



## REVIEW

Brandão de Carvalho, Joaquim, Tobias Scheer and Philippe Ségéral (eds.). 2008. *Lenition and fortition*. (Studies in Generative Grammar [SGG] 99.) Berlin: Mouton de Gruyter. ISBN 978-3-11-020608-1.

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*Lenition and fortition*,\* edited by Brandão de Carvalho, Scheer and Ségéral, explores various aspects of lenition and (to a lesser extent) fortition, including their definitions, typology, patterns in a number of languages, as well as overviews of current approaches to lenition and fortition from synchronic and diachronic perspectives. The book aims to provide a comprehensive and an up-to-date source of information on lenition and fortition, as the editors remark: “[t]here are books that attempt to document palatalization, stress, tone, sonority, syllable weight, the special status of coronals and a number of other phenomena, but there is no central source that anyone who wants to find out about lenition and fortition could rely on” (p. 1).

*Lenition and fortition* correctly recognizes that there is a gap to fill in the literature. Few issues in phonology have received as much attention as lenition since the inception of phonology. Paradoxically, despite the significant and growing body of research on lenition, its role and definition are still very much a matter of debate. With regard to the former, the role lenition performs in the grammar of languages (i.e. neutralization of lexical contrast) calls for more research (Gurevich 2004; Kul and Jaworski 2009). As for the latter, opinions are divided over whether lenition includes assimilation or not (e.g. Bauer 2008). The following definition, taken from a dictionary of phonetics and phonology, exemplifies the intuitive way in which lenition is typically defined:

([A]lso, weakening). Often the term is extended to various other processes, such as loss of aspiration, shortening of long segments and

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\* We would like to thank the two anonymous *PSiCL* reviewers for their most insightful comments that improved both the form and the substance of this review.

monophthongization of diphthongs, which represent “weakening” in some intuitive sense.

(Trask 1996: 201)

Similarly, Carr (2008) treats lenition as a process denoting any weakening (Carr 2008: 88), thus evading a more precise definition. In light of the above-mentioned observations, *Lenition and fortition* is exceptional in offering a general treatment of lenition in its numerous aspects.

The book is a collection of fifteen articles (covering 597 pages) authored by various formal linguists, united by the aim of creating a source of knowledge and reference for lenition. The structure of the book reflects its aim. *Lenition and fortition* consists of an “Introduction to the volume”, and three parts. This partition was guided by the intention to represent a logical progression from the properties of lenition (the first part) through patterns of lenition in selected languages (the second part) to theories of lenition (the third part), evolving neatly from observations to approaches.

Part One, entitled “Properties and behaviour of lenition and fortition”, includes four articles by Honeybone, Szigetvári, Scheer and Ségéral, and Bye and de Lacy. Part Two, “Lenition patterns in particular languages and language families”, carries seven articles by Brandaõ de Carvalho, Marotta, Holsinger, Kristó, Jaskuła, Pöchtrager, and Shiraishi. Five contributions by Brandaõ de Carvalho, Cyran, Scheer and Ségéral, and Smith and Szigetvári constitute Part Three, bearing the title “Analysis: How lenition and fortition work”. Every article has an abstract.

The choice of authors lends the book an air of “a Government Phonology enterprise with some OT freckles” (p. 4). According to the authors, such selection was determined by a connection with the Niece conference on lenition in 1999 as well as the availability of contributors.<sup>1</sup>

The “Introduction to the volume” specifies that the whole book came to being as a result of and as a response to the above mentioned conference. The introduction also outlines the scope of the book and sketches the contents of its

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<sup>1</sup> One of the reviewers has rightly pointed out that the book provides a rather one-sided account of lenition and fortition, which is not sufficiently emphasized in our review, as most of the contributors describe the processes within the theoretical framework of Government Phonology. We also admit that functionalists are very likely to find the contents of the book disappointing due to the fact that it is written by, and probably for, formalists. The book would undoubtedly be more comprehensive if it included views of authors representing various approaches to phonology. However, despite this drawback, we believe that the aims of the publication, which are specified on page 2 of our review, have been achieved. Also, unlike the reviewer, we consider the structure of the book to be well thought out and logical.

parts. More importantly, the “Introduction to the volume” contains a number of theoretical statements, revealing the philosophy behind its creation. They include the adoption of a non-cross-linguistic perspective and the question of how phonological phonology should be.

