Reviews


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The present book is based on Chitoran’s 1997 doctoral dissertation, The phonology and morphology of Romanian glides and diphthongs: a constraint-based approach, written at Cornell, part of which has appeared elsewhere (Chitoran 2002b).* The 1997 thesis has been probingly reviewed by Dell (1999).

The heart of the book is a detailed investigation of the phonetic and phonological behaviour of Romanian glides (Chapters 4–6), which has continued to be the focus of her research in subsequent publications (Chitoran 2002a, 2003, Hualde & Chitoran 2003). Because of its focus on glides, Chitoran’s thesis was aptly titled; it is perhaps a bit misleading to re-title the 2002 version The phonology of Romanian. Chitoran includes a brief overview of Romanian phonology and morphology (Chapter 2), and detailed investigations of the stress system (Chapter 3), but the rest of the book deals almost exclusively with issues surrounding the behaviour of glides. Since its appearance, the book has received some citation in the literature on Romance glides (e.g. Hualde & Prieto 2002, Bullock 2004, Levi 2004).

Romanian phonology is inherently interesting, due to the language’s Balkan twist on Romance phonology (e.g. the development and behaviour of the postpositive definite article; pp. 38–40) and idiosyncratic properties (such as the non-high glides; Chapter 7), and the paucity of formal work in the area (notable exceptions being Augerot 1974, Mallinson 1986, 1987, Iscrulescu 2003, Steriade 2003, Tucker 2003, Marin 2004, Babyonyshev & Marin 2005 and others to be discussed below). The author states at the outset (p. 1) that she wants to lay out the relevant phonological and morphological data systematically, a useful goal, in which she is relatively successful. The book is well laid out (e.g. the order of topics is logical) and simply written, the presentation of the facts (particularly involving stress and vowel sequences) is generally thorough, and the argumentation is clear, though sometimes telegraphic. (For instance, Chitoran states on page 7 that it is interesting that Romanian has three central vowels, but does not clearly say why this fact is phonologically interesting or relevant to her investigation. On page 8 she assails the rules of glide distribution proposed by Belchiță (1968) and Augerot (1974) for over-generating, but never states what these rules actually are.) Helpful lists of forms and constraints are

* Thanks to François Dell, Sharon Hargus, Dana Isac, Andrew Nevins, Donca Steriade and Charles Reiss for helpful comments on earlier drafts of this review. Ioana Chitoran also read and commented on earlier versions of this review.
provided at the end of the book, though the page references for the constraints are not always accurate (e.g. *PEAK/e,o[verb] appears on page 233, not page 227 as billed in the index of constraints, and *ONSET/u first appears on page 118, not 116).

Chitoran is at her strongest when presenting the Romanian facts in detail. Though many of the key generalisations had already been made by previous scholars, notably Steriade (1984), I found Chitoran’s expositions to be intellectually stimulating and useful. Her theoretical claims and arguments are not as strong, as we’ll see below. Generalisations are often misstated and/or not supported by the data that she provides, and her central novel claims (e.g. primary and secondary verbal stress are assigned by two separate mechanisms, and post-stem segments are not footed) are not particularly monumental.

In what follows I focus on specific issues raised in the introductory chapters (1–2), and the sections on stress assignment (3–4) and glide behaviour (4–6).

1 Introductory chapters

Chitoran begins the book by outlining the rudiments of Optimality Theory and presenting the basic historical, morphological and phonological properties (phoneme inventory, phonotactics, syllable structure) of standard Romanian. The presentation of the historical, distributional and phonetic facts in this chapter is particularly strong.

However, it would have been useful to know more details about prior attempts to achieve the same goal of surveying Romanian phonology, such as Augerot (1974) and Mallinson (1986). For example, on page 7 Chitoran states that ‘the commonly held view of the vowel inventory presents it as the seven-vowel system in [(1)]’, without naming a single source that holds the ‘common’ view. Some other relevant works are omitted entirely from the book, including Stan (1979a, b), Iancu (1983), Rusu (1983), Tanase (1984), Ulivi (1985), Uritescu (1986), Allen (1987), Ortmann & Popescu (2000) and Popescu (2000). Moreover, one earlier source that is mentioned is not presented as clearly as might be desired. On pages 10–11, Chitoran notes that by positing underlying palatalised and labialised series of consonants and deriving [pja] from /pja/ following these respective series, Petrovici (1956) ‘wrongly predicts that there should be no contrast between pja and pja, for example’. Petrovici’s analysis (at least as presented) does not in fact make this prediction; it should still be possible to derive [pja] from /pja/ or /pia/.

