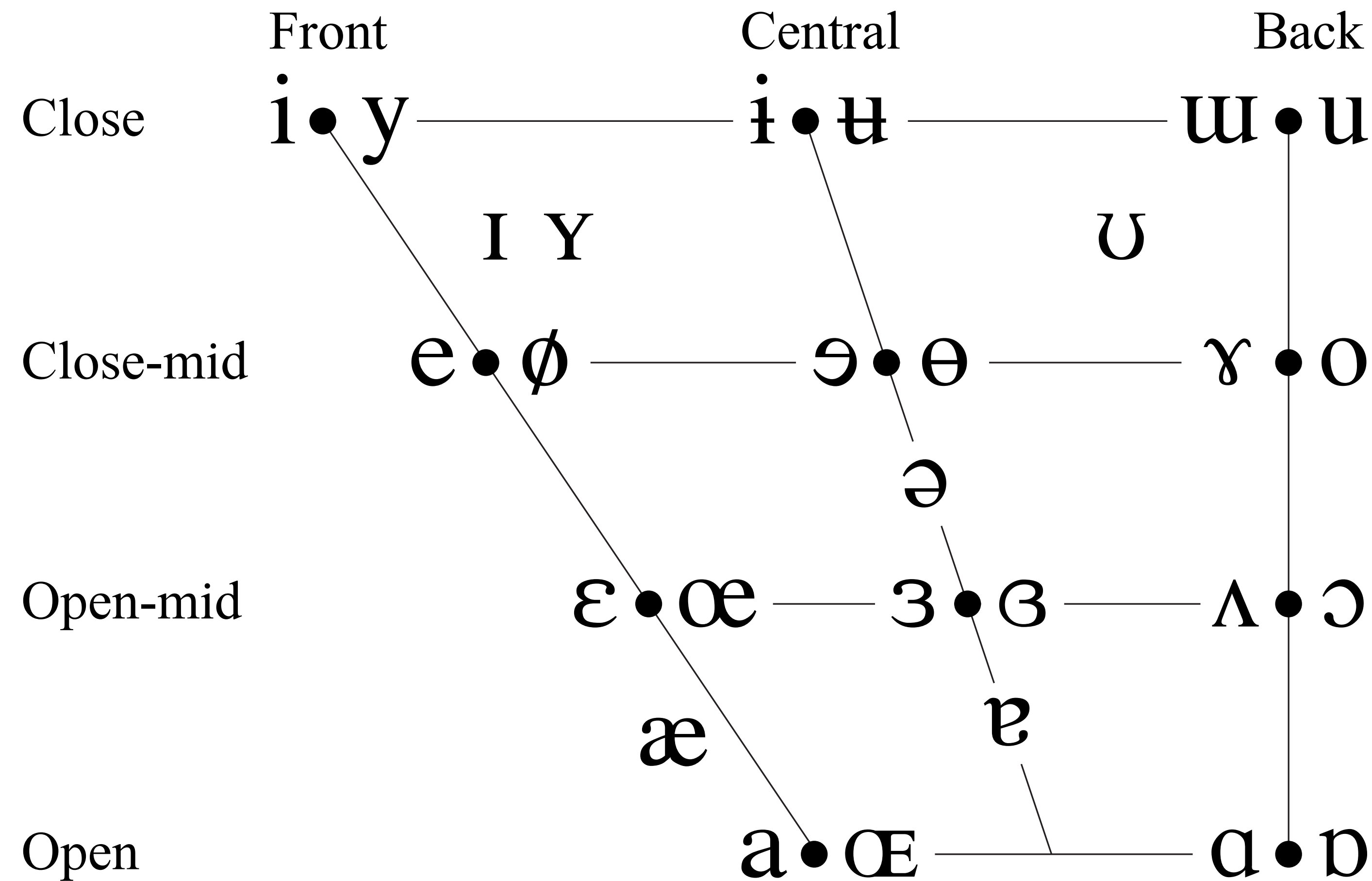
THE INTERNATIONAL PHONETIC ALPHABET (revised to 2015)

CONSONANTS (PULMONIC)

© 2015 IPA

	Bilabial	Labiodental	Dental	Alveolar	Postalveolar	Retroflex	Palatal	Velar	Uvular	Pharyngeal	Glottal
Plosive	p b			t d		ʈ ɖ	c ɟ	k ɡ	q ɢ		ʔ
Nasal	m	ɱ		n		ɳ	ɲ	ŋ	ɴ		
Trill	ʙ			r					ʀ		
Tap or Flap		ⱱ		ɾ		ɽ					
Fricative	ɸ β	f v	θ ð	s z	ʃ ʒ	ʂ ʐ	ç ʝ	x ɣ	χ ʁ	ħ ʕ	h ɦ
Lateral fricative				ɬ ɮ							
Approximant		ʋ		ɹ		ɻ	j	ɰ			
Lateral approximant				l		ɭ	ʎ	ʟ			

VOWELS



Where symbols appear in pairs, the one to the right represents a rounded vowel.

Today's topics - what we covered