As for the languages treated in *Lenition and fortition*, their number appears modest relative to the ambitious venture of producing a source of reference on lenition. Consideration of merely a handful of languages, although typologically unrelated, ideally corresponds to the generative spirit of investigating a language in-depth. Those readers who seek a Maddieson-oriented generalization on lenition are advised to refer to Gurevich (2004). Some of her statements, however, must be treated with certain caution (Kul and Jaworski 2009).

The other ideological issue tackled by the book is the provision of an answer to the question of how “phonological” phonology should be. The editors nurture a hope that lenition, due to its power over sound, should put present and future phonological theories back on the “phonological content track”, abstracting away from non-phonological load (e.g. psycholinguistic or functional constraints).

Having overviewed the major linguistic-ideological views that the editors take in the introduction, the three thematically arranged parts of *Lenition and fortition* are presented in turn.

Part One seeks to explain, by providing background information, the nature and conditioning factors of lenition, as well as tease apart certain generalizations drawn from the behavior of lenition. This necessitates a journey through time in search of the origins of the concept. Honeybone undertakes the meticulous task of investigating the history of lenition in “Lenition, weakening and consonantal strength: Tracing concepts through the history of phonology”. This article furnishes a highly detailed account of the way the terms have extended its original meaning from denoting Celtic mutations to any change of sounds in the direction of stronger to weaker, attributable to loss of consonantal strength.

Apart from consonantal strength, it is generally acknowledged that sonority is another motivating force behind lenition (Foley 1977; Clements 1990; Bussmann 1996; Trask 1996). Szigetvári, however, in his article “What and where?”, challenges the straightforward relationship between sonority and lenition on the grounds that various sonority hierarchies are deficient: for instance, they all fail to consider a number of sounds such as glottals, clicks or aspirates; or the fact that the assumed advancement up the sonority scale disregards the phenomenon of vowel reduction which frequently involves raising or centralization. Instead of thus ineffective sonority, Szigetvári offers an account of lenition as loss of a privative melodic prime. Following Harris (1994), who equates leni-

tion with loss/delinking of a feature, Szigetvári analyzes stopping (more specifically, /s/ → /t/) as delinking of melodic material, represented by /s/. He then examines the cause of lenition, holding both position and context responsible and reveals a scenario in which postvocalic position, as opposed to preconsonantal or word-final, promotes weakening of consonants.

The significance of position, as a conditioning factor of lenition, is extensively discussed by Scheer and Ségéral's "Positional factors in lenition and fortition", and supported by careful examination of lenition in a number of typologically unrelated languages. It is worth remembering that in their analysis, the authors define position as a linear string of segments, whereas two independent weak positions are identified: coda and the intervocalic position (i.e. devoicing vs. spirantization, respectively). Scheer and Ségéral observe that languages (to the extent studied in the paper) display one of the two lenition patterns: weakening (or not) of word-initial and word-final positions, or of consonants which occur after sonorants. The modality of the weakening embodies a claim that edges may or may not necessarily be strong, whereas intervocalic positions are inherently weak. Employment of the two patterns leads to formulation of a set of predictions of how lenition should behave in a natural language, although these predictions await a more thorough, empirical study.

The paper titled "Metrical influences on lenition and fortition" by Bye and de Lacy explores the consequences of prosody for fortition and lenition, capturing generalizations about metrical influences within the Optimality Theory framework. In particular, gemination, a prime example of fortition, is argued to be driven by set constraints, including maximization of segmental content in the codas, or avoidance of adjacent stressed moras. While this observation that prosody clearly triggers fortition (i.e. the need of mora projection in the case of germination), lenition lacks any metrical influences: for instance, phonetics is solely responsible for /t/ and /d/ flapping. This unequal role of prosody allows the authors to conclude that "lenition and fortition are not phonologically unified" (p. 198).

Part Two consists of seven contributions that present case studies of lenition and, to a lesser extent, fortition patterns occurring in various languages. The first paper entitled "Western Romance", written by Brandaõ de Carvalho, focuses on the characteristic features of lenition processes that gave rise to the sound system of Proto-Western Romance. The data presented constitute a basis for a comprehensive discussion in which the author attempts to answer a number of theoretical questions of the utmost importance for those investigating lenition processes such as the teleology of lenition, or the interaction of qualitative and quantitative contrasts. However, the author does not provide unambiguous an-

swers, especially as far as the first question is concerned, which is not surprising given the complexity of the task.

