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PROSODY AND INTONATION IN NON-BANTU NIGER-CONGO
LANGUAGES: AN ANNOTATED BIBLIOGRAPHY

Prosody and Intonation in Non-Bantu Niger-Congo Languages: An Annotated Bibliography

Christopher R. Green*

*Indiana University, greencr@uemail.iu.edu

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Christopher R. Green, *Indiana University*

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Introduction

Most linguists are well aware of the fact that data pertaining to languages spoken in Africa are often less readily available than information on languages spoken in Europe and some parts of Asia. This simple fact is one of the first and largest challenges facing Africanist linguists in their pursuit of preliminary data and references on which to base their research. The challenge of locating relevant materials only increases in difficulty as the search for information narrows to include only certain subfields of linguistics or languages of a particular genetic stock. Africanist linguists interested in phonology and phonetics will find that a preliminary search for information and references pertaining to the study of intonation and prosody in African languages yields a significant bias towards materials focusing on languages in the Bantu branch of the Niger-Congo language family, as well as a select few well-documented languages spoken elsewhere on the continent. One can explain this research bias toward Bantu languages in terms of a number of factors, including the sheer number of constituent languages in this sub-family, the relatively peaceful conditions that exist in many of the nations in which people speak Bantu languages, and overwhelmingly significant factors that have influenced the post-colonial attitudes toward Europeans and Western research in certain parts of the African continent. This bias compounds the research difficulties faced by linguists interested in languages outside the Bantu branch of the Niger-Congo family in that linguists have devoted less time to these languages, and the materials that exist are sometimes difficult to obtain.

This bibliography will provide an account of materials published over the past twenty-five years pertaining to the study of intonation and prosodic phonology and phonetics in non-Bantu Niger-Congo languages.¹ I will assume that the reader has some familiarity with both African languages and linguistics. One will find an explanation of any limits on the scope and selection of materials included in this bibliography in this introduction.

Background

As an aspiring young linguist interested in the phonology and phonetics of certain languages spoken in West Africa, I was surprised to discover the lack of materials available pertaining to many languages spoken in this area of the continent. In my research on both Bambara and Senari, languages of the Mande and Gur sub-groups, respectively, I realized immediately that locating books, journal articles, and papers in edited volumes devoted to these types of languages was going to be a difficult task. My first visit to the Annual Conference on African Linguistics, in March 2007, confirmed my suspicions that relatively few researchers, particularly in America, have devoted their research to Niger-Congo languages outside of the Bantu sub-branch. Most of the papers presented on phonology and phonetics highlighted phenomena unique to the Bantu languages, while only a few focused on Niger-Congo languages outside the Bantu sub-branch or languages in the Nilo-Saharan, Afro-Asiatic, or Khoisan families. A later glance through the proceedings of other recent conferences and book release notices again confirmed my assertion of this bias. Although I was sure that linguists over the past twenty-five years have done a significant amount of research on non-Bantu Niger-Congo languages, the problem was simply going to be tracking down their work.

¹ Research for this bibliography seeking linguistic materials from 1981-2006 yielded no representative works on languages of the Kordofanian sub-family of the Niger-Congo family, and thus I will not comment further on this group of languages.

The extraordinary resources available to me through the Herman B. Wells Library at Indiana University and the strength and breadth of both its African studies and linguistics collections provided me with a significant advantage in my research. When I finally did locate materials containing the kinds of linguistic research that interested me, I spent a large portion of my preliminary research time thumbing through volume after volume of a number of journals and through the table of contents of edited volumes and dissertations looking for relevant information on prosodic and intonational phonology and phonetics. I discovered that indices and lists of table of contents for many of these materials are seldom available even by means of electronic searching. The additional fact that purely descriptive work continues to comprise a large amount of research in African linguistics, due to the fact that a number of African languages remain underdocumented and unanalyzed, meant that there was a need to sift through a smattering of descriptive accounts, dictionary sections, and grammars intermixed with a large number of highly theoretical and analytical papers. This required, once again, more time and more energy, which are resources available only in scarce amounts to graduate students and other researchers.