There are certain shortcomings which might be described as editorial:

(i) Chitoran states on page 54 that ‘in the absence of either theme vowel or suffix, the final or penultimate syllable of the root is stressed [(73a)]’. Both of the examples in (73a) have final stress and therefore show nothing about penultimate stress. Examples of penultimate stress can be found in the next set of examples (74), but the text does not refer the reader to the data set which illustrates this point. Better cross-referencing of different parts of the book would have avoided several such problems.

(ii) The author states on page 12 that ‘the two members of [sibilant-obstruent clusters] always agree in voicing’, which is contradicted by the form [jvab] ‘Swabian’ that she provides on page 13. Apparently this word is the only example of this pattern (Chitoran, personal communication), but if that is the case
‘always’ should have been replaced with ‘most’ in the descriptive statement. However, this is more than a problem of word choice: if one is dealing with a case where all clusters agree in voice, it is a good starting point for a phonological analysis, but one shouldn’t go anywhere with a case where only most clusters agree in voice.

(iii) After having listed many attested obstruent–obstruent clusters on pages 12–13, Chitoran states on page 14 that [kt] is the only obstruent–obstruent cluster in Romanian; one assumes that she means the sole stop–stop cluster.¹

Other shortcomings are not editorial, but are not crucial for her analysis either:

(i) Some of the loanwords she discusses are probably misattributed, e.g. pneum- roots, which on page 14 she identifies as being Latin roots, but are actually Greek. She also misidentifies the vowel of French peut as *[ə], rather than the correct [o¨] (p. 25).

(ii) On page 26, discussing apparent exceptions (e.g. [bi.bljo.te.kar] ‘librarian’) to her generalisation that OLG onsets only occur word-initially, Chitoran’s explanation strikes me as vague: ‘I can only observe that these words are quite long, and since glide formation has the effect of shortening the word by reducing the number of syllables, it tends to happen more often in long forms’.

Some questions seemed obvious to me in the introductory chapters, but were left unanswered:

(i) Why are the plurals of papuc [papuk] ‘slipper’ and drag [drag] ‘dear’ [papuf] and [dragf] respectively (p. 16), even though Chitoran mentions on the next page that Romanian has plural forms in [-k] and [-g], such as unchi [unk] ‘uncle/uncles’ and unghi [ung] ‘angle/angles’? One wonders whether the [f] that surfaces in the plural is actually the original form – cf. Turkish pabuç ~ papuç ‘shoe’ and the singular has been deaffricated in either Romanian or some intermediary language through which the form reached Romanian from Turkish.

(ii) Do words like astm ‘asthma’ and ritm ‘rhythm’ really not epenthise (p. 19)? One suspects that, as with the Armenian cognates that are also spelled without but pronounced with epenthesis, the phonetic representations do not tell the true story here.

(iii) How can something attach to a Prosodic Word without becoming part of it (p. 58)?

Other shortcomings in the introductory chapters are generalisations which are not supported by the data provided.

(i) Chitoran provides examples of diphthongs in stressed syllables (p. 21), and states (p. 22) that ‘the examples above illustrate the fact that diphthongs occur only in stressed syllables, which may be either open or closed’. However, her examples only show that diphthongs can occur in stressed syllables, not that they only occur in this environment.

(ii) Chitoran claims on page 37 that ‘when word-final /-u/ is preceded by a consonant, it is deleted’. Apparently ‘a consonant’ here means ‘a single consonant’, because as she herself observes earlier on the same page, there are forms ending in a consonant cluster followed by [u], such as /albastr-u/ ‘blue’ → [albastru], not *[albastr]. She says on page 41 that the plural marker /-i/

¹ Chitoran (personal communication) acknowledges that this was an error.
surfaces as palatalisation after consonants, but again this is not true after consonant clusters, e.g. /albastr-i/ ‘blue-PL’ → [alba[tri]].