The primary objective of Marotta's phonetically-oriented article entitled "Lenition in Tuscan Italian (Giorgia Toscana)" is to identify phonetic cues of lenition. The author argues convincingly that the quality and duration of VOT constitute two elements of the acoustic signal that speakers of Tuscan Italian employ to make a distinction between strong and lenited consonants. Importantly, she makes use of the two parameters to propose the existence of a new category of sounds – semifricatives – that can be thought of as lenited stops. Marotta also offers a formal analysis of Giorgia Toscana within the theoretical framework of Government Phonology, where spirantization of stops in unaccented positions, the most characteristic feature of the dialect, is explained as a reduction in melodic complexity which is achieved by eliminating the closure element of a stop sound.

Consonantal changes in West Germanic are the topic of Holsinger's contribution which aims at explaining the role that laryngeal phonology and prosodic factors play in lenition processes. The author points out that segment-based approaches to lenition tend to overlook the fact that syllables fall within higher levels of rhythmic structure, e.g. the foot, which also exert an influence on how phonological processes are applied. Holsinger's stimulating discussion of the evidence leads to the conclusion that in West Germanic, phonological contrasts are maintained in those syllables that occupy a strong position within the trochaic foot and that the distribution of stop allophones is primarily determined by their position in the foot.

The fourth paper, written by László Kristó, is devoted to lenition and fortition processes occurring in Slavonic languages. The author begins by making a rather controversial statement that "Slavonic exhibits a surprisingly small number of lenition and fortition processes" in comparison with Germanic or Romance languages and attributes this feature to an undefined typological property.<sup>2</sup> The author treats lenitions and fortitions as positional phenomena, i.e. ones in which the position a given sound has in the linear sequence determines the segmental effect. On the other hand, the melodic identity of other segments does not play any role.

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<sup>2</sup> The fact that one finds relatively few types of lenition and fortition in Slavic languages does not necessarily imply that speakers of any Germanic or Romance language apply more lenitions and fortitions than speakers of a Slavic language do. For instance, Gurevich (2004) lists as many as five lenitions taking place in Bulgarian, whereas the Germanic languages (English, Faroese, German, Icelandic) as well as the Romance languages discussed in her study (Catalan, Corsican, French, Spanish) have, on average, two such processes.

Jaskóła's article "Celtic", as the name implies, is concerned with lenition and fortition processes, both synchronic and diachronic, in Celtic languages. Like most authors in the volume, Jaskóła's discussion is restricted to stops at the expense of other consonants. The author explains that stops merit attention because they "were the first segments that took part in contextually-motivated weakening" (p. 325). Also, they constitute a challenge for the linguist as their output is variable and interpretation of such phenomena always poses difficulties. The evidence presented in the article substantiates the author's claim that, originally, consonant mutations in Celtic languages were phonological in nature as they were regularly triggered in certain contexts and were subsequently lexicalized. Synchronically, lenition has a grammatical function as it occurs in contexts in which it would not have been triggered in the past, or it is blocked in contexts in which it would have occurred.

Pöchtrager's "Consonant gradation in Finnish" is yet another contribution describing lenition processes affecting plosives. Since there are differences of opinion as to whether this weakening process is phonological or morphological in nature, the author sets himself an ambitious goal of resolving the question by employing the theoretical framework of Government Phonology. This kind of approach appears to be illogical, as consonant gradation depends heavily on the concept of syllable, whereas Government Phonology does not make use of the notion. The numerous examples discussed in the paper, in particular those forms that do not follow regular patterns, lead the author to the conclusion that consonant gradation is a morphological process.

The last paper of Part Two, written by Shiraishi, is similar to the previous article in that it attempts to determine whether Nivkh Consonant Mutation (henceforth CM) can be thought of as a phonological process. Doubts as to the phonological motivation of CM stem from the fact that it is triggered by speech segments that do not constitute a natural class. However, after careful examination of the data, the author suggests that CM, which involves spirantization and hardening, be regarded as perceptually-motivated lenition that applies to the avoidance of perceptually similar sequences of segments.

Part Three aims at formalizing the empirical generalizations, resulting from the previous parts into a more theoretical framework. To this end, the already established patterns of lenition and cross-linguistic observations on the behavior of lenition, reappear in Part Three, feeding a set of formal approaches to lenition, ranging from CV to Optimality Theory Phonology.