Scope and Materials

The intent of this annotated bibliography is to assist phonologists and phoneticians interested in non-Bantu Niger-Congo languages in combating this lack of time and effort by presenting them with a number of representative books, journal articles, edited volumes, and dissertations in which one can find research pertaining to these languages. This bibliography includes nearly every scholarly English-language and French-language resource pertaining to prosodic and intonational phonology and phonetics in these languages available in the Herman B. Wells Library research collection at Indiana University. In addition to the materials available on this campus and through database and journal subscriptions owned by Indiana University, this bibliography includes materials acquired via interlibrary loan from both American and Canadian universities and through the master library of IULC publications.

I have obtained a copy of every resource included in this bibliography, whether as a book, microfilm, microfiche, or electronic document. I am confident therefore, that an eager researcher can find a copy of everything that I have included through some channel. This bibliography is a comprehensive account of the materials published over the past twenty-five years, although I have omitted a small number of German-language materials owing to my marginal comprehension of German academic writing. In addition to the omitted German-language materials, I have also chosen to omit articles and other publications in which the description or analysis of prosodic systems in the language does not play a significant role in the overall work. Finally, I have chosen to exclude materials contained in published conference proceedings, article reviews, and journal commentaries in order to keep the size and focus of this bibliography manageable.

Linguists should be aware that materials focusing specifically on African languages are not the only place that Africanist linguists can learn about the prosodic and intonational phenomena observed in these languages. The tonal and prosodic features observed in African languages have both introduced and reinforced important linguistic theories and corollaries over time, and as such, Africanist linguists can take advantage of the information available in seminal works outside the specific genre of African linguistics. I have chosen to include a number of these works in this bibliography, among them important textbooks, dissertations, and other references with which any phonologist or phonetician,

Africanist or otherwise, should be familiar. The reader will find that, in some cases, these important works fall outside the twenty-five year scope of the bibliography.

I have included a brief descriptive annotation for each work in this bibliography with an aim to provide the reader with a quick reference as to which language or languages the author or authors draw their data. If the linguistic framework (e.g., generative, autosegmental, optimality) in which the author analyzes their data is of importance to the overall work, I have also included this information in the annotation of the resource. The reader will find that the annotations provide a description of the key elements of the particular work, and when necessary, I have also included references to other works in this bibliography that pertain to a given work. I have not separated the French-language and English-language materials from one another, although in most instances, the title of the work will obviate such a distinction.

Classification and Organization

Over many years of research, linguists have arrived at a general consensus that the African continent is home to four language families (Niger-Congo, Afro-Asiatic, Nilo-Saharan, and Khoisan), the largest among which is the Niger-Congo family.² Scholars have then broken down this large family into three main sub-families; Atlantic-Congo, Mande, and Kordofanian. It is within the Atlantic-Congo sub-family that one finds the Volta-Congo sub-branch of languages, followed by Benue-Congo sub-branch, and thus within this sub-branch one finds the Bantu languages. The languages in this branch of the Niger-Congo tree total nearly forty-five percent of all languages in the Niger-Congo family. The majority of the non-Bantu languages represented in this bibliography are also members of the of the Volta-Congo sub-branch of the Niger-Congo family. A small number of works exist for languages in the Atlantic and Ijoid sub-branches of the Niger-Congo family, and a relatively large number of works exist for the Mande sub-family. I will organize the following bibliography according to these three major distinctions, with the addition of a fourth section devoted to the seminal reference works that I mentioned above.

Atlantic and Ijoid

1. Yillah, M. Sorie. "Temne Phonology and Morphology." Ph.D. dissertation, City University of New York, 1992.

This thesis on Temne, an Atlantic language spoken in Sierra Leone, although not focusing on tonology, does provide a detailed description of the phonological and morphological system of the language with hundreds of examples all marked with full-tone diacritics. Yillah does turn to the topic of tonal phenomena when the tonal features of Temne play an important role in the phonological or morphological construct under consideration. The author devotes specific attention to tonal constructs in prefixes and polysyllabic verbs.

² See Heine, Bernd, and Derek Nurse, eds. *African Languages: An Introduction*. Cambridge: Cambridge University Press, 2000., for more detailed information on the classification scheme for African languages.

2. Kamarah, Sheikh Umarr. "Phonology and Tonology in the Morphology of Temne: A Lexicalist Approach." Ph.D. dissertation, University of Wisconsin-Madison, 1994.

