

Beyond Markedness in Formal Phonology

Edited by

Bridget D. Samuels

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In recent years, an increasing number of linguists have re-examined the question of whether markedness has explanatory power, or whether it is a phenomenon that begs explanation itself. This volume brings together a collection of articles with a broad range of critical viewpoints on the notion of markedness in phonological theory. The contributions span a variety of phonological frameworks and relate to morphosyntax, historical linguistics, neurolinguistics, biolinguistics, and language typology. This volume will be of particular interest to phonologists of both synchronic and diachronic persuasions and has strong implications for the architecture of grammar with respect to phonology and its interfaces with morphosyntax and phonetics.

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Bridget Samuels
Los Angeles, CA
April 2017

Introduction

Bridget D. Samuels

A century ago, two threads of linguistic theorizing diverged: a formalist approach owing to Ferdinand de Saussure and Louis Hjelmslev, and a functionalist approach with its origins in the ideas of Nikolai Trubetzkoy. This tension can also be seen in the foundational work by Noam Chomsky and Morris Halle, *The Sound Pattern of English* (1968): the first eight chapters provide a sketch of phonological theory and formal description of English phonology, but the ninth is concerned with something radically different, namely the intrinsic content of, and markedness relations among, phonological features. This chapter was presciently presented as an “Epilogue and Prologue.” Indeed, it inspired a half-century of investigation into the nature of markedness (see Battistella 1996 for an overview), which has taken a central role in phonological theory and is an inextricable part of Optimality Theory (Prince & Smolensky 1993).

However, in these first two decades of the twenty-first century, a number of independent streams of thought have converged on the conclusion that markedness should not be considered as an explanatory force in phonology, or at least, if it is to be taken as explanatory, must be carefully reconsidered and defined. Arguments of this nature have been articulated clearly by Hale and Reiss (2000, 2008), Gurevich (2001), Hume (2004), and Haspelmath (2006), among others. One conclusion from this vein of literature is that markedness *demand*s rather than *provides* explanation (Haspelmath 2006). As a consequence, phenomena previously attributed to markedness must in this view be explained by other principles. For example, markedness as phonetic difficulty may find explanation in terms of properties of the perception and production systems; markedness as structural complexity may be explained in terms of computational principles.

The various chapters in this volume all concern phenomena that have been discussed in the context of markedness, including syllable structure, feature/segment inventories, prosodic structures, consonant epenthesis, and neutralization rules. Some authors argue for maintaining but re-interpreting the notion of markedness, whereas others advocate for dispensing with the concept entirely.

David Odden begins the discussion by reviewing the history of markedness theory from Trubetzkoy to Jakobson and traces their influence through the generative era. He presents one of the more skeptical viewpoints represented here, concluding that representing markedness in the formal phonological grammar “clutters the theory... and does nothing for the scientific understanding of the nature of phonological computation.”

Charles Reiss takes up the issue of contrast in phonology, which is central to the notion of markedness. He takes as his starting point an argument made by Halle (1959), namely that a distinction between “neutralizing” (morphophonemic to phonemic) and “allophonic” (phonemic to phonetic) rules cannot be maintained in the ontology of grammar. Building on this notion, he presents an analysis of Russian /v/ and its behavior in voicing alternations that crucially relies on this segment being underspecified for the VOICE feature.

Juliette Blevins addresses markedness from a typological perspective. It has long been realized that substantive phonological universals are very rare; for almost every generalization, a counterexample can be found. Blevins argues against substantive universals in the realm of distinctive features, the sonority hierarchy, and the prosodic hierarchy before turning to the related question of whether universal markedness constraints can adequately describe segment inventories and syllable typology. She concludes that the diversity observed in phonological patterns is better explained through extra-grammatical properties than by formal properties of the grammar, using evidence from spoken and signed languages.

Bert Vaux and **Bridget Samuels** also argue against markedness based on cross-linguistic diversity, specifically in terms of the wide range of consonants that participate in epenthetic processes. They use /r/-epenthesis in “non-rhotic” dialects of English as a case study, enumerating several empirical and theory-internal problems that arise in trying to account for /r/-epenthesis by appealing to markedness. They conclude that markedness relations are neither necessary nor sufficient to describe the range of attested epenthetic consonants.

Marc van Oostendorp and **Edoardo Cavarani** argue for extending the notion of markedness to a new domain, namely that of “empty categories”, or positions in the phonological representation that do not leave direct phonetic traces; as they point out, this notion is also highly relevant to syntax. They show that a hierarchy of markedness for empty categories in phonology can be derived from a novel combination of Element Theory and Turbidity Theory, illustrating this position with data from Italian and Dutch dialects.

Kuniya Nasukawa discusses an issue relevant to phonological and syntactic structures as well. He considers head-dependent relations in both of these modules and proposes a new conception of headedness in phonology that increases

the parallelism with syntax. Specifically, heads in both phonology and syntax are taken to be important from a structural perspective but unimportant from a lexical or informational one. This discussion is informed by traditional diagnostics for markedness including distribution patterns, phonetic salience, and information-theoretic concerns.

Shanti Ulfsbjorninn argues that markedness is extra-grammatical, yet still plays an explanatory role, and can be described in terms of structural complexity and description length. He explores the implications of this view for syllable structure, presenting a hierarchical parameter schema that derives implicational universals pertaining to the typology of consonant clusters, thus returning to one of the issues discussed by Blevins.

