REVIEW

A Theory of Syllabification and Segmental Alternation: With studies on the phonology of French, German, Tonkawa and Yawelmani. By Roland Noske. Tübingen: Max Niemeyer Verlag, 1993. Pp. viii + 248. (Paper).

REVIEWED BY EUGENE BUCKLEY, UNIVERSITY OF PENNSYLVANIA

This book proposes a particular theory of syllable structure and syllabification processes, and applies the theory in detail to the phonology of the four languages named in the title. This review focuses on the two Native American languages represented, Tonkawa and Yawelmani. Chapters 1 and 2 argue for the basic approach (including brief discussions of Wiyot and Navajo). Chapters 3 to 6 are devoted to the four language studies, and include overviews of previous work in addition to original analyses. Chapter 7 is a short conclusion.

The theory of syllables propounded by Noske has the following basic characteristics. The constituents Onset, Nucleus, and Coda are recognized, and many language-specific syllable structures are defined relative to these categories: for example, whether a language permits a vowel in the coda determines whether diphthongs exist. Operations of consonant and vowel epenthesis function to fill empty Onset and Nucleus nodes. The central role of these subsyllabic nodes leads to the term "true constituent model", and contrasts with certain other approaches

which do not accept categories such as Onset as primitives; for example, a requirement for an onset can be treated as a constraint against vowel-initial syllables (e.g. Itô 1989). In Chapter 2 Noske presents numerous arguments for the true constituent model against a main competitor, the moraic model (e.g. Hyman 1985, Hayes 1989, McCarthy and Prince 1995); on the whole these arguments are not persuasive, as they attack a specific version of moraic phonology (Hayes 1989) without considering alternative views of morification (e.g. Zec 1988). In other cases the attacks rely on further assumptions which are subject to challenge; for example, while it may be true that Hayes (1989) provides no means of explaining the well-known tendency of rules to conspire in producing well-formed syllables, this is orthogonal to the representation itself. In particular, the important recent framework of Optimality Theory (Prince and Smolensky 1991, 1993) eschews rules entirely in favor of surface constraints which are tailor-made to capture conspiracies, but the theory also makes use of moras. We will return to this theory repeatedly below, because this framework (no doubt unavailable to Noske during the writing of this book) is well suited to handling many of the issues which arise.

Noske's approach involves a combination of well-formedness constraints and stepwise derivations. There is a long history of concern among phonologists about the difference between these approaches (e.g. Kisseberth 1970b), and Optimality Theory is firmly in this tradition. Noske emphasizes the role of constraints in explaining conspiracies, and in this regard his discussion is consonant with Optimality Theory. His actual analyses, however, are vigorously derivational and often involve false starts and corrections of previously created structure. To take one example, several processes, most centrally syllabification, are directional in

nature. A given language will have a default direction (say, left to right), but if in a particular case this would produce an output which violates a syllable-structure constraint, the other direction (right to left) is chosen instead. Given the provisional nature of the default direction, one naturally wonders whether directionality is even required — it seems, rather, that the well-formedness constraints on surface syllable structure are what really matter.

The two North American languages to which Noske devotes chapters are well-known in the phonological literature. Tonkawa has proved to be of interest due to radical variations in the shape of the stem: for example, 'cut' surfaces as *picn*, *pcen*, *picna*, *pcena*, or *picen* depending on what affixes are present, and we must posit an underlying stem /picena/ which never surfaces fully intact. The goal of Noske's analysis is to account for these alternations in a unified and principled way based on general requirements of syllable structure. The frequent deletion of vowels, but retention of consonants, leads to the interesting claim that it is consonants which project syllables, while vowels are incorporated into syllable structure (and therefore retained) only if an adjacent consonant has provided an appropriate syllable. (In Optimality, the same result would follow from the rankings of constraints on the parsing of C's and V's into syllables.) Another interesting aspect of the analysis concerns the special status of the final vowel in disyllabic stems, which resists syncope: cf. *pile+n+oʔ → pilenoʔ* 'he is rolling it' with retention of the stem-final /e/, and *netale+n+oʔ → netlenoʔ* 'he is licking it' where the stem-medial /a/ is lost. For Noske, Tonkawa syllabification is cyclic and applies only in derived environments; on the cycle in which *-n* is suffixed, the rule affects only the consonants closest to the morpheme boundary, syllabifying them as onset and coda, and (parasitically) the intervening vowel as nucleus. In