The third chapter of this thesis by Kamarah explores the subject of the tonology of morphology in Temne. The author includes descriptions of a large number of constructs in which tone plays a role, including verbal stress, tense/aspect, negation, and intensification. Material in later chapters includes information on postlexical processes, in which Kamarah discusses tone spreading and deletion.

3. Nemer, Julie F., and Keith Wm. Mountford. "The Interaction of Segmental and Tonal Levels: The Case of [W] in Temne." *Studies in African Linguistics* 15, no. 2 (1984).

Nemer and Mountford explain that the purpose of this article is two-fold. The authors devote a portion of the work to arguing for the acceptance among scholars of the high back unrounded vowel in Temne. Once the authors establish the presence of this vowel in the inventory of the language, they then use the instances of its insertion and deletion to demonstrate the peculiarities of the tonal and segmental phenomena in the language. They argue that, because the high back unrounded vowel exists underlyingly and surfaces carrying tone in given instances, there must be an explanation as to where the tone it carries comes from and where it goes when the vowel does not surface. The authors conclude that tone in Temne is a feature of the morphological composition of the entire word, rather than of individual segments or syllables.

4. Pike, Eunice, and Bernard Diatta. "The Phonology of Jóola HúluF." *Journal of West African Languages* 24, no. 2 (1994): 77-84.

This article is a short descriptive account of phonological conditions that contribute to varying tonal representations and contours in Jóola HúluF, a language of Senegal. The tonal phenomenon of interest in this article is the alternation between surface tonal contours or the lack of a tonal contour at word boundaries. The authors argue that these tonal representations are conditioned by the phonological properties of the segments found on either side of the morpheme break.

5. Rialland, Annie, and Stéphane Robert. "The Intonational Pattern of Wolof." *Linguistics* 39, no. 5 (2001): 893-939.

Rialland and Robert boast rightfully that this work on the intonational system of Wolof is the first of its kind. The authors go beyond a purely descriptive account of what one finds in Wolof speech by determining the ways in which intonation patterns are linked to morphosyntax in this non-tonal language. Rialland and Robert describe the system of intonation that speakers of Wolof use as "minimal" due to the fact that the language has no tonal distinctions, does not have pitch accents, and makes abundant use of flat intonation patterns. The authors draw their data from a comprehensive sampling of sentence and phrase types, include interrogative sentences, vocatives, and longer stretches of text.

6. Shryock, Aaron, Peter Ladefoged, and Kay Williamson. "The Phonetic Structures of Defaka." *Journal of West African Languages* 26, no. 2 (1996/97): 3-28.

The authors devote a portion of this article to the phonetic description of the tones and tonal patterns observed in Defaka, an Ijoid language spoken in Nigeria. The authors include examples of representative words demonstrating the presence of two contrastive tones and five tonal contour patterns which they support with frequency measurements of the fundamental pitch of these patterns.

7. Yillah, M. Sorie. "Temne Phonology and Morphology." Ph.D. dissertation, City University of New York, 1992.

This thesis on Temne, an Atlantic language spoken in Sierra Leone, although not focusing on tonology, does provide a detailed description of the phonological and morphological system of the language with hundreds of examples all marked with full-tone diacritics. Yillah does turn to the topic of tonal phenomena when the tonal features of Temne play an important role in the phonological or morphological construct under consideration. The author devotes specific attention to tonal constructs in prefixes and polysyllabic verbs.

Volta-Congo

North –

8. Akanlig-Pare, George. "Tone Structure of Buli Phonological Nouns." *Gur Papers 2* (1997): 63-68.

Akanlig-Pare discusses the tonal behavior observed in the "phonological noun" in Buli. The author describes this construct as the noun stem, including any affixes, compounds, or pronouns that it influences. In addition to outlining several key tenets of autosegmental phonology, Akanlig-Pare describes the presence of tone gliding and high tone lowering in phonological noun constructs.

9. Akanlig-Pare, George. "Tonal Structure of the Vp in Buli." In *Studies in the Languages of the Volta Basin*, edited by M. E. Kropp Dakubu and E. K. Osam, 219-32. Legon: University of Ghana, 2005.