Mathias Scharinger reviews evidence from neuroimaging experiments that may shed light on the question of whether markedness is represented in the brain. This approach necessarily begins with certain assumptions about what markedness relations may exist, for example that certain features or feature combinations may be marked relative to others. After providing an overview of functional magnetic resonance imaging (fMRI), electroencephalography (EEG), and magnetoencephalography (MEG) techniques, Scharinger presents a number of studies that probe whether certain segments may be underspecified, and perhaps therefore unmarked, for features such as place of articulation. He also considers studies of co-occurrence constraints (phonotactics) and morphophonology. Scharinger wraps up the discussion with suggestions for interesting future work in phonology, neuroscience, and linking hypotheses between the two, all of which will be necessary before firm conclusions can be made.

Pedro Martins concludes the volume with a different type of biological approach to markedness. He poses the question of whether markedness is unique to language (and to humans), or whether it could be constructed from components that are not unique to language, and therefore perhaps not to humans either. Upon contemplating both of these possibilities, he finds neither satisfactory. He compares the status of markedness to that of Merge in syntax, concluding that the former is a “conceptual mistake” but the latter is indispensable. We therefore come full circle, with Martins echoing the conclusion of the first few chapters of the volume, though for independent reasons, that the notion of markedness in phonology should be dispensed with completely.

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CHAPTER 1

Markedness in substance-free and substance-dependent phonology

David Odden

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The true nature of “markedness” in the history of phonology is highly uncertain, in that the term is used to refer to a wide array of facts about language, and there is little agreement over what the term even refers to, much less whether it is a valid concept. This paper reviews certain applications of that concept in phonology, in search of some unity behind “markedness”. I show that “markedness” is about two unrelated things: formal properties of language, and functional probability of occurrence. Much effort has been put into forcing these two conceptions under a single computation umbrella, and that effort bears significant responsibility for the development of substance-dependent theories of grammar. As for whether “markedness” is a worthy topic of investigation, it is argued that the original formal question underlying markedness is still worth scrutiny in the theory of grammar: what is the nature of phonological features?

Keywords: acquisition, computation, features, naturalness, neutralization, phoneme, privativity, typology, underspecification, universals

“Markedness” has a decent claim to being the most disagreed-on notion in phonological theory. Looking for a commonality across theories of markedness, we can discern that it is not just an aspect of representation (it impinges on the algorithmic component – it affects how rules are written in SPE phonology, and a large section of the corpus of constraints in OT are about “markedness”), and it is not just about algorithms (in SPE, certain feature values are “marked”, and in some autosegmental theories of representation employing privativity, specified features are “marked”). It is used to refer to a formal property of grammars (feature specifications or a relationship between certain rules and the mechanisms of derivation), as well as to the non-linguistic concepts “functionally explicable” or “frequently occurring” (which may, depending on theoretical predilection, be taken to be necessarily a part of formal grammar).

Since the concept has survived for decades, yet we still can’t say with any certainty what it is (much less whether it is true), it would not be pointless to review

at least certain applications of the concept in phonology, in the search for common elements unifying this term, in order to see if there is anything worth salvaging. My conclusion is that “markedness” is about two unrelated things, one being a formal property of rules and representations, and the other being the functional property of probability of occurrence and the related notion of “naturalness”. There are attempts to reconcile the two perspectives – mistaken attempts, I show. The former question about rules and representations, and not the latter, is properly the concern of the theory of grammatical computation. The latter, on the other hand, is properly the concern of a theory of linguistic or human behavior, and is not the concern of the theory of grammar. Insofar as computation and behavior are aspects of “language”, it would not be unreasonable to see both concerns as being in the domain of “linguistic theory”. Much effort has been put into forcing these two concerns to be addressed under a single umbrella (the computation umbrella), effort which bears significant responsibility for the development of substance-dependent theories of grammar.¹ The strongest accurate conclusion we can draw is that “markedness” refers to whatever “markedness” is felt to be about.

1. From Trubetzkoy to generative phonology

In discussing the fact that language has limited means of distinguishing words, Trubetzkoy (1939/1969: 10) observes that “words must consist of combinations of discriminative elements”, which he identifies with “marks” using the terminology of Karl Bühler. These discriminative elements / marks are identifiable characteristics, which we now term features (or structures that currently stand for features in modern geometric theories). Thus in trying to identify the phonemic content of German [k] (pp. 66–67), Trubetzkoy states that “[o]nly the sum of all four marks is characteristic for *k* alone”, referring specifically to the marks “tense nonnasalized dorsal occlusive” – marks are phonetic attributes. The concept of markedness is introduced in connection with privative contrasts, where (p. 75) it is stated that “[t]he opposition member that is characterized by the presence of the mark is called ‘marked,’ the member characterized by its absence ‘unmarked’”. Thus as introduced by Trubetzkoy, being “marked” is the simple logical relation of having a property, necessarily encountered with all and only privative contrasts, because privative contrasts are defined as those where one member of the opposition *has* a distinguishing mark and the other *lacks* it.

1. The concept of “markedness” has been applied to other areas of grammar, especially semantics – see Battistella 1990, 1996 for discussion – but such expansions seem to have had no effect on the shape of phonological markedness.