In order to account for representations (i.e. lenition processes), Brandaõ de Carvalho, in his paper "From position to transitions: A contour-based account of lenition" develops a contour-based theory of lenition. Its explanatory power lies

in the unification of melody and position, two concepts often evoked to explain lenition. Assuming that temporal contours have an edge over linearly arranged segmental features in capturing phonological feet, Brandaõ de Carvalho equates positions with melodies and lavishly illustrates the above claim with examples from assimilation (triggered by position, resulting in spreading of melody), voice and aspiration (where laryngeal qualities arise due to transitions between syllabic positions). Given that onset and nucleus represent autosegmental melodies, the contour-based approach displays an immediate advantage in predicting the consequences of positions for lenition (loss of melody).

In a similar vein, Cyran's paper "Consonant clusters in strong and weak positions" sets out to unearth and formulate the principles governing lenition in clusters. Extending his analysis to clusters in a number of languages, he finds that clusters share the same fate as singleton consonants and captures the effects of strong/weak positions in formal terms: the more structure that needs to be supported by licensing, the more likely it is that segmental effects occur in the respective weak positions" (p. 465). Further on, Cyran explains the behavior of consonant clusters as an interaction between the licensing strength of a context and structural complexity, construed as presence or absence of government. He applies the concept of complexity to single consonants, whereby it is termed substantive complexity, gauged by the inherent number of subsegmental primes (e.g. four for a voiced plosive, one for a glide). This leads Cyran to conclude that the syllabic space and, in turn, the word structure of any language results from interaction between complexity (whether structural or substantive) and licensing.

Strong positions, namely word-initial consonants and consonants occurring after Codas, are the object of investigation of "The coda mirror, stress and positional parameters" by Scheer and Ségéral. With regard to stress, the authors abstract away from the prosodic analysis on the grounds that it is a diacritic. Instead, they propose a linear account of stress as a syllabic space under the CV framework, in the wake of which, word-initial position is an empty CV unit. Building on their parameters, developed in Part One, the presence or absence of empty CV rather than language-specific choices determine whether a word-initial position is strong or not. As for post-sonorant consonants, the parametric choice depends on the ability of sonorants to branch on neighboring empty Nuclei. Apart from explaining the strength of the strong position, Scheer and Ségéral also offer an account of sonority as a positional, not adjacency-related effect.

The aim of Smith's paper, entitled "Markedness, faithfulness, positions and contexts: Lenition and fortition in optimality theory" are twofold: to overview

OT's treatment of lenition and to incorporate into the set the new constraints which lenition, analyzed cross-linguistically, produces. Regarding the former, from OT's perspective, lenition and fortition are input–output mappings whereby a set of ranked constraints determines the selection of a stronger (fortition) or a weaker (lenition) form. As for the latter, the differences between patterns of sonority- and markedness-related lenition call for the necessity of distinguishing between two different types of constraints, respectively: constraints governing prosodic positions and those pertaining to linear segmental context.

As the title suggests, Szigetvári's contribution to the book, "Two directions for lenition", points out two alternative scenarios for lenition, very much in the spirit of the CV approach (although with certain revisions). Starting from the observation that vowels are inherently loud whereas consonants are mute, Szigetvári outlines the first direction: government for mute consonants and, as a result, acquiring sonority (lenition), governing for sonorous vowels, producing mute vowels (fortition). Superficial adjacency is maintained due to government. The other direction is routed by lack of licensing, where loss of a place of articulation (or of laryngeal properties) occur. In other words, lenition is entirely attributable to government and licensing.

In reviewing the book, a number of inconsistencies can be pointed out. Firstly, the notion of articulatory effort is entirely missing from the general overview of lenition and related concepts (Part One). Despite numerous controversies surrounding the concept of lenition and the recent "trend", especially within the generative approach, to hold rather unfavorable views of lenition (e.g. Gussmann, p.c.), the notion recurs under various guises, ranging from the number of gestures (Articulatory Phonology) and energy (Lindblom 2006) to difficulties in motor control when intoxicated (Kaplan 2010). As a result, the contributors fail to draw a clear-cut distinction between phonetic and phonological lenition. The distinction is definitely of the utmost importance in the context of the book as one can easily find parallels between various synchronic processes and diachronic changes. Marotta's paper, entitled "Lenition in Tuscan Italian (Giorgia Toscana)", is an exception as it is concerned with a synchronically active process whose outcome is variable. Even though it is not stated explicitly, the author implies that the amount of articulatory effort the speaker expends is intimately correlated with the degree of weakening a plosive undergoes. A similar process affects the voiced plosives of Spanish, and in particular the intervocalic /d/, which undergoes gradual weakening in the intervocalic position whose final stage is deletion as in *hablado* 'spoken', that may be realized phonetically as [a'βlaðo], [a'βlaɔ] or [a'βlao]. The three realizations represent different degrees of reduction that are style-dependent and inversely proportional to articu-