(iii) Chitoran states repeatedly and incorrectly throughout the book that word-initial [w] is not allowed, e.g. ‘onset [w] is only epenthetic, resolving a word-internal hiatus’ (p. 12), ‘underlying /u/ always surfaces [as vocalic], regardless of the location of stress’ (p. 117), ‘the glide [j] is the only glide which surfaces in absolute word-initial position .... When the first vowel in the sequence is /u/ it can only be followed by /i/’ (p. 128). Chitoran’s generalisation about word-initial [w] fails to explain the use of onset [w] in loanwords, such as watt and web. She implies with her form vest ‘West’ on page 17 that such forms are actually pronounced with an initial [v], but Donca Steriade (personal communication) informs me that watt and web and other such forms are pronounced with [w]. Since Chitoran makes frequent use of loan data elsewhere in the book, the loan behaviour of [w] should have been mentioned here. I return to this issue in §3.

The fact that Romanian allows non-epenthetic onset [w] not only in loanwords like watt but also in native words like oaste [waste]’army’ makes one wonder whether such words will cause problems with her constraint system, which one assumes she has designed to exclude world-initial non-epenthetic [w], since it would otherwise be predicted to exist (or at least be possible) by Richness of the Base. If one examines Chitoran’s relevant constraints on pages 109 and 130–131, however, it turns out that her system appears to allow forms like [wat] to surface, as shown in (1).

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<th>/uat/</th>
<th>ALIGN-L</th>
<th>ONS [foot]-S</th>
<th>NON-FIN</th>
<th>CRISP Edge[\sigma]</th>
<th>*CODA /u</th>
<th>*ONS /u</th>
<th>DEP-IO</th>
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<td>d.</td>
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Since Chitoran’s constraint system appears to allow word-initial non-epenthetic [w], one wonders why she mentions its impossibility so many times in the text. Chitoran (personal communication) responds that transcriptions of such words with initial [w] are:

only phonetically correct. The beginnings of these words ... do sound like [w], but I argue in chapter 7 of the book that these are diphthongs, for which I use the transcription [\phi]. They are diphthongs because they alternate with monophthongal [o] in other morphologically related forms: [\phiaste] SG vs. [o\phi\phi] PL; [\phiala] vs. [ol-itsa] DIM; [\phiom] SG vs. [\phiamen\phi] PL; [\phiaje] SG vs. [\phi\phi] PL.

In other words, Chitoran would transcribe such words with initial [\phi], rather than [wa]. She concludes from her phonetic studies in §7.6, however, that [\phi] is pronounced identically to [wa] by all but one of her speakers.

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3 She concludes from her phonetic studies in §7.6, however, that [\phi] is pronounced identically to [wa] by all but one of her speakers.
phonological representations rather than surface phonetic representations as output candidates, which has the effect of covertly including a derivational stage within what is supposed to be a monostral mapping from underlying to surface form. Another problem with Chitoran’s argument for using [oa] rather than the phonetically correct [wa] lies in her observation that the [wa] sequences alternate with [o] in related forms, as in [qaje] ~ [oj]. This fact is an interesting component of the inventory of Romanian vocalic alternations, but says nothing about whether the relevant surface [wa] sequences are diphthongs or not, given that many languages have vowels that alternate with glide–vowel sequences rather than with diphthongs.

The behaviour of /a-a/ sequences is another potential problem for her analysis. Based on her statement on page 103 that ‘an epenthetic [w] surfaces … when the second vowel in the sequence is back (other than /u/), and the first vowel is not /i/’, Chitoran predicts that an /a-a/ sequence would surface as [awa], with an epenthetic [w]. According to the charts on pages 99–100 /a-a/ sequences are unattested, but one would like to know what native speakers do with loans and nonce forms of this type.

It is interesting to note in this connection a set of alternations involving (typically foreign-feeling) words ending in final stressed [a], such as sanda ‘sandal’, musaca ‘moussaka’, baklava ‘baklava’, haimana ‘hooligan’, cafea ‘coffee’. Steriade (personal communication) points out that these forms (and final [a] in general) take an epenthetic [w] before the definite article /-a/: sanda[w]a, musaca[w]a, baklava[w]a, haimana[w]a, cafea[w]a. (Interestingly, we find epenthetic [l] instead when the following vowel is [e], as in sandale ‘the shoes’. The alternation of epenthetic [l] before front vowels with [w] before back vowels is reminiscent of what one finds in some more colloquial varieties of Polish; cf. nominative statu[w]a ‘statue’, locative statu[l]e.)

