

is eminently noteworthy, considering its language and has not lived in extended periods of time. Through avoided and analyses are provided the clarity of the exposition. Itologists will find in this work a ticians will be made aware of a sis. In fact, the book should also n language-structure courses, in few thorough descriptions of perhaps the only one that is not te theoretical framework. It is priced this work as £35, which f many who could in principle

he book has a small number of problems arise in relation to data. author's ratings of the various e a few cases where I and two und ourselves disagreeing. The ceptable and varies in intensity, iawkward (for example, [704]), npossible (for example, [1428]). r simply reflect idiolectal differ with the writer's informants.

For example, section 1.2.4.4., positions, omits mention of the the accusative and the genitive, phrase *datorită tie* 'owing to 1.3. (body parts/functions/cong to the registers 'formal' and 'ar' is required by some of the inappropriate to lump together e items *mate* and *pizdă*, which as *guts* and *cunt* respectively. A the subpart of section 1.1.2.2.6. leaves the impression, which in hybrid verbal/nominal status, us distinct forms, one nominal inct English *V+ing* forms. To ions between the (a) and (b) the (a) and (b) subcases of (2).

The parallelism between the English and the Rumanian forms at issue is illustrated in (1) and (2). Note that the italicized forms in both (1a) and (2a) exhibit genitive objects, adjectival modifiers, and definite articles, while the italicized forms in both (1b) and (2b) exhibit accusative objects, adverbial modifiers, and no articles of any kind; it is therefore justified to regard the italicized forms in the (a) and (b) subcases as nominal and verbal respectively.

- (1) a. The repeated *reading* of the same passage was a mistake.
b. Repeatedly *reading* the same passage would be a mistake.
- (2) a. *Împătitul* frătesc al banilor a fost binevenit.
dividing-the brotherly of money-the.GEN has been welcome
'The brotherly division of the money was welcome.'
- b. E preferabil de *împărit* banii frătește.
is preferable divide money-the.ACC brotherly(ADV)
'It is preferable to divide the money in a brotherly way.'

The few minor objections I have registered have been made essentially for the sake of completeness and should in no way be construed as implying serious reservations on my part. As already stated, I feel very positively toward this book, which competently fills a long-standing gap in the descriptive linguistic literature.

Tel Aviv University

ALEXANDER GROSU

Leo Wetzels and Engin Sezer: *Studies in Compensatory Lengthening*. Dordrecht: Foris, 1986. vii + 353 pp.

This volume contains papers analyzing compensatory lengthening phenomena in a number of languages. Most of the papers were given at a 1982 conference on this topic held at Harvard University. For the most part, the papers assume a version of CV phonology modeled after Clements and Keyser (1983). The main goals of the book are to explore and develop the CV framework, to establish cross-linguistic generalizations about compensatory lengthening, and to use the formal devices of the theory to account for them.

I think this book is a success. Virtually every paper presents an interesting analysis, and many propose general theoretical principles that appear quite promising. Researchers interested in revising and extending CV theory will find the book very useful as a collection of well-worked-out analyses against which new proposals can be tested.

The basic idea of CV theory is to distinguish *phonological positions* from the segmental qualities that fill positions. Formally, this is done by representing phonological positions, symbolized by V for vowel and C for consonant, on a separate autosegmental tier from the tier that represents segment quality. As is generally the case in autosegmental phonology, one-to-many and many-to-one associations are possible. This enables the theory to describe the phonologically ambiguous character of certain segments. For instance, Kenstowicz (1970) observed that long vowels and geminates act like sequences for rules that affect segment count, but as single segments for rules that affect segment quality. CV phonology captures this generalization by representing them as follows:

- (1) a. Long vowels b. Geminates

Similarly, affricates and prenasalized stops usually function phonologically as single segments for rules that affect segment count, but as sequences for rules that affect segment quality. Their CV representation is as in (2).

- (2) a. Affricates b. Prenasalized stops

With this background, I will discuss the papers in the volume individually.