latory effort. Also, there is very little doubt that minimization of muscular effort plays a decisive role in the changes that affect the “r” sound of Dutch (van Bezooijen et al. 2002) and the trill and tap of Catalan (cf. Recacens and Espinosa 2007; Colantoni 2006) that frequently undergo reduction to approximants in casual speech, but can be also realized as fricatives. Although articulatory effort cannot be easily quantified, the book would be more comprehensive if there were a critical discussion of this highly controversial concept.

Secondly, the authors adopt a rather superficial approach to the notion of consonantal strength as only Marotta mentions Lavoie’s (2001) ground-breaking articulatory and acoustic study of lenition and fortition processes occurring in American English and Mexican Spanish. Lavoie (2001) makes use of intensity as a correlate of a consonant’s strength working under the assumption that weakened variants of each consonant are more sonorous, i.e. more intense, than strong variants. The strength of a consonant also depends on other phonetic characteristics such as duration, voicing and degree of formant structure. Lavoie also argues convincingly that a consonant’s strength is a function of its position within the word, in the sense that strong prosodic positions are occupied by strong consonants and weak positions are occupied by weaker variants of a given consonant sound. Under this approach, lenition is defined as any deviation from a consonant’s citation form that makes it more vowel-like. Marotta’s findings, as well as those of other authors referred to in her article, regarding Gorgia Toscana, are in accordance with Lavoie’s conclusions, especially as far as the phonetic parameters of consonants are concerned. However, Marotta’s claim that “postconsonantal consonants are in strong position, which means that they are shielded against lenition” (p. 264) is substantiated by her Tuscan data, but by no means can it be regarded as a universal principle, as data from other languages prove that a postconsonantal position does not make a consonant immune to lenition. For instance, in Spanish, postconsonantal voiced plosives undergo spirantization (or rather approximantization) irrespective of speaking style, e.g. *orgullo* [or'ɣujo] ‘pride’, *los dan* [loz'ðan] ‘they give them’, *desvan* [dez'βan] ‘attic’, (cf. Hualde 2005: 139). It is worth emphasizing that in these examples, the plosives /g/, /d/ and /b/ are not only postconsonantal, but are also placed in a stressed position, which makes them particularly resistant to lenition. In spite of this, they undergo reduction to approximants.

Marotta’s paper raises an interesting question concerning the phonemic status of the allophones of the Tuscan plosives, namely, is the strong variant of a plosive its underlying form, or is it the weak allophone? According to the author, it is the strong allophone because there is no contrast between the stops and their spirantized counterparts, and they are in complementary distribution.

On the other hand, Lavoie (2001), pondering the same problem concerning the Spanish plosives, suggests that their weak allophones be considered as underlying segments and the plosives as the outcome of fortition that applies in prosodically strong positions. Apparently, the researchers see the problem from two different perspectives, therefore the question is very likely to become a subject of debate.

Thirdly, the definition of lenition as “loss of privative melodic prime” somehow fails to capture its most rudimentary, intuitive understanding as the acquisition of a feature at the expense of another feature, meanwhile the facilitating consequences of the loss for the process can be visible in the end product (e.g. consonant epenthesis). In addition, the lack of any formalized approach to fortition, apart from the obvious inferences that it is a reverse of lenition, seems disappointing given the scope of the book.

Turning to the advantages of *Lenition and fortition*, the greatest strength of the book lies in its tackling of a host of issues related to lenition and its advances in the field with the aid of new approaches. Besides, the book represents a refreshingly non-authoritarian take on lenition, exhaustively listing the difficulties in dealing with lenition (context, position, clusters, theoretical affiliation etc.) and admitting on numerous occasions that the compilation of a finite set of lenition processes is next to impossible.

To sum up, *Lenition and fortition* has fully achieved its aim and stands a fairly good chance of remaining “a quote-worthy source of information and developments to come” (p. 2), though one can hardly resist the impression that it will only expand formal linguists’ horizons.

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