What is Phonological Typology?
Larry M. Hyman (UC Berkeley)

“Phonology is changing rapidly... Some phonologists collect the evidence for their theories using introspection, fieldwork and descriptive grammars, while others trust only quantitatively robust experimentation or corpus data. Some test phonological theories computationally... whereas others prefer to compare theories on conceptual grounds.... As the field grows and diversifies, it is becoming harder for phonologists to talk to each other, for who can be a computer scientist, phonetician, neurolinguist and expert in adjacent fields such as morphology and syntax at the same time as having a command of the extensive literature on phonology-internal argumentation and phonological typology?” (Gouskova 2013: 173)

“... becoming divorced from the phonetics is the very essence of phonology” (Buckley 2000: 2)

(1) Why the Oxford workshop? Brief answer: To see if it would be beneficial for phonologists and typologists to talk to each other (cf. a long-standing agenda to get more phonology into Linguistic Typology, ALT etc.)

a. Phonology is an afterthought to many (most?) typologists—not even mentioned in Whaley’s (1997) Introduction to typology (most of the general typologists contacted declined to attend this workshop!)

“... I have been confirmed by the surprising degree of correspondence between my own standpoint and H. Seiler's (1979) introductory paper, although he has deliberately omitted any consideration of phonological typology.” (Dressler 1979: 259)

b. Many (most?) phonologists consider themselves to (be able to) do typology, take it for granted, but do not self-identify as (general) typologists, and are not plugged in to the international field of typology

(2) The questions we therefore asked potential participants to consider were

a. What is phonological typology?

b. How are phonological typology and phonetic typology the same/different?

c. How are phonological typology and general typology the same/different?

d. How are phonological typology and general phonology the same/different?

(3) To address the last question let us first consider what the goals of general phonology might be

a. the goals of synchronic phonology are to determine (and explain)

i. universal properties of sound patterns in languages (i.e. what is a possible phonology?)

ii. what’s going on in the heads of speakers with respect to sound patterns

(phonologists differ in whether they are interested in properties of languages and/or the mind/brain)

b. the goals of diachronic phonology are to determine (and explain)

i. where phonology comes from (e.g. “phonologization”)

ii. how phonology changes (e.g. telescoping, restructuring, rule inversion, analogy etc.)

iii. where phonology goes (e.g. morphologization, lexicalization, rule loss etc.)

(4) What, then, are the goals of typology? A traditional distinction (confusion?) whether typology is about

a. the classification of language types

“... a principled way of classifying the languages of the world by the most significant properties which distinguish one from another.” (Hagège 1992: 7)

“... it is possible to classify languages according to the phonemes they contain.... typology is the study of structural features across languages. Phonological typology involves comparing languages according to the number or type of sounds they contain.” (Vajda 2001)

b. the characterization of linguistic properties

“Typology, thus, is not so much about the classification of languages as about the distributions of individual traits—units, categories, constructions, rules of all kinds—across the linguistic universe; these distributions, not languages as such, are the primary objects of comparison.” (Plank 2001: 1399)

“...all synchronic typologies have this Janus-like nature in that the same data can be utilized either for a typology of linguistic properties or a typology of individual languages” (Greenberg 1974: 14).
Nichol’s (2007: 233-4) debunking of four misunderstandings about typology by non-typologists—also re phonological typology (?) where most overarching proposals concern prosody; e.g. no “coronal languages”

a. typology deals with only superficial grammatical phenomena, while formal grammar deals with deeper abstraction
b. typology usually or often uses large surveys of hundreds of languages
c. in typology, explanations or theory are usually functionalist
d. the main theoretical constructs of typology are the implicational correlation and the implicational hierarchy

“I see no difference in analytic or theoretical profundity or abstraction between generative parameters and original contributions of typology such as direct object vs. primary object (Dryer 1986), verb-framed vs. satellite-framed lexicalization patterns (Talmy 1985, Slobin 2004), various aspects of alignment (e.g., Dixon 1994, Dixon & Aikhenvald (eds.) 2000), differential object marking (Bossong 1998, Aissen 2003), referential density (Bickel 2003), and others.” (Nichols 2007: 233) [Add head- vs. dependent-marking (Nichols 1986) — LMH]

“Theories of phonological typology are rare. Of course, the languages of the world have long been classified according to dichotomies such as tone vs. accent, Druckakzent vs. musikalischer Akzent, iambic (=Romanic languages) vs. trochaic (Germanic languages), or syllabic vs. moraic. As long as these dichotomies are not shown to correlate with other phonological features, however, they fail to reach typological relevance.” (Auer 1993: 2)