Substantial evidence for the CV view of phonological structure is presented in Clements's contribution, an analysis of compensatory lengthening in Luganda. Clements shows convincingly that the long vowels, geminate consonants, and prenasalized stops of this language behave exactly as their CV representations would lead us to expect. For instance, Luganda has a rule of compensatory lengthening that converts the sequence *V + syllabic nasal + stop* to *V: + prenasalized stop*. Under CV theory, this works as follows: the syllabic nasal abandons its V slot and reassociates with the C slot of the following consonant. The empty V slot this creates is then filled by associating it to the preceding vowel, creating length.

- (3)

Clements shows that the CV theory makes possible an elegant account of the phonology of the language, and also of a wide range of other observations, including language games, historical change, and phonetic timing. For those unfamiliar with CV phonology, I recommend reading this article first, following Sezer and Wetzel's Introduction.

Wetzel's account of compensatory lengthening in Ancient Greek is, like Clements's article, a thorough and carefully argued contribution which provides strong evidence for CV theory. Along with Steriade (1982), Wetzel was the first to point out a compensatory lengthening type that appears to be expressible only in the CV framework. In this process, a syllable-initial consonant deletes, whereupon a preceding consonant shifts to the newly vacated C position. This vacates a second C position, onto which the preceding vowel spreads, creating length.

- (4)

This may initially seem like a formal trick, but in fact Wetzel's paper takes great care to justify his account and to argue against alternative possibilities. It is worth noting that Hock (1986) has recently located other cases of this sort of rule, so it may not be as exotic as it first seemed. Wetzel's paper also treats other areas of Greek phonology that are of great interest; the rigor and scholarly care of his paper are impressive.

Sezer presents a different kind of evidence for the CV account of compensatory lengthening, in the form of several rules of consonant deletion in Turkish. For all of these rules, compensatory lengthening occurs only if the deleted consonant occupied syllable-final position; for example, /sa:makl/ → [sa:makl], but /da:vul/ → [da:vu]. This can be described straightforwardly under CV theory: the deletion takes place across the board on the segmental tier, but compensatory lengthening happens only if the vacated C slot is syllable-final. Sezer notes the serious formal problems this raises for SPE-style accounts of compensatory lengthening. He also proposes that the 'empty consonant' of Turkish (historically /g/, but realized in the modern language only as compensatory lengthening in syllable-final position) can be interpreted insightfully under the theory as an empty C position.

Kornfilt takes on a more difficult case of empty consonants in Turkish: the empty Cs occurring in stem-penultimate position. These consonants give rise to quite peculiar alternations: /baCr/ yields [baɪr] by an independently motivated epenthesis rule; while /baCr+i/ yields [ba:ri] by compensatory lengthening. Kornfilt takes care to argue against a less abstract analysis not involving empty consonants. While I am personally

not fully convinced by her arguments, her case is nonetheless very interesting.

Michelson's account of Onondaga is unusual in that it posits compensatory lengthening triggered by the loss of a syllable-initial consonant rather than a syllable-final one. This is significant, in that at least some versions of CV theory (Hyman 1985; McCarthy and Prince 1986) predict that compensatory lengthening triggered by loss of onset consonants should not exist. The Onondaga consonant Michelson deals with was historically an *r; she represents it synchronically as an empty C slot. A typical derivation is /k + Cæta'ke/ → [kæ:tákə] 'my heel'.

It is significant that the rule Michelson proposes was never a sound change of the language, but rather a telescoped version of three successive historical processes: (1) epenthesis into certain Cr clusters; for example, *CrV → *CerV; (2) loss of *r: *CerV → *CeV; (3) merger of eV sequences to a single long vowel: *CeV → CV: (Woodbury 1981). Intervocally, where epenthesis did not take place, the loss of *r did not trigger compensatory lengthening. One is thus tempted to revise the analysis so as to recapitulate its historical origins more closely. This would enable us to maintain a cross-linguistic generalization about which consonants permit compensatory lengthening when they are deleted.

Mascaró's and Walli-Sagey's papers are contributions to the development of a fully autosegmental theory, in which processes formerly thought to be purely segmental are analyzed using multtiered representations (see Clements 1985; Hayes 1986).