Such forms are discussed by Chitoran on page 144, where the variation in the form of the definite article is analysed as a ‘listed allomorph … either /-wa/ or /-ua/’. Let us assume instead that Steriade is correct that the [w] in such forms is epenthetic rather than morphological, and let us assume that the regular Romanian treatment of /a-a/ is [awa]. Chitoran’s constraint system (augmented by a *? constraint to prevent a glottal stop from being the preferred epenthetic consonant) incorrectly predicts the outcome of /a-a/ to be *[a.ja], as shown in (2).

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<th>/aa/</th>
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<th>CrispEdge[σ]</th>
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4 Her generalisation also predicts *w*-epenthesis with /oo oa eo ea/, but according to the chart on page 99 only /oa/ surfaces with epenthetic [w] (optionally), whereas /eo/ surfaces as [eo] ~ [go] and /ao oo ea/ surface with hiatus.
The only way to generate [a.wa] over [a.ja] in Chitoran’s system is to rank the *M/i constraints above the *M/u constraints, which would wreak havoc on the rest of her analysis of glide behaviour.

2 Stress

Chitoran’s first substantive chapter deals with the basic facts of stress assignment in Romanian. Her presentation is clear and detailed, though it does not discuss all of the relevant facts (cf. Iscru̇lescu’s 2005 discussion of hypocoristic stress) and neglects to consider certain important recent analyses of the Romanian stress system. Franzén & Horne (1997) is a particularly curious omission, because it covers the stress facts (including previous treatments of the subject) in great detail. The insightful stress analyses of Rudes (1977) and Steriade (1984) are also, in my opinion, given short shrift.

Chitoran’s main points in the stress chapter are (i) that nominal and verbal forms do not base their primary stress location on metrical structure, but instead assign prominence to the rightmost syllable in the stem, and (ii) that secondary stress is assigned by a separate mechanism that favours the construction of trochaic feet beginning at the left edge of the word. (Iscru̇lescu 2005 has responded (based in part on the behaviour of hypocoristics, which target a final trochee) that nominal stress instead uses a syllabic trochee system, which is rendered opaque by a process of final deletion. He derives this counterbleeding interaction via Sympathy.)

It is important to note that Chitoran’s analysis of the Romanian stress system does not constitute an advantage for OT, as she implies; it can be analysed just as well in a rule-based model such as Halle & Idsardi’s, as carried out for example by Friesner (2006).

3 Glides

Chitoran’s analysis of the distribution of glides in the next three chapters is significantly more thorough, but remains clear and easy to follow. The distributional patterns that she identifies are quite interesting on their own, though one should note that they were already nicely dealt with by Steriade (1984) (as Chitoran acknowledges) and Deligiorgis (1988) (cited in Chitoran’s 1997 thesis but not the published book). It is not clear to me that Chitoran’s analysis actually represents an advance over Steriade’s or Deligiorgis’s, and Dell (1999) points out that it actually creates a number of new problems. (Further problems are addressed in recent work by Marin 2004 and Iscru̇lescu 2003, 2005, but for reasons of space will not be considered here. Also relevant is Levi’s 2004 thesis on the representation of underlying vs. derived glides.)

Dell observes that Chitoran’s representation of glides in terms of mora theory is unable to distinguish [ij] from [ji], and [uw] from [wu]. This problem is avoided in Hayes’ (1989) version of mora theory, where ‘coda’ segments attach to the last mora in the syllable, but (as Dell mentions) this theory has a number of additional problems identified by Rubach (1998). Dell correctly concludes that we do not encounter any of Chitoran’s problems if we assume an X-slot model of syllable structure of the sort advocated by Levin (1985). It is unfortunate that Chitoran did not incorporate Dell’s (1999)
comments, which still hold true, in the 2002 revision of her thesis under review here.

It is also worth noting that Chitoran’s analysis of Romanian glides requires underlying specification of predictable prosodic structure in order for $\text{MAX-IO}(\mu)$ to do its work (e.g. p. 131). Though there are strong independent reasons to believe in lexical storage of a certain amount of predictable prosody (see Vaux 2003), it is not clear in the context of Chitoran’s analysis of Romanian why one can’t have underlying glides, given that the prosodic elements needed to distinguish them from vowels (à la Guerssel 1986) are already employed in lexical entries.