pile+n, this means retention of the /e/, while in *netale+n* the medial /a/ is not so privileged and never syllabifies. This permits him to avoid the stipulative reference to 'stem vowel' that Kisseberth (1970a) requires, but much other work (e.g. Kiparsky 1982) has suggested that structure-building rules such as syllabification are not restricted to derived environments. In fact, it is not unreasonable to suppose that the special status of the stem-final vowel is, in fact, a direct consequence of its position, since it is well-known that edges are special. (For an Optimality perspective, see McCarthy and Prince 1993.)

Of all the indigenous languages of the New World, Yawelmani Yokuts has by far played the greatest role in the development of phonological theory since the late sixties. (The discussion (p. 99) of the problem of building an analysis on contrived forms, based on sometimes unclear descriptions in Newman's (1944) grammar, is welcome, but narrowly focused on a single suffix.) Noske's main point in his treatment of Yawelmani is the central role of the syllable in motivating numerous alternations, such as epenthesis, closed-syllable shortening, and templatic morphology. This point is uncontroversial, and his criticisms of earlier segmental accounts are valid; on the whole, however, his argument supports a syllabic analysis in general rather than a particular model of the syllable (cf., e.g., Archangeli 1991). His use of moras to represent underlying template choices is surprising, since the moras have no formal status and are simply converted by transformation into constituentized syllables. The need for a unification operation, which combines the syllabic representation of the template with the syllabified stem, is an unfortunate complication which again seems tailor-made for an Optimality analysis in which the 'template' is in fact a constraint on the surface form of the stem.

In sum, the book provides an interesting and detailed discussion of the issues which arise in the phonological analysis of these languages. The overviews of past analyses may be of particular value to readers interested in the recent development of phonological theory. Numerous aspects of the analysis are not firmly motivated, however, and many of the insights might now more profitably be expressed in Optimality Theory.

References

Archangeli, Diana. 1991. Syllabification and Prosodic Templates in Yawelmani. *NLLT* 9, 231-283.

Hayes, Bruce. 1989. Compensatory Lengthening in Moraic Phonology. *LI* 20, 253-306.

Hyman, Larry M. 1985. *A Theory of Phonological Weight*. Foris, Dordrecht.

Kiparsky, Paul. 1982. Lexical Morphology and Phonology. In *Linguistics in the Morning Calm*. Hanshin, Seoul, pp. 3-91.

Kisseberth, Charles. 1970a. Vowel elision in Tonkawa and derivational constraints. In *Studies presented to Robert B. Lees by his students*. Linguistic Research, Champain, Ill, 109-137.

Kisseberth, Charles. 1970b. On the Functional Unity of Phonological Rules. *LI* 1, 291-306.

Itô, Junko. 1989. A Prosodic Theory of Epenthesis. *NLLT* 7, 217-259.

McCarthy, John, and Alan Prince. 1993. Generalized alignment. *Yearbook of Morphology*, Kluwer, 79-153.

McCarthy, John J., and Alan S. Prince. 1995. Prosodic Morphology. *The Handbook of Phonological Theory*, ed. by John Goldsmith, Blackwell, 318-366.

Newman, Stanley. 1944. *The Yokuts Language of California*. Viking Fund Publications in Anthropology #2, The Viking Fund, New York.

Prince, Alan, and Paul Smolensky. 1991. Optimality. Paper presented at the Arizona Phonology Conference, Tucson.

Prince, Alan, and Paul Smolensky. 1993. *Optimality theory: constraint interaction in generative grammar*. Ms., Rutgers University and University of Colorado, Boulder.

Zec, Draga. 1988. *Sonority Constraints on Prosodic Structure*. Dissertation, Stanford University.