Different views among typologists concerning

a. whether typology is a field
   “...what we call typology is not properly a subfield of linguistics but is simply framework-neutral analysis and theory plus some of the common applications of such analysis (which include crosslinguistic comparison, geographical mapping, cladistics, and reconstruction).” (Nichols 2007: 236)

b. whether typology has internal subfields
   “Linguistic typology includes three subdisciplines: qualitative typology, which deals with the issue of comparing languages and within-language variance; quantitative typology, which deals with the distribution of structural patterns in the world’s languages; and theoretical typology, which explains these distributions.” (Wikipedia “Linguistic Typology” 😎)

c. whether typology necessarily involves the quest for universals (or is about diversity)
   “...the goal of typology is to uncover universals of language, most of which are universals of grammatical variation.” (Croft 2003: 200)

D. the nature and role of theory in typology
   “The hypothesis that typology is of theoretical interest is essentially the hypothesis that the ways in which languages differ from each other are not entirely random, but show various types of dependencies....” (Greenberg 1974: 54)

A different characterization of typology as something which phonologists do all the time (Hyman 2007)

a. typology = traditional linguistics
   “...the goal of linguistics is... to explain why languages have the properties they do.” (Evans & Levinson 2010: 2740)

   vs. the goal of linguistics is to explain how a speaker with a finite and limited exposure can produce an infinite number of new sentences, how a child by the age 2 can do XYZ, etc.

b. phonology has always been typological, concentrated on sameness vs. differences among languages
   “... it almost goes without saying that two languages, A and B, may have identical sounds but utterly distinct... [phonemic] patterns; or they may have mutually incompatible phonetic systems, from the articulatory and acoustic standpoint, but identical or similar patterns.” (Sapir 1925: 43)

   “One of the most compelling features of OT, in my view, is the way that it unites description of individual languages with explanation of language typology. As a phonologist, I have always been impressed and sometimes overwhelmed by how the complexity and idiosyncrasy of each language’s phonology is juxtaposed with the clarity and abundance of solid typological generalizations. Even though this is arguably the central research problem of phonology and of linguistic theory in general, progress in consolidating description and explanation has at best been halting and occasionally retrograde.” (McCarthy 2002: 1)

   “The fundamental assumption of OT that constraint ranking varies from language to language has provided fertile ground for typological research in phonology.” (Gordon 2007: 750)
Disagreement over whether (explanations of) typology should be incorporated into grammars

“...grammars do not encode typological generalizations, either directly or indirectly.” (Newmeyer 1998: 162)

“OT, though, is inherently typological: the grammar of one language inevitably incorporates claims about the grammars of all languages.” (McCarthy 2002: 1)

Both phonological theory and phonological typology are concerned with how languages encode the same phonetic substance into structured sound systems: typology = STRUCTURAL DISTINCTIONS, not inventories!

“Phonological typology is a classification of linguistic systems based on phonological properties. There are four basic kinds of typology: ‘areal’ or ‘genetic’ typologies; typologies based on ‘surface phonological properties’; typologies based on some ‘underlying phonological property’; and ‘parametric’ typologies.... In addition, phonological typology can refer to the classification of the elements that make up a phonological system. For example, articulatory descriptors like ‘velar’ and ‘labial’ form part of a typology of speech sounds.” (Hammond 2006: 523)

*Question:* Is the IPA alphabet “typology”? The periodic table of elements?

Re the relation to phonetics, phonological analysis has always been concerned with levels of representation

a. what’s the underlying form?

b. how do we bring it to the surface? = “traditional phonology”

Such phonological practice is independent of the (non-) reality that one might ascribe to the constructs

“...the phoneme is not an entity on any level — functional, phonetic, psychological or even metaphorical. Rather, at best, ‘phoneme’ is merely a terminological expedient....” (Silverman 2006: 215)

“Long-running debate of ‘realist’ vs. ‘idealist’ conception of linguistic reconstruction. In most radical form of ‘idealist’ approach, reconstructed features mere ‘algebraic’ shorthand for only reality, which is set of correspondences [cf. set of phonetic ‘allophones’ in synchronic phonology]. That is, PIE *p* is mere abbrev-iation for equation of Sanskrit p = Greek p = Latin p = Gothic f = Armenian O/h etc. (cf. /p/). Such extreme stance hardly viable, else why vigorous debate about typological naturalness of reconstructed protolanguages and of associated diachronic changes.... Only real goal [of the comparative method] is to explain why attested languages (the only facts!) look as they do—both their similarities and differences....” (Melchert 2013: 1)

While some take a single-level inventory approach to phonological typology, a meaningful PHONOLOGICAL typology must also be concerned with input-output relations and the notion of structural contrast. Typologies such as those found in Trubetzkoy (1939) or Hockett (1955) could not otherwise be possible.