Chitoran’s analysis of Romanian glides is further hampered by the possibly incorrect predictions it makes about epenthesis in vowel sequences such as /a-a/. As we saw earlier, Chitoran’s system predicts that such sequences should be resolved via insertion of [ʔ] or [j], whereas it appears that [w] is employed, on Steriade’s interpretation that the [w] before the definite article in [a]-final words is epenthetic.

4 Summary

Chitoran presents a great deal of interesting phonological data clearly and compellingly, but does not take sufficient account of previous work in the field and her analysis sometimes generates outcomes other than what it claims to. Chitoran states on page 257 that a primary goal was to examine the contributions of Romanian to OT, but she does not mention what contributions her book actually makes. As Dell (1999: 15) states, ‘rather than to improve the theoretical framework she is working with, it seems that Chitoran’s concern has been to use it as a tool to chart the empirical ground as systematically and insightfully as possible’. Chitoran claims to show advantages of OT over rule-based models via her Romanian analyses (e.g. on page 2 she stages that some Romanian problems for rule-based models receive better analyses in OT), but in fact does not present flaws in (or typically even mention) competing rule-based analyses. As Dell (1999: 16) puts it, ‘one of the three major conclusions that the author draws from her work is that OT is superior to frameworks with serial derivations: OT eliminates the need to posit intermediate representations. Since Chitoran does not back her contention by comparing the merits of the competing frameworks over some specific set of data, it is up to the readers to scour her text for areas which might provide suitable testing grounds’. This comment holds as well for the 2002 book. Moreover, as we have seen, some of the data she presents raise serious problems for OT, such as the counterbleeding relationship between stress assignment and final vowel deletion and (as Dell 1999 points out) the opaque relationship between stress assignment and glide formation. Also, as Chitoran herself observes (p. 256), more constraints are needed for her analysis of certain phenomena than might be expected for a simple generalisation.

In brief, the Romanian data provide fascinating and substantial fodder for our continuing investigation of the contents of the phonological component of the human language faculty, and Chitoran has done the field a service by making such a large and comprehensive body of data available in a single place. One hopes that examination of the full range of treatments of these data and explicit
juxtaposition of the means of handling these data in relevant competing frameworks will eventually lead us to a better understanding of Romanian phonology and phonology in general.

REFERENCES


Babyonshev, Maria & Stefania Marin (2005). The acquisition of object clitic constructions in Romanian. In Randall S. Gess & Edward J. Rubin (eds.) *Selected papers from the 34th Linguistic Symposium on Romance Languages (LSRL)*. Amsterdam: Benjamins. 21–40.


Iscrulescu, Cristian (2005). The nominal stress system of Romanian (re)revisited. Paper presented at the 35th Linguistic Symposium on Romance Languages, University of Texas at Austin.


Marin, Stefania (2004). Pronominal clitic placement is phonological: evidence from Romanian adult and acquisition data. Ms, Yale University.


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*Athabaskan prosody* is a rich and informative collection of papers dealing with a number of suprasegmental properties of various Athabaskan languages. Spanning the western part of North America, the Athabaskan language family contains a diverse set of prosodic systems ranging from non-tonal stress languages to tonal languages, which may also have stress in addition to tone. Topics covered in the papers in this volume reflect the prosodic diversity of the family and include discussion of phenomena from both a synchronic and diachronic perspective. The book is likely to be a valuable resource to scholars of Athabaskan languages as well as linguists interested in the typology of features such as tone, tonogenesis, stress and intonation. Many of the issues raised by the languages examined in the book’s papers tie into topics of current theoretical interest.

The collection of papers in *Athabaskan prosody* is largely based on work presented in a workshop on Athabaskan prosody held in June 2000 in Moricetown, British Columbia. However, material not presented at the workshop is also contained in the volume, including two pioneering papers on tonogenesis in Athabaskan, one by Michael Krauss and one by John Kingston. Contributors are largely renowned experts on Athabaskan linguistics and the papers are almost exclusively based on primary data collected in the field. Much of the presented material consists of quantitative phonetic studies. The book contains data from all three branches of Athabaskan: Northern Athabaskan, Southern Athabaskan (Apachean) and Pacific Coast Athabaskan, with case studies focusing on the Northern and Southern Athabaskan languages, the two largest subgroups in terms of number of speakers.