Mascaró offers an interesting account of 'compensatory diphthongization' in Majorcan Catalan, in which assimilation of /n/ to [n] before /s/ induces a compensatory /y/-glide on the preceding vowel, as in /an+s/ → [aysn]. His analysis involves spreading an autosegment marked for alveolarity from the /s/ onto the /n/. The autosegment for palatalness that this dislodges then shifts to the preceding /a/, diphthongizing it.

Walli-Sagey's article on Kinyarwanda shows how multitered phonology can provide insightful phonological descriptions of multiply articulated consonants, such as Kinyarwanda [tkw], a monosegmental 'labio-corono-vocal'. She also presents an intriguing syllabification algorithm which enables the various compensatory-lengthening processes of Kinyarwanda to be collapsed into a single rule.

Rialland offers an important empirical contribution to the seemingly eternal debate over the [ø]-θ alternations of French. She demonstrates that phonetically, the result of deleting a schwa is usually distinct from parallel forms in which no schwa occurs in the underlying representation. For example, the [bartru] in *le bas r(e)trouvé* is not the same as the [bartru] in *le bar trouvé*. For a large class of cases, 'schwa drop' is really

more like monophthongization of a Cə sequence. Although Rialland argues that this phenomenon is not strictly speaking compensatory lengthening, it is of obvious relevance to theories that address the phenomenon (see Hyman 1985).

Poser uses Japanese evidence to argue against the proposal of de Chene and Anderson (1979) that compensatory lengthening is not a primitive process, but rather represents a historical telescoping of weakening-to-glide in syllable-final position, followed by monophthongization. His arguments are that the putative syllable-final weakening of velars in Japanese is itself a historically telescoped process, and that Japanese has a Luganda-like process of compensatory lengthening triggered by glide formation; the latter process is not describable in de Chene and Anderson's terms.

Bichakjian addresses the issue of when a phonetic compensatory-lengthening process may be phonologized, yielding phonemic long vowels. He agrees with de Chene and Anderson (1979) that the usual requirement is that the language already have a phonemic vowel-length distinction. He has a different view, however, of how languages acquire vowel-length contrasts in the first place. De Chene and Anderson believe that the usual source is vowel merger, via the route VCV → VV → V: Bichakjian's account is based on the theory of markedness: long vowels are marked segments and originate only from sequences that are even more marked, such as the V+*laryngeal* sequences of Indo-European. This is an interesting alternative, though a conclusive demonstration would have to take on the large body of evidence for the vowel-merger hypothesis presented in de Chene (1979).

Lowenstamm and Kaye adopt a 'principles and parameters' approach, attempting to minimize language-particular rules in favor of general principles, supplemented by parameters that have only a few language-specific settings. The specific content of their proposal is to abolish the CV tier, employing instead empty syllable trees, whose terminal nodes carry out the functions of the Cs and Vs.

I feel that this paper contains a number of important ideas, though the mechanics of the proposal and the argumentation seem flawed. Of the template CVCCVC that syllabifies as CV.CCVC if filled by, say, the consonantal root *tблp* (*ta.blap*), but as CVC.CVC if filled by *tблp* (*tal.bap*). As Lowenstamm and Kaye note, this suggests that what we call 'CV templates' are actually defined suprasegmentally, using notions such as 'two closed syllables'. This idea is proving to be influential; compare the

development of it pursued in McCarthy and Prince (1986). Lowenstamm and Kaye also suggest that rules of epenthesis should be construed not as simple segment insertion, but rather as parsing the string into syllables, with epenthetic vowels used as place-holders. This idea has also influenced later work, especially Ito (1986).

As for matters of execution, I have three criticisms. First, it appears that their analysis of the central data presented (concerning compensatory lengthening in Tiberian Hebrew) simply does not work. The details are rather complex, but for readers interested in pursuing the matter, the essence is this: Lowenstamm and Kaye encode the first syllable of a 'CVCCVC' template as having a branching rhyme, not a branching nucleus. According to their conditions of syllable well-formedness, this means that a vowel could not spread onto the syllable-final position, so that compensatory lengthening should not be possible. This goes against the facts. Lowenstamm and Kaye note the problem, but as far as I can determine, the discussion they add does not provide an explicit solution for it.

