

## Lecture 1: Phonological Systems and Phonological Change

### 1. Recap of terms

#### 1.1. IPA

- See attached IPA chart
- Primary Cardinal Vowels

	Front		Back	
Close	[i]	Eng. see	[u]	Eng. put
Close-mid	[e]	Fr. donner	[o]	Eng. pot
Open-mid	[ɛ]	Eng. get	[ɔ]	Eng. cause
Open	[a]	Eng. cat	[ɑ]	Eng. harm

- **NB** φ θ χ are used to represent fricatives ie **not** what we reconstruct for the pronunciation of these letters in 5<sup>th</sup> Century Attic Greek!
- θ = 'thorn', ð = 'eth' (by the way, these are 'unusual' consonants: see Map 1)

#### 1.2. Phoneme

- a group of phonetically similar sounds in complementary distribution
- made up of allophones e.g. Eng. spot, pot ([p], [p<sup>h</sup>])
- an abstract concept, represented in diagonal brackets e.g. Eng. /p/
- May be seen in minimal pairs (Eng. bat, pat)

## 2. Phonological systems

- Examination of minimal pairs builds up phonemic inventory
- Languages tend to exhibit a preference for ordered systems
- Example 1: English fricatives

voiceless	f	θ	s	ʃ	h
voiced	v	ð	z	ʒ	

- Example 2: Greek consonant phonemes

		Labial	Dental	Velar
Plosives	Voiceless	π	τ	κ
	Voiced	β	δ	γ
	Aspirated	φ	θ	χ
Fricatives	Voiceless		σ	
	Voiced		(ζ)	
		μ	ν	γ(γ)

- Example 3: Sanskrit consonant phonemes

	Voiceless	Voiceless aspirate	Voiced	Voiced aspirate	Nasal
Velar	क	ख	ग	घ	ङ
Palatal	च	छ	ज	झ	ञ
Retroflex	ट	ठ	ड	ढ	ण
Dental	त	थ	द	ध	न
Labial	प	फ	ब	भ	म

- See Map 2 for more on this 'tendency'.

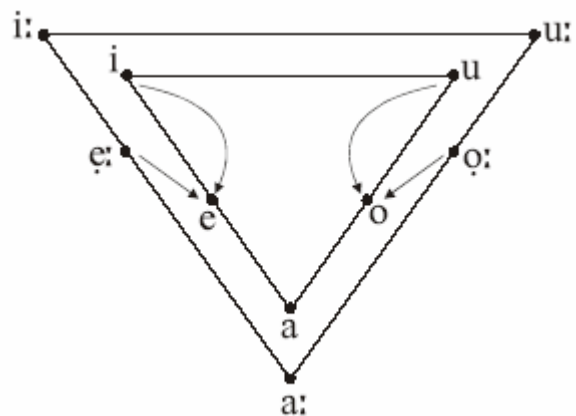
### 3. Principles of change in phonological systems

**Principle 1:** Changes tend to create/restore balance

Case study 1: Latin vowels.

- Short vowels lower than the corresponding long vowels.

Evidence: MINSIBVS for *mēnsibus*  
 KARESSEMO for *carissimo*  
 FICIT for *fēcit*  
 Τεβεριος for Tiberius  
 SOB for *sub*  
 FLUS for *flōs*

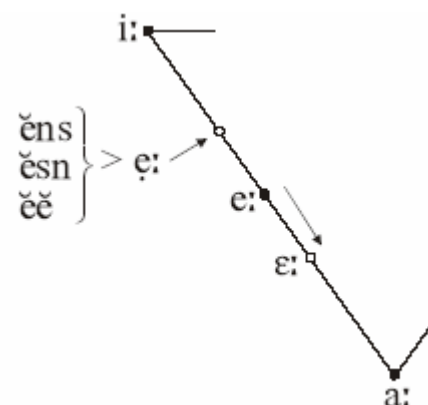


- When vowel length is lost in Vulgar Latin, /e:/ and /i/ collapse as /e/
- Hence Class. *pīra* > It. *pera*; class. *vērūm* > It. *vero*.

**Principle 2:** Maximum differentiation in phonological space

Case study 2: Greek vowel system

- In Greek, the development of a new /e:/ phoneme causes overcrowding.
- Existing /e:/ consequently pushed down to /ε:/ to cause maximal differentiation.

