

Phonological Typology

MATTHEW K. GORDON

OXFORD
UNIVERSITY PRESS

Contents

<i>Acknowledgments</i>	xi
<i>List of abbreviations</i>	xiii
1 Introduction	1
1.1 Phonological typology exemplified: the case of sonority	1
1.2 Frequency in phonology: phonology in typology	4
1.3 The present book	5
1.3.1 Cross-linguistic frequency	8
1.3.2 Language-internal frequency	9
1.3.3 Organization of the book	16
2 Theory and explanation in phonological typology	17
2.1 Types of explanations	17
2.1.1 Phonetic factors	17
2.1.2 Speech processing and phonological typology	18
2.1.3 Frequency in phonology	19
2.1.4 Analytic biases	21
2.2 Typology in phonology: incorporating explanation into the theory	22
2.2.1 The relationship between analytic bias and other functional biases in typology: the case of laryngeal neutralization	22
2.2.2 Typological over- and under-prediction in phonetically driven phonology	25
2.2.3 Typology as a reflex of diachronic change	27
2.2.4 Typology and learning biases: experimental approaches	29
2.2.5 Typological variation modeled: constraints or rules	32
2.2.5.1 Steriade (1999) on laryngeal neutralization in Optimality Theory	32
2.2.5.2 Factorial typology in phonology: the case of syllable-contacts	34
2.2.5.3 Modeling frequency in a constraint-based grammar	37
2.2.5.4 Modeling phonological acquisition	39
2.3 Summary	41
3 Phoneme inventories	43
3.1 Cross-linguistic distribution of phonemes	44
3.2 Consonants	44
3.2.1 Plosives	45
3.2.2 Fricatives	46
3.2.3 Nasals	48
3.2.4 Liquids	49
3.2.5 Non-liquid approximants (glides)	49

3.3	Vowels	49
3.4	Phonemic length	51
3.5	Explaining the typology of phoneme inventories	57
3.5.1	Perceptual and articulatory factors	58
3.5.1.1	(Adaptive) Dispersion Theory	58
3.5.1.2	Dispersion Focalization Theory	60
3.5.1.3	Articulatory complexity and perceptual saturation	62
3.5.1.4	Quantal Theory	63
3.5.1.5	Feature enhancement	64
3.5.1.6	Feature economy	65
3.6	Frequency of sounds within languages	71
3.6.1	Explaining the frequency distributions within languages	77
3.7	Phoneme inventories: a summary	82
4	Syllables	83
4.1	Internal structure of the syllable	83
4.2	Syllable margins	84
4.2.1	Intralanguage frequency of syllable types	87
4.2.2	Relationship between onset and coda markedness	90
4.2.3	Final vs. non-final coda asymmetries	96
4.2.4	Sonority and place in syllabification	97
4.2.5	Syllable repair processes	104
4.2.6	Pseudo-syllable repair processes	106
4.3	Nucleus	108
4.3.1	Syllabic sounds	108
4.4	Representations of the syllable	111
4.4.1	The syllable rime as a constituent	111
4.4.1.1	Prohibitions against CVVC syllables	111
4.4.1.2	Co-occurrence restrictions and the rime	114
4.4.2	Sonority sequencing violations: the syllable appendix and perceptual salience	116
4.4.3	Syllable typology and perception	117
4.5	Correlations between syllable complexity and other properties	119
4.6	Summary	121
5	Segmental processes	123
5.1	Assimilation	123
5.1.1	Consonant–consonant assimilation	124
5.1.2	Consonant–vowel assimilation	126
5.1.3	Typological frequency of assimilation patterns	127
5.1.4	Implicational scales of assimilation: the phonetic grounding	129
5.1.5	The phonetic basis for assimilation: synchronic or diachronic	133
5.1.6	Long-distance assimilation: harmony systems	134
5.1.6.1	Vowel harmony	134
5.1.6.2	Consonant harmony	137
5.1.6.3	Directionality and morphology in harmony	138