“There is no clear division between phonological typology and phonological theory. Given their shared concern with the nature of phonological systems, one can’t do insightful typology without addressing the same analytical issues that confront phonological theory. Throughout the history of phonology, the two have been inseparable both in principle and in practice.” (Hyman 2007: 265)

Example #1: How do different languages systematize (“structure”) Back and Round “color” contrasts?

| a. on vowels and consonants | /i, e, u, o, a/, /k, kʰ, kʷ/ etc. | (examples a.b. have canonical triangular vowel system) |
| b. on vowels only | /i, e, u, o, a/, /k/ etc. | (vertical vowel system) (none in UPSID) |
| c. on consonants only | /i, a, a’, /k, kʰ, kʷ/ etc. | (vowel harmony system) |
| d. on some vowels only | /i, e, u, o, ɪ, A/ | (palatal and labial prosodies) |
| e. on whole morphemes | /.../ɪ, /.../u | |

Example #2: How do different languages systematize nasality? Nasality may be underlyingly contrastive:

| a. on consonants only | /m, n, ɲ/ | e.g. Iban | (cf. Cohn 1993, Clements) |
| b. on vowels and consonants: | /i̯, u̯, ʊ̯/, /m, n, ɲ/ | e.g. Bambara & Osu 2003 |
| c. on vowels only: | /i̯, u̯, ʊ̯/ | e.g. Klao | (some of these do occur in UPSID) |
| d. on whole morphemes: | /CVCʻ/ | e.g. Barasana |
| e. absent entirely: | ----- | e.g. Doutai |

*Important:* No language has a surface system analogous to (12d) or (13c), which are ANALYSES. Such examples show that phonological typology cannot be about surface outputs alone (≠ phonetic typology).
One has to make a choice of level, e.g. Ik (Heine 1993) and Kom (Hyman 2005) have /H, L/ but derived [M] on the surface. Are these 2- or 3-height systems? Cf. UPSID goal to represent both contrast and phonetic content (Maddieson 1991: 196):

“Segments are positively specified for those attributes possessed by the most basic allophone of the segment in question. In most cases this is the most frequent allophone, but sometimes there are reasons for thinking that another phonetic form is more basic, particularly when the more common form seems like a relaxed variant of the other.”

(14) The facts and “insights” about them are logically independent of the formal implementation. Compare the opposite insights in answering the question: “Why does vowel harmony have the phonological properties it does?”

a. VH is trigger-driven: “bad vowels spread” (Kaun 1995)

b. VH is target-driven: “needy vowels harmonize” (Nevins 2010)

Either view can be implemented via autosegmental spreading, optimal domains theory (Cassimjee & Kisseberth 1998), agreement by correspondence (Rose & Walker 2004, Hansson 2010), “search and copy” (Nevins 2010, Samuels 2011, and so forth. (Re (14a,b), it needn’t be all one vs. the other; cf. differences between root-controlled vowel harmony vs. anticipatory Umlaut/metaphony, often suffix-triggered)

(15) Phonological typology is about PROPERTIES, not taxonomizing language types. There are at least three reasons to resist the temptation of taxonomizing languages into “types” (Hyman 2012, in press).

(16) First, this gives the impression that there is a unique taxonomy. Consider the following hypothetical exchange over whether German should be classified with English vs. French on the basis of its vowel system

Typologist #1: German should be classified with English as a “tense-lax vowel language”, since both contrast /i, u/ vs. /I, U/ (etc.), as opposed to French.

Typologist #2: No! German should be classified with French as a “front-rounded vowel language”, since both have /ü, ö/, as opposed to English.