The book is broadly divided into two sections, the first devoted to papers dealing with tone and the second exploring prosodic properties other than tone, including stress, cues to prosodic constituency and intonation. Each of the sections is further divided into papers dealing with either pan-Athabaskan perspectives on a given phenomenon or case studies of individual languages. One of the most valuable features of the book is the editors’ introduction, which provides an overview of Athabaskan prosody, both diachronic and synchronic. Rice & Hargus’s chapter is a handy synthesis of the state of research on Athabaskan prosody and also introduces the basics of Athabaskan morphology, the understanding of which is important to fully appreciate the findings of the volume’s papers. The discussion that follows here briefly summarises the contents of the eleven papers following the editors’ introduction.

Michael Krauss’s article, ‘Athabaskan tone’, is the first publication of his seminal 1979 manuscript, in which he presents his theory of tonogenesis in Athabaskan. Drawing on data from all three branches of Athabaskan, Krauss
develops the hypothesis that the tonal contrasts found in Southern Athabaskan languages and many Northern Athabaskan languages originally arose from the spreading of glottal constriction from stem-final glottalised consonants (except from glottalised stops after full, i.e. long, vowels) onto the preceding vowel. In the Southern Athabaskan and some Northern Athabaskan languages, glottal constriction has given rise to low tone, whereas in other northern languages, glottal constriction has yielded high tone. Non-constricted vowels have the opposite (unmarked) tonal value. The analysis is supported by reconstructed forms representing all of the stem types reconstructed for proto-Athabaskan and their reflexes in modern languages. Krauss’s paper has greatly influenced subsequent work on Athabaskan tone, including the research presented in several of the papers in this volume. The paper also contains a map showing the distribution of tonal reflexes of constriction, as well as a useful summary of the available materials on tone for languages in the family, updated to include findings subsequent to the original dissemination of the article.

John Kingston’s article, ‘The phonetics of Athabaskan tonogenesis’, a revised version of a paper originally written in 1985 but previously unpublished, builds on Krauss’s work by offering a phonetic explanation for the split between languages in their tonal reflexes of the reconstructed glottal constriction feature. Kingston suggests that the spreading of glottal constriction from a stem-final glottalised consonant to a preceding vowel is a phonetically natural phenomenon, with analogues in modern Athabaskan languages. Constriction, a phonation property, can then readily be reinterpreted as a tonal feature where the level of the tone depends on the laryngeal muscles involved in producing constriction. The article goes on to explore potential explanations for later tone reversals occurring in certain Northern Athabaskan languages, e.g. the development of low tone in Dogrib and high tone in Tanacross and Northern Tutchone.

John Alderete’s paper, ‘On tone and length in Tahltan (Northern Athabaskan)’, is a phonetic study of vowel length and tone in Tahltan, a language spoken in British Columbia. This paper, the first quantitative phonetic investigation of Tahltan, begins with a phonetic study of tone and duration in three potential minimal tonal pairs (high vs. low tone) recorded from three speakers. Results indicate that all three minimal pairs are distinguished tonally by at least one speaker, but that none of the pairs is distinguished by all three speakers. Furthermore, low tone – the ‘marked’ tone since it historically arose from constriction – is associated with additional vowel length, relative to high tone. Alderete goes on to explore the phonetic realisation of lengthened vowels differing in their historical origins. He finds that long vowels arising through compensatory lengthening triggered by stem-final nasal loss or fusion of a root vowel with the possessive suffix vowel are longer than long (full) vowels inherited from the proto-language, which in turn are longer than lengthened low-toned vowels.

Willem J. de Reuse’s paper, ‘The tonology of the Western Apache noun stem’, discusses the existence of a mid tone that is found in most dialects of Western Apache but does not occur in other varieties of Southern Athabaskan, including Navajo, Chiricahua Apache and the Tonto dialect of Western Apache. De Reuse presents several cognate sets showing that the full (long) non-constricted vowels of proto-Athabaskan noun stems have developed into this mid tone in the Cibecue, San Carlos and White Mountain dialects of Western
Apache, corresponding to a high tone in other varieties of Southern Athabaskan. However, a stem vowel that undergoes shortening either synchronically or diachronically surfaces with a high tone rather than a mid tone. Interestingly, a process of high tone spreading from a prefixal vowel creates minimal pairs in verbal paradigms between high and low toned stems, offering support (together with native speaker perceptions) for the view that mid tones have a clear phonological status in the relevant varieties of Western Apache.