This article explores the tonal representations that one observes in verbal constructs in Buli, taking into consideration the complex linkages between tones and phonology, morphology, and syntax. Akanlig-Pare focuses specifically on the role of tones in distinguishing tense and aspect in Buli verbs. The author proposes and discusses a number of tone rules and interactions to support his observations.

10. Akanlig-Pare, George, and Michael Kenstowicz. "Tone in Buli." *Studies in African Linguistics* 31, no. 1 (2002/2003): 55-96.

Akanlig-Pare and Kenstowicz provide a comparative synchronic and diachronic perspective on Buli, a Gur language spoken in the northern part of Ghana. The evidence and examples provided in the paper are taken from the speech of Akanlig-Pare, a native speaker of Buli. The paper is mainly descriptive in nature and provides several important points on Buli that allow the reader

to compare it to other languages in Gur and surrounding families. The authors discuss tonal contrasts in the language and autosegmental spreading and absorption phenomena, pointing out that Buli stands out among its linguistic siblings as having three contrasting tones but no downstep. The authors provide examples from Dagaare for comparison and illustrate that Buli tones are lexically contrastive on nouns though not on verbs.

11. Anttila, Arto, and Adams Bodomo. "Tonal Polarity in Dagaare." In *Advances in African Linguistics*, edited by Vicki Carstens and Frederick Parkinson, 119-34. Trenton/Asmara: Africa World Press, Inc., 2000.

Anttila and Bodomo, of Boston University and the University of Hong Kong, respectively, discuss the phenomenon of tonal polarity in Dagaare, a two tone language spoken in Ghana and Burkina Faso. The authors use an optimality theoretic approach to explain several tonal intricacies found in the language. They include information about the underlying tonal system, the outcome of stress and tone interactions, and the nature of the tonal polarity observed in Dagaare. The authors explain tonal polarity as being forced by the Obligatory Contour Principle rather than simply by dissimilation.

12. Awedoba, A. K. "Kasem Tones and Orthography." *Journal of West African Languages* 20, no. 2 (1990): 31-43.

Awedoba reports on the overwhelming absence of tonal marking in the orthography of Kasem, a Gur language spoken in Ghana. The author describes several tonal phenomena observed in this language, including the presence of a "bar" in tonal languages. The author argues that this "bar" is the autosegmental tier in which tone rests and spans over one or more syllables. Although the article addresses language planning concerns, it also includes valuable theoretical data and comprehensive examples of the tonal features of Kasem.

13. Badameli-Kassan, Balaïbaou. "De L'influence Du Ton Du Consécutif Dans Les Formes De L'aoriste En Kabiye." *Gur Papers* 5 (2000): 13-22.

Badameli-Kassan explores the effects of tone in constructions of different aspectual forms of the verbal radical in Kabiye, a Gur language spoken in several countries in West Africa. The author utilizes an autosegmental framework and presents an analysis based upon the consideration that the phonological word acts as the tone bearing unit in this language. Badameli-Kassan posits that the collected data point towards the presence of unique tonal features in verbal aorist constructs.

14. Bodomo, Adams B. *The Structure of Dagaare*. Edited by William R. Leben, Stanford Monographs in African Languages. Stanford: CSLI Publications, 1997.

Bodomo devotes the second chapter of this work to discussing the tonal features present in Dagaare, a Gur language spoken in Ghana. The author proposes that one can classify the nouns of this language according to five distinct groups according to their tonal structure. Bodomo also includes a brief description and a limited number of examples that illustrate tonal interactions and constructs in Dagaare.

15. Bradshaw, Mary M. "Tone on Verbs in Suma." In *Theoretical Approaches to African Linguistics*, edited by Akinbiyi Akinlabi, 255-72. Trenton: Africa World Press, Inc., 1995.

Bradshaw explores tonal patterns and interactions affected by both morphological and phonological factors in this article on Suma, a language of the Adamawa-Eastern branch of the Niger-Congo family spoken in the Central African Republic. The author suggests that, due to their unique properties, verbs in Suma are underlying toneless and tones surface on them in predictable patterns. Bradshaw uses this study of tonal patterns to delve further into uncovering of the nature of the tone bearing unit in this language, which the author concludes is prosodic in nature.