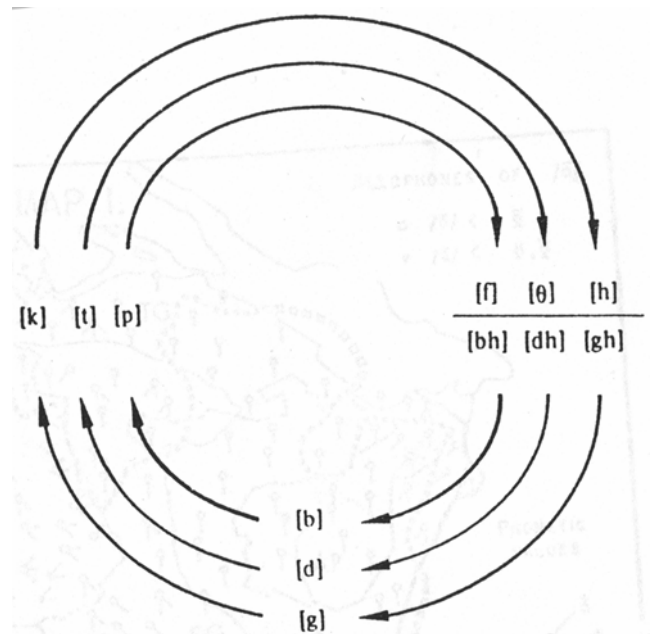


**Principle 3:** Change in one part of the system will often have knock-on effects

Case study 2: Grimm’s Law (consonant shifts in Germanic)

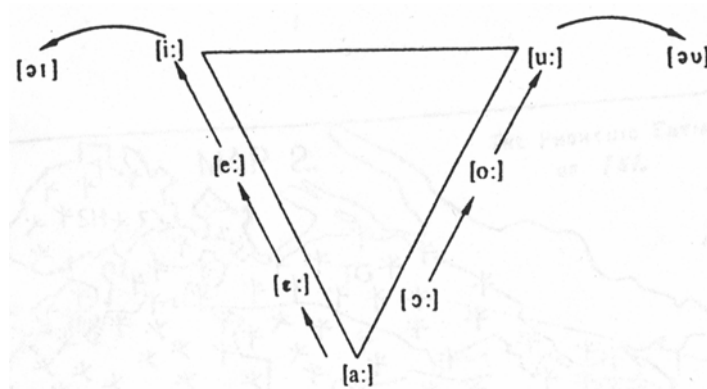
[b <sup>h</sup> ]	Skt. <i>b<sup>h</sup>arami</i>	b	bear
[d <sup>h</sup> ]	Skt. <i>dad<sup>h</sup>ami</i>	d	do
[g <sup>h</sup> ]	PIE *g <sup>h</sup> ans	g	goose
[b]	?	p?	?
[d]	Lat. <i>decem</i>	t	ten
[g]	Lat. <i>genus</i>	k	kin
[p]	Lat. <i>pater</i>	f	father
[t]	Lat. <i>tres</i>	θ	three
[k]	Lat. <i>cornu</i>	h	horn

- Problem of the voiced aspirates – only Sanskrit retains them.
- Germanic deaspirates them to /b, d, g/.
- BUT there are already /b, d, g/ phonemes in Germanic.
- These devoice to /p, t, k/.
- BUT there are already /p, t, k/ phonemes.
- These fricativise to /f, h, h/.



Case Study 3: Great English Vowel Shift

Change	Middle English	Early Modern	Modern	
/a:/ > /ɛ:/	[na:mθ]	[nɛ:m]	[neim]	'name'
/ɛ:/ > /e:/	[mɛ:t]	[me:t]	[mi:t]	'meat'
/e:/ > /i:/	[me:t]	[mi:t]	[mi:t]	'meet'
/i:/ > /θi/	[ri:dθ]	[rθid]	[raid]	'ride'
[ɔ:] > [o:]	[bɔ:t]	[bo:t]	[bəut]	'boat'
[o:] > [u:]	[b o:t]	[bu:t]	[bu:t]	'boot'
[u:] > [ou]	[mu:θ]	[mouθ]	[mauθ]	'mouth'



- Note how modern spelling reflects Middle English pronunciation.

#### 4. Distinctive Feature Theory

- Phonemes can be considered as sets of distinctive features such as  
[±CONTINUANT], [±VOICE], [±ASPIRATION].

Eg. /ph/ is [-CONT., -VOICE, +ASP., +LABIAL]

- Development of pre-Modern Gk. aspirated stops:

ϕ [p<sup>h</sup>] > [ɸ] (bilabial fricative) > [f], labiodental fricative)

θ [t<sup>h</sup>] > [θ] (dental fricative)

χ [k<sup>h</sup>] > [x] (velar fricative).

- In terms of features:

[-CONT., -VOICE, +ASP., +LABIAL] > [+CONT., -VOICE, -ASP., +LABIAL]

[-CONT., -VOICE, +ASP., +DENTAL] > [+CONT., -VOICE, -ASP., +DENTAL]

[-CONT., -VOICE, +ASP., +VELAR] > [+CONT., -VOICE, -ASP., +VELAR]

- Isolating the common elements:

[-CONT., -VOICE, +ASPIRATION] > [+CONT., -VOICE, -ASPIRATION]

- One sound change operates on a class of phonemes.