5.1.6.4	The phonetic basis for harmony	139
5.1.6.5	Harmony as a local vs. long-distance phenomenon	139
5.2	Dissimilation	141
5.2.1	Local dissimilation	142
5.2.2	Long-distance dissimilation	143
5.2.2.1	Long-distance consonant dissimilation	143
5.2.2.2	Long-distance vowel dissimilation	145
5.2.3	Explaining dissimilation	146
5.3	The formal representation of assimilation and dissimilation	149
5.4	Fortition and lenition	151
5.4.1	Consonants	153
5.4.2	Vowels	155
5.5	Deletion	157
5.5.1	Deletion and compensatory lengthening	158
5.5.2	The representation of compensatory lengthening	159
5.5.3	Lenition and deletion as frequency effects	160
5.6	Epenthesis	161
5.6.1	Epenthesis as syllable repair	162
5.6.2	Other prosodic functions of epenthesis	162
5.6.3	Morphological constraints on epenthesis	164
5.6.4	Segmental constraints on epenthesis	164
5.6.5	The quality of epenthetic segments	165
5.6.6	The interaction between epenthesis and other phonological phenomena	167
5.7	Metathesis	168
5.7.1	The phonetic source of metathesis	170
5.7.2	Metathesis as perceptual optimization	172
5.8	Summary	173
6	Stress	175
6.1	The descriptive typology of stress	175
6.2	Phonologically predictable stress	176
6.2.1	Weight-insensitive stress	177
6.2.2	Weight-sensitive stress	181
6.2.2.1	Syllable weight as a statistical bias	187
6.2.2.2	Representations of syllable weight	187
6.2.2.3	Phonetic underpinnings of syllable weight	190
6.2.2.4	Final vs. non-final weight asymmetries	194
6.3	Stress domains: the intonational basis for left-edge vs. right-edge asymmetries	197
6.4	The phonetic basis for extrametricality	199
6.5	Representations of stress	201
6.5.1	Stress and metrical feet	201
6.5.2	Stress and the metrical grid	202
6.5.3	Factorial typology and metrical structure	204
6.5.4	Typological asymmetries as a reflex of foot structure	205

6.6	Tone-sensitive stress	208
6.7	Lexical and morphological stress	209
6.8	Summary	213
7	Tone and intonation	215
7.1	Tone and the taxonomy of prosodic systems	215
7.2	The organization of tone languages	216
7.3	The relationship between tone and stress	216
7.4	Number of tones	219
7.5	Tonal complexity	223
7.5.1	Tonal complexity and language-internal frequency	224
7.5.2	Syllable weight and tonal complexity	227
7.5.3	The phonetic basis of tone restrictions	229
7.5.4	Weight-sensitive tone and language-internal frequency	232
7.6	Phonological characteristics of tone	233
7.7	Tonal processes	235
7.8	Tonogenesis and interactions between tone and other features	241
7.9	Intonation	243
7.10	Terminal contours	244
7.11	The typology of pitch accents	248
7.12	Prosodic constituency	250
7.13	Prosodic structure and syntax	254
7.14	When tones collide: responses to tonal crowding	255
7.14.1	Tonal crowding in the intonation system	256
7.14.2	Tonal crowding between intonational and lexical tones	257
7.14.3	Tonal crowding in intonation systems: a summary	259
7.15	Summary	260
8	Prosodic morphology	262
8.1	Minimality effects	262
8.1.1	The typological distribution of minimality constraints	263
8.1.2	Processes in response to minimality conditions	264
8.1.3	The source of minimality restrictions: independent constraints and evolution	266
8.1.4	Minimality as a condition on mora population	267
8.2	Reduplication	269
8.2.1	Phonological characteristics of reduplication	270
8.2.1.1	Shape of the reduplicant	270
8.2.1.2	Fixed segmentism and reduplicant-base alternations: markedness in reduplication	277
8.2.1.3	Location of the reduplicant	281
8.2.2	Overapplication and underapplication in reduplication	282
8.2.3	Cross-linguistic distribution of reduplication patterns	283
8.2.3.1	Overall frequency of reduplication	285
8.2.3.2	Position of the reduplicant	286
8.2.3.3	Shape of the reduplicant	287

8.2.3.4 Fixed segment(s)	290
8.2.3.5 Relationship between reduplication and other prosodic properties	291
8.3 Non-reduplicative templatic morphology	296
8.4 Prosodic truncations	298
8.5 Subtractive morphology	299
8.6 Relationship between non-reduplicative templatic morphology and other weight-sensitive phenomena	300
8.7 Summary	301
<i>Conclusions</i>	303
<i>References</i>	305
<i>General index</i>	355
<i>Index of languages</i>	360