16. Bradshaw, Mary M. "Tone Alternations in the Associative Constructions of Suma." In *Language History and Linguistic Description in Africa*, edited by Ian Maddieson and Thomas J. Hinnebusch, 117-26. Trenton/Asmara: Africa World Press, Inc., 1998.

Bradshaw, of Ohio State University, draws particular attention to the associative construction in Suma, a Gbaya language of the Central African Republic, in this extension of her earlier work on tonal phonology. Bradshaw highlights tonal alterations on head nouns that differ according to the components of the underlying syllable structure of the word. Bradshaw utilizes an optimality theoretic approach to explain a number of the linguistic features that she observes, although this approach does not appear to apply to all instances found, in those cases where she observes counterfeeding interactions. In these isolated cases, Bradshaw found that derivational analysis was better suited to explain the data she collected.

17. Bradshaw, Mary M. "Consonant-Tone Interaction in African Languages." In *Advances in African Linguistics*, edited by Vicki Carstens and Frederick Parkinson, 151-64. Trenton/Asmara: Africa World Press, Inc., 2000.

Bradshaw provides a crosslinguistic overview of consonant-tone interaction in several less commonly studied African languages, including several members of the Niger-Congo family outside of the Bantu subclass (Suma and Gbaya bokota (Central African Republic), Ewe (Ghana and Togo), and Siya (Ghana). Bradshaw looks beyond the traditional consideration that tones interact typically with voiced obstruents, thereby extended the scope of her research to such interactions involving unvoiced obstruents as well. Bradshaw includes numerous examples in African from several different families while providing an analysis of consonant and tone interaction using a Feature Geometry model.

18. Cahill, Michael. "The Phonology of Kɔnni Verbs." *Gur Papers* 5 (2000): 31-38.

Cahill, of SIL International, devotes a portion of this phonological sketch to the features of tones in Kɔnni, a Gur language spoken in Ghana. The author stresses the predictability of tonal constructs on both nouns and verbs in the language while arguing for a contrast between the verbal constructs in Kɔnni in relation to those found in other Gur languages. The article highlights the underspecification of verbs as compared to nominal constructs in the language.

19. Cahill, Michael. "Noun Classes and Phonology in Kɔ̀nni." *Journal of West African Languages* 28, no. 1 (2000/01): 49-70.

Cahill devotes a small portion of this article to discussing tonal polarity in one particular type of plural noun in Kɔ̀nni. The author explains that the presence of tonal polarity in these Class 1 nouns is a phonological conspiracy that one can best treat in an optimality theoretic framework. The overall argument points towards an apparent non-universality of constraints in optimality theory.

20. Cahill, Michael. "Tone Dissimilation or Tone Polarity?" *Gur Papers* 7 (2006): 5-15.

This article revisits previous arguments concerning the presence or absence of tone polarity in languages found around the world. Cahill argues that both tone polarity and the related concept of tone dissimilation exist in languages, although the two tonal properties possess distinct features in comparison to one another. In light of this hypothesis, Cahill divides Gur languages into five typological categories based upon properties that relate to this observation.

21. Crouch, Marj. "A Note on Syllable and Tone in Vagla Verbs." *Journal of West African Languages* 15, no. 2 (1985): 29-40.

Crouch presents two opposing hypotheses that aim to explain the surface representation of tone on verb stems in Vagla, a Gur language spoken in Ghana. The author first suggests that one can account for the complex tonal representations in this language by separating them into two classes of verbs which have varying metrical properties. The author then suggests that one can better explain the observed representations by positing unique metrical properties for heavy versus light syllables.

22. Dakubu, Mary Esther. "Prosodic Features of the Gurene Verb." *Gur Papers* 7 (2006): 16-27.

Dakubu reports on several components related to intonational and prosodic phonology in Gurene, a Gur language spoken in Ghana. The author draws examples mainly from verbal phrases and imperatives in her discussion of accent, tone, and the glottal stop.

23. Dakubu, M. E. Kropp. "Downglide, Floating Tones, and Non-Wh Questions in Ga and Dangme." In *The Phonological Representation of Suprasegmentals*, edited by Koen Bogers, Harry van der Hulst and Maarten Mous, 153-74. Dordrecht: Foris Publications Holland, 1986.