Lowenstamm and Kaye repeatedly emphasize (114, 124–126) the following general prediction of their theory: a language will exhibit compensatory lengthening of vowels only if it does not allow gemination of consonants. But this prediction appears to be false: as we learn from other papers in the same volume (Bichakjian, Sezer, Kornfilt), two languages that have geminates, namely Latin and Turkish, also have compensatory lengthening. While closer inspection of these languages may produce an explanation for why they are exceptions to the generalization, they should not be glossed over.

Finally, there is an apparent flaw in one of the arguments. Lowenstamm and Kaye note that if one adopts a hierarchical syllable structure using the labeled nodes *nucleus* and *rhyme*, the distinction between V and C on the prosodic tier becomes redundant. Hence, they claim, it is dispensable. But what they do not point out is that one could go the other way, constructing the hierarchical syllable structure by rule from the CV tier. There is redundancy no matter which direction you go, so that the redundancy itself cannot dictate the correct solution. In fact, there is a good reason to exclude syllable structure from underlying representation: languages appear never to allow different syllifications of consonant clusters to contrast underlyingly, as in /a.blə/ vs. /ab.lə/. This observation follows if it is the vowel-consonant distinction that is underlying and syllable structure that is derived.¹

¹ I conjecture that the correct answer is a hybrid of the following sort: as Lowenstamm and Kaye suggest, the templates of word-formation processes are hierarchical, imposing syllabic homogeneity on the material

mapped onto them. Normal segmental morphemes, on the other hand, are basically linear and are parsed into syllables by rule. Their prosodic form is accordingly always predictable.

To conclude, I found all the papers in this volume worth reading, irrespective of whether I agreed or disagreed with their claims. I recommend this book to anyone interested in phonological theory.

BRUCE HAYES

UCLA

References

- Chomsky, Noam, and Halle, Morris (1968). *The Sound Pattern of English*. New York: Harper and Row.
- Clements, George N. (1985). The geometry of phonological features. *Phonology Yearbook* 2, 225–252.
- , and Keyser, S. Jay (1983). *CV Phonology: A Generative Theory of the Syllable*. Cambridge, Mass.: MIT Press.
- de Chene, E. Brent (1979). The historical phonology of vowel length. Unpublished doctoral dissertation, UCLA.
- , and Anderson, Stephen R. (1979). Compensatory lengthening. *Language* 55, 505–535.
- Hayes, Bruce (1986). Assimilation as spreading in Toba Batak. *Linguistic Inquiry* 17, 467–499.
- Hock, Hans Henrich (1986). Compensatory lengthening: in defense of the concept 'mora'. *Folia Linguistica* 20, 431–460.
- Hyman, Larry (1985). *A Theory of Phonological Weight*. Dordrecht: Foris.
- Ito, Junko (1986). Syllable theory in prosodic phonology. Unpublished doctoral dissertation, University of Massachusetts, Amherst (available from University of Massachusetts Graduate Linguistic Student Association).
- Kenstowicz, Michael (1970). On the notation of vowel length in Lithuanian. *Papers in Linguistics* 3, 74–114.
- McCarthy, John, and Prince, Alan (1986). Prosodic morphology. Unpublished manuscript, University of Massachusetts, Amherst, and Brandeis University, Waltham, Mass.
- Steriade, Donca (1982). Greek prosodies and the nature of syllabification. Unpublished doctoral dissertation, MIT.
- Woodbury, Hanni (1981). The loss of a phoneme. *International Journal of American Linguistics* 47, 103–120.
- Wilbur A. Benware: *Phonetics and Phonology of Modern German*. Washington, D.C.: Georgetown University Press, 1986. xv + 175 pp. \$19.95.

This book is aimed at university-level students of German who, though having little if any background in linguistics, would like to add some phonology and phonetics to their backgrounds. Unfortunately, students