

## Markedness: diagnostics and structure

### Plan for today

- Markedness as a structural property
- Universalizing markedness
- Markedness in SPE
- Diagnosing markedness
- How universal is markedness?

### Markedness: the beginning

#### Classification of oppositions

Trubetzkoy:<sup>1</sup> three kinds of phonological oppositions

*Privative* Presence of a property vs. its absence. Example: nasal vs. non-nasal

*Equipollent* Presence of a property vs. the presence of a mutually exclusive property. Example: labial vs. dorsal

*Gradual* What it says on the tin. Example: vowel height

#### The 'mark'

In a privative opposition, one member is characterized by the presence of a 'mark' (*Merkmal*) and the other is characterized by its absence.

#### ! Important

This is a statement about the 'logical structure of the opposition', not the phonetics of it

This is an application of the ultimately Saussurean idea of 'meaningful absence': the absence of the mark has distinctive value because of the contrast with its presence.

This general structure is pervasive in language, most obviously in morphology.

In general, the **presence** of structure corresponds to **more information** relative to its absence.

#### Diagnosing markedness

- How would we know that a phoneme bears a mark? By its behaviour

<sup>1</sup> Nikolai S. Trubetzkoy. 1939. *Grundzüge der Phonologie* (Travaux du Cercle linguistique de Prague 7). Prague.

- Some criteria:
  - Implicational relationships in inventories
  - Marked items are dispreferred in neutralization positions
  - Greater token frequency of the unmarked<sup>2</sup>

<sup>2</sup> With a link to Zipf's Law!

*Universalizing markedness*

*Markedness beyond the mark*

- Jakobson:<sup>3</sup>
  - Marked units are the last to be acquired...
  - ...and the first to go in language disorder...
  - ...and this is all universal
- General principles of markedness apply far beyond phonology
- Also influential was Greenberg,<sup>4</sup> linking markedness to the new field of linguistic typology

<sup>3</sup> Roman Jakobson. 1941. *Kindersprache, Aphasie und allgemeine Lautgesetze*. Uppsala: Almqvist & Wiksell.

<sup>4</sup> Joseph H. Greenberg. 1966. *Language universals: With special reference to feature hierarchies*. The Hague: Mouton.

*Does it even mean anything?*

Markedness: An abstract measure of how unusual a particular linguistic structure is<sup>5</sup>

<sup>5</sup> Bridget Samuels. 2011. *Phonological architecture: A biolinguistic perspective* (Oxford Studies in Bilingualism 2). Oxford: Oxford University Press, p. 208.

*OK, that was bit mean*

Hume:<sup>6</sup>

*Descriptive markedness:* An abstract relation holding over members of a set of observations displaying asymmetry, such that one subset is unmarked and the other is marked

<sup>6</sup> Elizabeth Hume. 2011. Markedness. In Marc van Oostendorp et al. (eds.), *The Blackwell companion to phonology*. Oxford: Blackwell Publishing.

*Theoretical markedness* A universal principle or law that guides language acquisition, loss, inventory structure, processes, rules, etc. toward the 'unmarked' form

*Markedness constraints* A technical term in Optimality Theory referring to a category of constraints that evaluate the well-formedness of output structures

*Could you be more specific?*

List from Rice<sup>7</sup>

Marked	Unmarked
less natural	more natural
more complex	simpler
more specific	more general

<sup>7</sup> Keren Rice. 2007. Markedness in phonology. In Paul de Lacy (ed.), *The Cambridge handbook of phonology*, 79–97. Cambridge: Cambridge University Press.

Marked	Unmarked
less common	more common
unexpected	expected
not basic	basic
less stable	stable
appear in few grammars	appear in more grammars
later in acquisition	earlier in acquisition
early loss in language deficit	late loss in language deficit
implies unmarked feature	implied by marked feature
harder to articulate	easier to articulate
perceptually more salient	perceptually less salient
smaller phonetic space	larger phonetic space