#### Bibliography

<http://phonetics.ucla.edu/course/chapter1/chapter1.html> (clickable IPA chart)

Chomsky and Halle *Sound Patterns of English* (New York, Harper, 1968)

Lass *Phonology* (CUP, 1984)

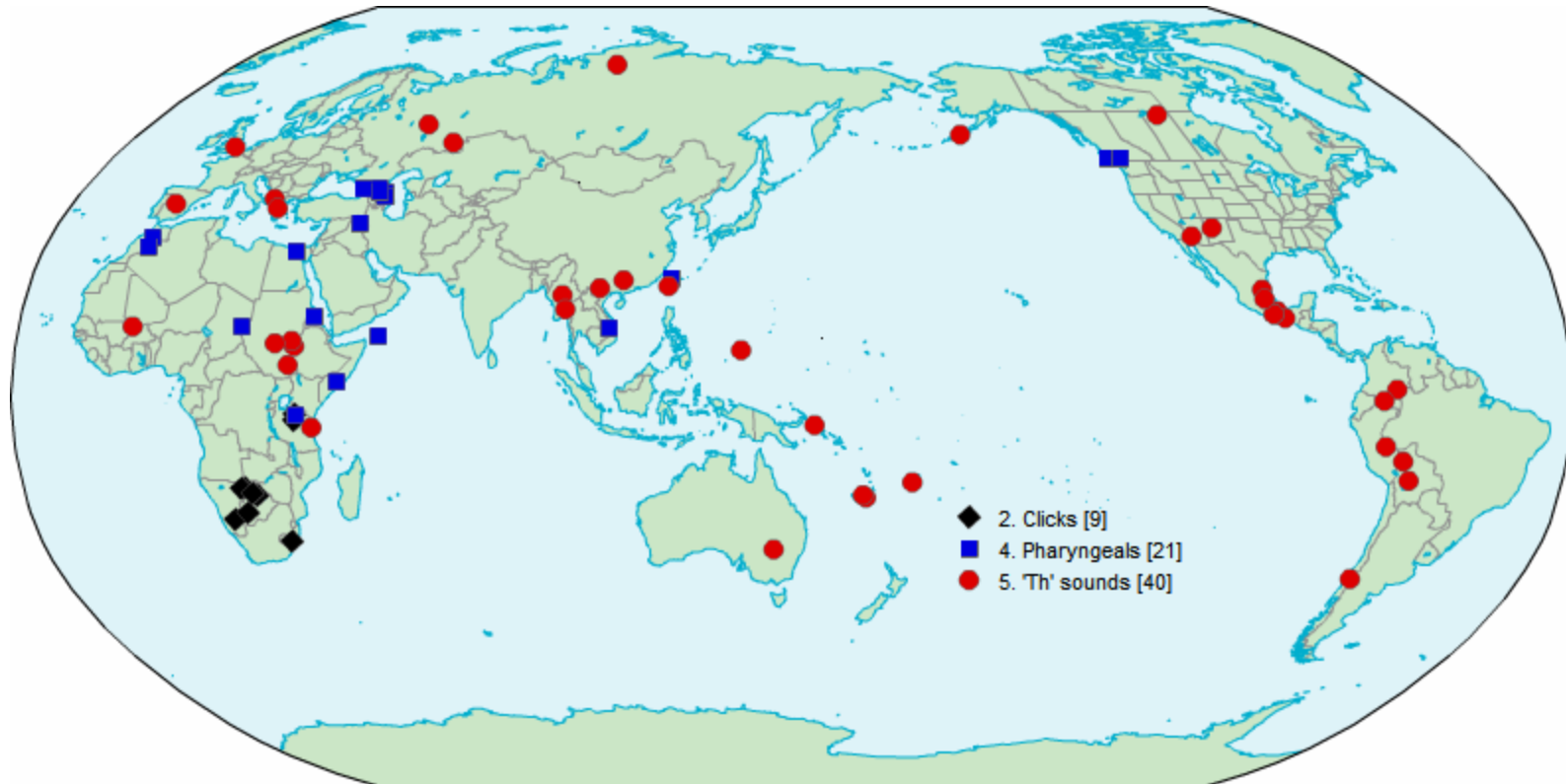
Hock, *Principles of Historical Linguistics* (de Gruyter, 1991)

Sihler, *New Comparative Grammar of Greek and Latin* (OUP, 1995)

Lecture 1: **Supplementary handout**

Maps from the World Atlas of Language Structures edited by Martin Haspelmath, M.S. Dryer, D. Gil, B. Comrie

**Map 1: Uncommon consonants** (adapted from Map 19)



**Map 2: Voicing and Gaps in the Plosive system (566 languages)**