Typologist #3 (e.g. me): No! You’re both wrong. A property-driven typology would look like the following table, which allows us to also add Spanish:

<table>
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<th>front-rounded vowels</th>
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(18) An example of such an unproductive controversy arises in Beckman & Venditti (2010) who ask “Is typology needed?” (p. 641) and argue against typologizing prosodic systems solely by function (e.g. tone vs. stress-accent) because Mandarin tonal L+H is allegedly like English intonational L+H*

[That one is a toneme and the other intonational] “does not change the fact that these two languages are far more like each other in many other respects than either is to a language such as Japanese.” (Beckman & Venditti 2011: 531)

(19) While Beckman & Venditti find the Mandarin and English L+H similarities significant, compare the more usual view of Gussenhoven’s (2007: 256) concerning the similar H+L in Japanese and English:

“While phonologically comparable, the pitch accents of Japanese and English have very different morphological statuses. In Japanese, they form part of the underlying phonological specification of morphemes, along with the
vowels and consonants. Intonational pitch accents are morphemically independent of the words they come with, and are chiefly used to express the information status of the expression. The fact that the English example... seems to have an accentuation similar to the Japanese example... is entirely accidental.” (my italics; cf. Hyman 2012)

(20) The final reason to avoid whole taxonomies is that the labels are often unclear; “an X language” can mean:

a. a language that has X, e.g. a “tone language” has tone, a “click language” has clicks
b. a language that lacks X, e.g. an “open syllable language” lacks closed syllables; cf.:
   “intonation language n. A language which is neither a tone language nor a pitch language; a language in which the universally present intonation constitutes the only linguistic use of pitch.” (Trask 1996: 184)

c. a language that marks X more or less than Y, e.g. “tone language” vs. “pitch-accent language”;
   “syllable language” vs. “word language” (Auer 1993: 91)
   “A pitch-accent system is one in which pitch is the primary correlate of prominence and there are significant constraints on the pitch patterns for words...” (Bybee et al 1998:277).
   “A syllable language is one which dominantly refers to the syllable, a word language is one which dominantly refers to the phonological word in its phonological make-up.” (Auer 1993: 91)

d. a language which combines a specific set of linked properties (“holistic” typology—see Plank 1998)
   “… there are obvious links between phonology and morphology; for example, it has been argued—most probably correctly—that vowel harmony is a phenomenon of agglutinating languages, or that fusional languages have more morphophonological rules than isolating ones. There may also be links between phonology and syntax, e.g. between head/modifier (operator/operand) serialization and the location of (sentence or word) stress.” (Auer 1993: 1-2)
   “Vowel harmony is a phonological process relating to the morphological word in syllable-timed languages, whereas vowel reduction is a phonological process relating to the phonological word in stress-timed languages.” (Auer 1993: 8) (cf. Donegan & Stampe 1983)

(21) Such multi-property taxonomies invariably run into exceptions, and hence proposals of prototypes. A potentially useful deductive strategy is the canonical approach to typology:

“The canonical approach means that I take definitions to their logical end point, enabling me to build theoretical spaces of possibilities. Unlike classical typology, only then does one ask how this space is populated with real instances. The canonical instances, that is, the best, clearest, indisputable (the ones closely matching the canon) are unlikely to be frequent.... Nevertheless, the convergence of criteria fixes a canonical point from which the phenomena actually found can be calibrated, following which there can be illuminating investigation of frequency distributions.” (Corbett 2007: 9; my italics—LMH)

(22) In prosody, canonical systems combine properties to meet a basic function (Hyman 2012). In Prague School terms, the definitional function of stress-accent is syntagmatic: It should unambiguously identify and mark off major category words within utterances. To best do this, canonical stress-accent therefore should be:

a. obligatory : all words have a primary stress
b. culminative : no word should have more than one primary stress
   definitional

c. predictable : stress should be predictable by rule (“fixed”)
d. autonomous : stress should be predictable without grammatical information

e. demarcative : stress should be calculated from the word edge
   otherwise demarcation
f. edge-adjacent : stress should be edge-adjacent (initial, final)
   is imperfect

g. non-moraic : stress should be weight-insensitive

h. privative : there should be no secondary stresses

i. audible : there should be phonetic cues of the primary stress

In other words, stress should be “biunique”: One should be able to predict the stress from the word boundaries and the word boundaries from the stress.

(23) Like segmental features, the definitional function of tone is to distinguish morphemes (Welmers 1959); for a two-height [H, L] system to best realize this function, the properties of the canonical system should be:

a. bivalence : both H and L are phonologically activated (e.g. not privative /H/ vs. Ø)
b. omniprosodicity : every tone-bearing unit (TBU) has a H or L
c. unrestrictedness : all combinations of H and L occur
d. faithfulness : every /H/ or /L/ is realized on its underlying morpheme and TBU
e. lexical : /H/ and /L/ should contrast on lexical morphemes (> grammatical morphemes)
f. contours : HŁ and ŁH contours should be possible on a single TBU
g. floating tones : H and L tonal morphemes and lexical floating tones should be possible

(24) There is no canonical function for so-called “pitch-accent” systems! Which would this be:

a. a language which has an obligatory (but not necessarily culminative) H tone per word?
b. a language which has a culminative (but not necessarily obligatory) H tone? (Hualde, in press)
c. a language which has either a culminative or an obligatory H tone? (van der Hulst 2011)
d. a language which has privative H tones (/H/ vs. Ø)? (Clark 1988)
e. a language which limits tonal contrasts to the stressed syllable?
f. a language which restricts its tones in whatever way?
g. a language which has only two tone heights (H, L)?