*Markedness in phonology: further developments*

*Markedness in SPE*

Chapter nine

Figure 1: Chapter 9

# EPILOGUE AND PROLOGUE: THE INTRINSIC CONTENT OF FEATURES

## ***1. Some unresolved problems***

The entire discussion of phonology in this book suffers from a fundamental theoretical inadequacy. Although we do not know how to remedy it fully, we feel that the outlines of a solution can be sketched, at least in part. The problem is that our approach to features, to rules, and to evaluation has been overly formal. Suppose, for example, that we were systematically to interchange features or to replace [ $\alpha$ F] by [ $-\alpha$ F] (where  $\alpha = +$ , and F is a feature) throughout our description of English structure. There is nothing in our account of linguistic theory to indicate that the result would be the description of a system that violates certain principles governing human languages. To the extent that this is true, we have failed to formulate the principles of linguistic theory, of universal grammar, in a satisfactory manner. In particular, we have not made any use of the fact that the features have intrinsic content. By taking this intrinsic content into account, we can, so it appears, achieve a deeper and more satisfying solution to some of the problems of lexical redundancy as well as to many other problems that we have skirted in the exposition.

Chomsky and Halle frame the problem as one of overgeneration: attested

languages show markedness asymmetries, but their system does not provide for them. This led them to introduce the machinery of **markedness conventions**, they unified with the redundancy rules we discussed [yesterday](#). The reasoning is generally typological, although not based on very rigorous enquiry by modern standards.

Although markedness conventions, like redundancy rules and MSCs, mostly resided in the pre-phonological (lexical) component, they sometimes had to intervene in the operation of phonological grammar *per se* to make sure its output conformed to markedness theories (Chomsky & Halle used the device of ‘linking’ to achieve this).

Architecturally, markedness conventions added nothing new to representations: they were essentially rewrite rules of the form ‘if X then Y’, manipulating all the same feature values.

*Markedness diagnostics*

Or, what is it that are we trying to explain again?<sup>8</sup>

<sup>8</sup> Rice, “Markedness in phonology”.

*Emergence of the unmarked:* Neutralization

*Submergence of the unmarked:* Unmarked elements are preferred targets, dispreferred triggers

*Preservation of the marked* Marked elements are dispreferred targets, preferred triggers

*Transparency and blocking* In long-distance processes, unmarked elements are transparent, marked elements are blockers

*A closer look at the diagnostics*


*Typical reasoning: unmarked coronals*

- English assimilation: coronals undergo, non-coronals resist
  - *ba*[ŋ] *cuts* but \**alar*[ŋ] *clock*
- Korean: coronals undergo and do not trigger
  - /*kot-palo*/ → [koppalo]
  - /*pap-to*/ → [papto], \*[patto]
  - /*ip-ko*/ → [ikko]
- Northern Sámi: place neutralization word-finally

GEN.SG	NOM.SG	Gloss
rusttega	rusttet	‘building’
ustiba	ustit	‘friend’

GEN.SG	NOM.SG	Gloss
rievssaha	rievssat	'ptarmigan'
goaskima	goaskin	'eagle'
čálána	čálán	'writer'

*Emergence of the unmarked*

 Warning

This sense of 'emergence of the unmarked' is quite different from TETU as understood in OT

This is our old friend: the neutralization criterion.

In **non-assimilatory neutralization**, outcomes tend to be unmarked

- Final obstruent devoicing
- Vowel reduction:
  - Centripetal to schwa (= minimally marked vowel)
  - Centrifugal to [i u (a/ə)] (= relatively unmarked<sup>9</sup> inventory)
- Coda weakening

<sup>9</sup> Because well-dispersed and containing the most common vowels

*Other criteria*

- Default vowel epenthesis
- Default consonant epenthesis

*So, what is the unmarked place?*

This list relies heavily on work by Keren Rice, see Rice,<sup>10</sup> but some of this I got from various handouts

<sup>10</sup> Keren Rice. 2009. Nuancing markedness: A place for contrast. In Eric Raimy & Charles Cairns (eds.), *Contemporary views on architecture and representations in phonology* (Current Studies in Linguistics 48), 311–321. Cambridge, MA: MIT Press.

Table 3: Outcomes of coda neutralization: single-term systems

	Inventory	Examples
Stops	/p/	Godoberi, Lhasa Tibetan, Nimburan
	/t/	Finnish, Eastern Enontekiö Northern Sámi
	/k/	Karasjok Northern Sámi, Ecuador Quechua (but also /n/)
	/ʔ/	many
Nasals	/m/	Lhasa Tibetan, Sentani...
	/n/	Finnish, Koyukon, Sekani...
	/ŋ/	tricky one!