Dakubu utilizes tonal data to demonstrate the historical connection and typological relationship between Ga and Dangme, two closely related languages spoken in Ghana, and other adjacent languages. The author explains that linguists have traditionally considered Ga and Dangme to be very similar although the tone systems of the two languages have developed somewhat differently. Dakubu presents data concerning automatic and non-automatic downstep in Ga and Dangme, as well as the absence of non-automatic downstep in one dialect, to argue that Ga and Dangme are of the same typological stock.

24. Garber, Anne. "A Double Tiered Analysis of Sucite Tone." *Journal of West African Languages* 18, no. 2 (1988): 21-33.

Garber offers a reanalysis of the tonal system of Sucite, a Gur language spoken in Burkina Faso. The author argues that the previous consideration of three underlying tones in this language is inadequate, and suggests rather that there are three distinct mid tones in Sucite, thereby yielding five contrastive underlying tones. In order to account for the properties of these tones, Garber proposes that one can represent tonal features on more than one segmental tier, or subregister, in an autosegmental framework.

25. Garber, Anne Elizabeth. "A Tonal Analysis of Senufo: Sucite Dialect." Ph.D. dissertation, University of Illinois at Urbana-Champaign, 1987.

This thesis is a precursor to later work by Garber found in this bibliography in which she discusses the tonal features and behavior of Sucite, a Gur language spoken in Burkina Faso. The author devotes a large portion of the work to describing a number of complex tonal alternations in Sucite, which then leads to a conclusion about the nature of mid tone in the language. Analysis and examples in this work focus on the tonal behavior of verbs and nouns, as well as associations between these components and other words in larger phrasal constructions.

26. Hurlimann, Ruth, and Eunice V. Pike. "A Note on Tone and Stress in Cerman." *Journal of West African Languages* 15, no. 2 (1985): 56-60.

This brief descriptive article presents elements of tonal and prosodic phonology in Cerman, a Gur language spoken in Burkina Faso. The authors include information on the contrastiveness of tone, tonal alternations, and tone interactions.

27. Hyman, Larry. "Register Tones and Tonal Geometry." In *The Phonology of Tone: The Representation of Tonal Register*, edited by Harry van der Hulst and Keith Snider, 75-108. Berlin: Mouton de Gruyter, 1993.

In this paper, Hyman proposes a formal tonal geometry with which he explains the relationship between tonal components in a language. Rather than exploring tonal oppositions in terms of downstep and downdrift, Hyman introduces readers to the idea of upstep or tone raising. Such upstepped tones often occur in environments where a high tone proceeds a low tone when a floating low tone is found at a specific location in the register level of the geometry. He draws examples from three African languages, one of which is of particular interest for this bibliography, namely Engenni, an Edoid language spoken in Nigeria.

28. Issah, Dawuni. "Some Tonal Processes and Tone Representation in Dagbani." Ph.D. dissertation, University of Texas, 1993.

Issah explores the intricacies of automatic and non-automatic downstep in Dagbani, a language of which he is a native speaker. In addition to discussing the terracing processes just mentioned, Issah also describes and clarifies the presence and characteristics of other tonal features in the language, including tone spreading and tonal glides. The author argues that the downstep

processes observed in Dagbani are related to the presence of either floating or associated low tones.

29. Kedrebéogo, Gérard. "Tone in Samoma." *Gur Papers* 2 (1997): 97-108.

This article serves as a reanalysis in an autosegmental phonological framework of the tonal system of Samona, a Gur language spoken in Burkina Faso. The work addresses the overall phonological system of Samona and describes the tones and tonal features observed in the language. The final portion of the article touches upon processes involved in tone assignment.

30. Kenstowicz, Michael, Emmanuel Nikiema, and Meterwa Ourso. "Tonal Polarity in Two Gur Languages." *Studies in Linguistic Sciences* 18, no. 1 (1988): 77-104.

This well-known and often-cited article discusses the interaction of tones in morphemes that leads to tonal polarity in Moore and Lama, two Gur languages spoken in Burkina Faso. The authors argue that one can explain tonal polarity in terms of an abstract rule that necessitates the dissimilation of high tones on juxtaposed morphemes. The authors describe their observations in the two languages and suggest modifications to the assumed tonal features of these languages in order to explain unexpected forms that surface in some constructions.