Suzanne Gessner’s paper, ‘Properties of tone in Dene Suiné’, is a phonetic study of various properties affecting the realisation of tone in Dene Suiné, a Northern Athabaskan language spoken across four provinces of Western Canada. Gessner finds a robust (roughly 50 Hz) phonetic contrast between high tone (the ‘marked’ tone corresponding to proto-Athabaskan constriction) and low tone in her data from a male speaker. She also finds other segmental and positional effects on tone. First, she observes an effect of vowel quality on fundamental frequency for the high-toned (but not low-toned) syllables, such that the high vowel /i/ has higher F0 than other vowel qualities. Furthermore, voiceless fricatives (but not voiceless stops) have a slight raising effect on low but not high tone. Phonetic values for high and low tone tend to converge when there is no syllable preceding the syllable targeted for measurement; thus high tone is lowered slightly whereas low tone is raised somewhat in absolute initial position. Tonal dissimilation is also found, whereby a high tone is lowered phonetically when immediately followed by another high tone. Finally, tone is lowered in absolute final position. Crucially, none of these contextual or segmental effects neutralise the distinction between high and low tones.

Gary Holton’s paper, ‘Pitch, tone and intonation in Tanacross’, explores a number of tonal processes and the interaction between tone and intonation in Tanacross, a Northern Athabaskan language of eastern central Alaska. Although a ‘high-marked’ language in terms of its reflexes of proto-Athabaskan constriction, Tanacross has a complex tonal system, in which both high and low tones must be lexically specified and contour tones, both falling and rising, occur on stem syllables. Holton describes a number of interesting tonal processes in Tanacross. These include a process of floating tone association triggered by addition of the possessive and nominalising suffix to stems, simplification of complex tones and rightward spread of a high tone (potentially across word boundaries) onto a low tone prefix. Interestingly, despite the status of Tanacross as a ‘high-marked’ language, Holton presents evidence that low tone must also be specified at least when associated with the iterative prefix. The segmental content of the iterative deletes following an open disjunct prefix syllable, leaving the low tone to combine with a preceding high tone to create a falling tone. Furthermore, the iterative low tone blocks high tone spreading. The paper goes on to show that intonation contours characteristic of different utterance types do not interfere with the application of tonal processes applying in smaller domains, suggesting that a ‘bottom-up’ model of tonal phonology is applicable in Tanacross.

Jeff Leer’s paper, ‘How stress shapes the stem-suffix complex in Athabaskan’, examines the phonological characteristics of suffixal syllables in proto-Athabaskan. Leer presents evidence for the reconstruction of full vowels in open suffixal syllables and those closed by glottal stop. This represents a departure from the traditional reconstruction of these suffixes with reduced vowels. Leer shows that reconstructing full vowels is more consistent with the
syllable-template restrictions of the proto-language, which ban rhymes consisting of a reduced vowel plus glottal stop everywhere and ban open syllables containing a reduced vowel outside of prefixes. A further advantage of his proposal is that it offers a better explanation for historical stress shifts from stem to suffixal (or enclitic) syllables: shifting stress from a ‘heavy’ stem syllable (which was either CVV or CVV(C)) to a ‘light’ open suffixal syllable containing a reduced vowel would be far less natural than shifting stress onto a suffixal syllable containing a full vowel.

Siri G. Tuttle’s paper, ‘Duration, intonation and prominence in Apache’, presents results of a quantitative phonetic study of several prosodic features of Western Apache and Jicarilla Apache. She finds that consonants (oral stops and /n/) in syllable-onset position are lengthened stem-initially relative to prefix-initially and stem-finally in Western Apache, suggesting either greater prominence for stem syllables or the use of duration as a cue to morphological affiliation. Tuttle also finds that voice-onset time is longer phrase-initially than stem-initially, a result which is consistent with other languages, e.g. English (Pierrehumbert & Talkin 1992) and Korean (Cho & Keating 2001), in which voice-onset time is used to cue prosodic constituency. In Jicarilla Apache, a robust phenomenon of phrase-final lengthening targets mainly the vowel and coda consonant in final syllables. This differs from stem lengthening, which primarily affects the onset consonant. Finally, in a study of syllable timing in Jicarilla Apache, Tuttle finds that durational variation between neighbouring syllables is intermediate in magnitude between equivalent measures for English and French.