“... if we push the use of accents to its limits (at the expense of using tones), this implies allowing unaccented words (violating obligatoriness) and multiple accents (violating culminativity). In this liberal view on accent, only languages that have more than a binary pitch contrast are necessarily tonal...” (van der Hulst 2011: 13)

“‘Accent’... is an analytical notion and cannot be measured. [It is] thus different from stress, which is typically an observable phenomenon, and different also from tone, whose existence is equally measurable....” (Gussenhoven 2004:42)

(25) Diverging from the above traditional view of typology is the typological distribution perspective: “What’s where why?” (Bickel’s 2007: 239)

“In the past century, typology was mostly used as an alternative method of pursuing one of the same goals as generative grammar: to determine the limits of possible human languages and, thereby, to contribute to a universal theory of grammar... that would rule out as linguistically impossible what would seem logically imaginable, e.g., a language with a gender distinction exclusively in the 1st person singular.* Over the past decade, typology has begun to emancipate itself from this goal and to turn from a method into a full-fledged discipline, with its own research agenda, its own theories, its own problems. What has reached center-stage is a fresh appreciation of linguistic diversity in its own right, and the new goal of typology is the development of theories that explain why linguistic diversity is the way it is—a goal first made explicit by Nichols’s (1992) call for a science of population typology, parallel to population biology. Instead of asking “what’s possible?” more and more typologists ask “what’s where why?”.

(26) *Is this an example of an “impossible” or an “improbable” language in the sense of Newmeyer 2005?

“Most theoretical linguists, from whatever camp, consider that it is a central goal of theoretical work on grammar to distinguish possible grammatical processes from impossible ones and—for the former—to explain why some possible processes seem more common [probable] than others.” (Newmeyer 2005: 27)

(27) Re this growing conception of typology, my impression is that general phonology has been less concerned with the “where” than the “how” (as in “how should we analyze this system?”). In this connection, what is the difference between a phonological typologist and a formal phonologist who works on languages? Is it a matter of goals (“research agenda”), emphasis, or initial assumptions? Cf. Croft (2007: 87):

“... the structuralist and generative method assumes the same formal theoretical entities to exist across languages, and then looks for constructions with distribution patterns that appear to distinguish those formal theoretical entities in the language.”

“Typological analysis proceeds very differently. A typologist uses a functional definition of a situation type, such as the Keenan-Comrie functional definition of relative clauses, and compares the different grammatical constructions used for that function across languages, and seeks relationships among the constructions (or grammatical properties of the constructions).”

Cf. cross-linguistic studies/surveys of stress-accent which weight differently the “what” and “where” vs. how to implement the findings within a formal framework, e.g. Hyman (1977), van der Hulst et al (2010) vs. Halle & Vergnaud (1987), Hayes (1995). They may also differ in how they answer the “why”.
(28) We’ve come a long way! Dressler’s (1979) application of Seiler’s (1979) inductive vs. deductive typology to phonology seems not to characterize (formal) phonologists’ views of typology.

“Work in the typology of process phonology is usually inductive.... The usual method of research is the sampling of similar phonological processes in different languages, the enumeration of frequent, general or exceptionless properties, of their clustering, of probable hierarchies and implications, and attempts at explanation by reference to phonetic data.... Much less frequent are deductive process phonological typologies, although they are of primary importance, if typology should be based on language universals research....” (p.261)

“Deductive research is easier in phonology than in grammar, since we simply know more about the phonologies of the languages of the world than about their grammars; on the other hand less deductive typology has been done in phonology than in grammar.” (p.262)

(29) The original title of the workshop was “What is phonological typology—and why does it matter?”

a. brief answer: we need to do phonological typology for the same reason we do general phonology: in order to understand why phonologies are the way they are

b. we should approach phonological typology in the broadest sense of “What, where, why?” and

i. look broadly (quantitatively) and in depth (qualitatively) at the phenomena

ii. identify the geographical and genetic distributions of the phenomena

iii. consider a wide range of potential explanatory answers to two kinds of “why?” Why the phenomena are the way they are and why they are found where they are found? E.g. why is tone different? (Hyman 2011)

References