Table 4: Outcomes of coda neutralization: two-term systems

	Inventory	Examples
Stops	/p t/	Kiowa
	/p k/	German dialects, Korowai...
	/t k/	Nanchang, Badimaya...
	/p ʔ/	Jabêm
	/k ʔ/	Yaw Burmese
Nasals	/m n/	Trio, Sonora Hiaki...
	/m ŋ/	Nganasan, Palauan...
	/n ŋ/	various Sinitic

### *Coda neutralization in alternations*

Table 5: Coda neutralization in Yakkha

Infinitive	3SG.PST	Gloss
lapma	labana	‘seize’
apma	abana	‘come’
jokma	jogana	‘search’
p <sup>h</sup> aʔma	p <sup>h</sup> atana	‘help’
keʔma	ketana	‘bring up’
liʔma	litana	‘plant’
t <sup>h</sup> uʔma	t <sup>h</sup> urana	‘sew’
poʔma	porana	‘topple’

- Preservation of the marked: /p k/ → [p k]
- Submergence of the unmarked: /t r/ → [ʔ]

*A markedness hierarchy* labial » dorsal » coronal » glottal

*The coda inventory* labial = dorsal » coronal » glottal

### *Preservation of the marked*

- Nganasan
  - /koðaʔa-t/ → [koðaʔaʔ] ‘they kill’
  - /koðaʔa-t-uŋ/ → [koðaʔaðuŋ] ‘they kill (it)’
  - /tapkətə/ → [tapkətə] ‘from there’

/t d/ → [ʔ] in codas, but /p b/ are preserved

### *Submergence of the unmarked*

- Assimilation: English and Korean above

- Modern Greek: front vowels are deleted in hiatus irrespective of the order

### Transparency

Table 6: High vowel transparency in Ifẹ Yoruba

ATR		RTR	
ògùrò	‘spurtle’	ɔrúkɔ	‘name’
eurò	‘bitter-leaf’	èlùbó	‘yam flour’
oríwo	‘boil, tumour’	ɔdíde	‘parrot’
èbúté	‘harbour’	éúré	‘goat’

### Blocking

Table 7: Blocking of vowel harmony in Kashaya Pomo

Place		Gloss
Laryngeal	mihi'la	‘west’
	we'ʔej	‘yonder’
	waʔali	‘cane’
	soʔhoj	‘seal’
	hu'ʔul	‘a while ago’
Supraralaryngeal	biʔdu	‘acorn’
	hoja	‘scoring sticks’
	k'aʔli	‘between’
	ho'p <sup>h</sup> une	‘white-footed mouse’

### Encoding markedness

#### Back to the ‘mark’

- In the SPE system, the difference between ‘marked’ and ‘unmarked’ is stipulated by markedness conventions, and justified by appeal to substance
- There is no clear link between how markedness is represented and what kinds of behaviour it is associated with
- Recall that in Praguian phonology markedness was defined in terms of **size** or **complexity**
  - Marked = *merkmaltrabend*

*Markedness and size*

**i** A hypothesis

What traditional markedness diagnostics are picking up is the **presence of structure**

**i** A corollary

Segments consist not of feature-value bundles but of **unary features**

There are many different traditions within the broad unary family, but arguably they are all unified by aiming to reflect this insight.

*The coda condition: Japanese*

- Option 1: first half of a geminate
  - *gakkoo* ‘school’
  - *tossa* ‘impulsively’
  - *kappa* ‘legendary being’
- NB! Enforced by alternation
  - /bet+kaku/ → [bekkaku] ‘different style’
- Option 2: the nasal
  - Weak nasal prepausally: [hoN] ‘book’
  - Place assimilation before a consonant: [hoŋ ka] ‘book-Q’
  - Assimilated glide before a vowel: [hoĩ iru], [hoõ o], [hoũ aru]

Coda condition: there is either **no place** (the nasal in absolute-final position) or place **borrowed from the following onset** (obstruents, nasal before other segment)

More concretely: no place features allowed in coda

*‘More marked’ means ‘bigger’*

- Coda conditions
- Final/coda devoicing
- Vowel epenthesis
- Vowel reduction
  - Centripetal: remove place specifications
  - Centrifugal: remove more complex specifications
  - Raising: remove |open|
- Implicational universals in inventories



*'Bigger' means more phonologically active*

- Assimilation triggers
- Harmony triggers
- Harmony blockers

*'Smaller' means less phonologically active*

- Assimilation non-triggers
- Assimilation targets
- Transparent segments in harmony

*Some challenges*

- Equal in markedness = equal in size?
- What about contextual markedness?
- Where does structure come from?

*References*

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