Keren Rice’s paper, ‘Prominence and the verb stem in Slave (Hare)’, examines various phonological cues to the morphological stem in the Hare dialect of Slave, a Northern Athabaskan language of Canada. Rice explores several properties that might serve to aid the listener in identifying the beginning of the stem, a potentially difficult task in light of the heavily prefixing nature of Athabaskan verbal morphology. Parallel to other Athabaskan languages, Hare allows only a subset of consonants in prefixes relative to stem-initial position. Conversely, certain consonants have a much more limited distribution in stem-initial position compared to prefixes. Asymmetries between stems and prefixes in the frequency of occurrence of certain vowels and, to a lesser extent, consonants also potentially serve as cues to morphological affiliation. Consonant clusters are also limited to the boundary between the prefixal domain and the stem. Finally, a tone shift in verbs that pushes the lexical tone of a verb stem to the immediately preceding prefixal syllable enables identification of the stem in certain cases. Rice goes on to describe the interesting stress system of Hare, in which nouns position stress on the stem syllable, whereas verbs stress the immediately pre-stem syllable. She discusses possible historical mechanisms driving the shift of stress from the stem syllable to the pre-stem syllable in verbs.

John Alderete & Tanya Bob’s paper, ‘A corpus-based approach to Tahltan stress’, is an analysis of stress patterns in approximately 400 words recorded from a Tahltan speaker. They find a number of different factors relevant for predicting stress, including morphology, syllable weight and a tendency for rhythmic alternation between stressed and unstressed syllables. As in other Athabaskan languages discussed in this volume, there is a preference for stems to be stressed, although the prefixal domain typically also contains at least one
stress, thus leading to many stress clashes in words with a single monosyllabic prefix. In prefixal domains consisting of more than one syllable, a preference for stress on alternating syllables is observed. Weight manifests itself in two ways. First, stress is sometimes attracted away from a stem syllable onto a prefixal syllable containing a long vowel. Second, in disyllabic stems, a final heavy (CVV or CVC) syllable attracts stress, whereas the penult receives stress if the final syllable is light. Alderete & Bob offer a metrical account of Tahltan stress, in which the stem and any suffixes belong to one prosodic word while prefixal syllables together constitute a second phonological word. Each of these prosodic words is parsed into trochaic feet calculated at the moraic level within the stem-suffix domain and the syllabic level in the prefixal string.

Sharon Hargus’s paper, ‘Prosody in two Athabaskan languages of northern British Columbia’, is a phonetic and phonological study of stress in Fort Ware Sekani, a tonal variety of Athabaskan, and Witsuwit’en, a non-tonal variety. Like Alderete & Bob’s study of Tahltan, Hargus finds a complex constellation of factors governing stress in both languages, including morphology, syllable weight, syllable position and, in the case of Fort Ware Sekani, tone. Stems are preferentially stressed over affixes, longer vowels take stress over shorter vowels, word-initial syllables attract stress from non-initial syllables, closed syllables are stressed over open syllables and high tone takes stress over low tone. Hargus observes a difference between the two languages in their phonetic correlates of stress. Whereas Witsuwit’en signals stress (at least in certain contexts) through increased duration, intensity and fundamental frequency, Fort Ware Sekani only employs the first two of these properties to cue stress. Hargus links this asymmetry to the use of fundamental frequency in signalling lexical tone contrasts in Fort Ware Sekani but not Witsuwit’en.

In summary, this volume of papers makes an important contribution to the study of Athabaskan linguistics and, more generally, to research on American Indian languages, for most of which there are very few, if any, rigorous studies of prosody. The diversity of topics explored in the book make it clear that Athabaskan languages provide fertile ground for examining a number of complex prosodic issues. The editors and the authors are to be commended for bringing an Athabaskan perspective to these topics in this thoughtfully assembled and engaging volume.

REFERENCES