31. Kinda, Jules. "Les Tons du Mòoré et Leur Incidence Sur les Segments." *Gur Papers* 2 (1997): 109-16.

This short article explores several peculiarities of the interactions between tones and segments in Mòoré, a Gur language spoken in Burkina Faso. In addition to providing prototypical information on tonal features and behavior, Kinda argues that his analysis reveals that Mòoré is undergoing a gradual process of tonal simplification.

32. Kurrle, Gertrud. "Some Word Tone Patterns in Nuni." *Journal of West African Languages* 18, no. 1 (1988): 29-40.

Kurrle provides a descriptive account of tonal patterns in simple nouns, verbs, compound nouns, and irregular nouns in this sketch of Nuni, a Gur language spoken in Burkina Faso. The author argues for the presence of five distinct classes of compound nouns that result from the interactions of tonal and morphophonemic rules in Nuni. Kurrle illustrates that the tonal patterns found on compound nouns contain features of the constituent words that form them.

33. Mills, Elizabeth. *Senoufo Phonology, Discourse to Syllable*. Edited by Virgil L. Poulter and Desmond C. Derbyshire, Publications in Linguistics. Dallas: Summer Institute of Linguistics, 1984.

This work, published by the Summer Institute of Linguistics, is a comprehensive descriptive work covering many aspects of autosegmental phonology in Senoufo, a group of languages spoken predominantly in the Ivory Coast and Mali. Mills explores phonological phenomena in the language family beginning with discourse, and moving through paragraphs, sentences, and ultimately down to phonemes and syllables. Each chapter discusses the features of prosodic

phenomena in the category and utilizes a large number of example sentences to illustrate main points.

34. Olson, Kenneth S. *The Phonology of Mono*. Dallas: SIL International, 2005.

This book acts as a continuation of the overview of the phonology of Mono that Olsen presented in 1997 at the 2nd World Congress on African Linguistics. The author devotes the third chapter of the work to the discussion of tones and tonal phenomena in the language. Highlights include the lexical and grammatical functions of tone, as well as typical tonal features and their distribution in both syllables and words.

35. Ourso, Méterwa Akayhou. "Lama Phonology and Morphology." Ph.D. dissertation, University of Illinois at Urbana-Champaign, 1989.

Ourso devotes two chapters of his dissertation to the discussion of tone and tonal phenomena in Lama, a Gur language spoken in Togo. The fourth chapter of the work includes tone rules proposed by Ourso that describe spreading, deletion, and tonal simplification, with an overall focus on tonal interactions between noun roots and their suffixes. The fifth chapter explores the behavior of tone as it relates to verbal morphology.

36. Penou-Achille, Somé. "Une Procédure de Découverte: Détection des Tons Dans les Schèmes Tonals en Dagara." *Journal of West African Languages* 25, no. 1 (1995): 3-42.

This article provides a description of the constituent tones in Dagara, as well as the ways in which they combine to form tonal patterns in words. Some states that one can explain the tonal patterns that have emerged in Dagara on the basis of a comparison of the tonal phenomena found in three other languages, which together form a dialect continuum that lead to the development of Dagara itself. The examples and analyses included in the article draw from phonological, phonetic, and morphological data.

37. Penou-Achille, Some. "Derivation Dans les Bases en Dagara: Quand et Pourquoi un Deuxieme Ton?" *Linguistique Africaine* 17 (1996): 43-108.

Somé, of the University of Lethbridge, has contributed this significant work focusing on tonal derivations and interactions in Dagara. This work, of considerable length, is a complex look at these tonal derivations that the author approaches from the viewpoint of morphology, syntax, and phonology. Owing to the intricacies of the arguments and examples that Some provides, such a short summary of the work hardly does it justice.

38. Penou-Achille, Somé. "L'influence des Consonnes Sur les Tons en Dagara, Language Voltaïque du Burkina Faso." *Studies in African Linguistics* 27, no. 1 (1998): 3-48.

Somé demonstrates the ability of certain consonants either to permit or block the spread of high tones in three varieties of Dagara, a language spoken in Burkina Faso and Ghana. Evidence collected from these three dialects suggests in certain cases that voiceless obstruents act as "soft" or "transparent" consonants that permit the spreading of high tone from one morpheme to the

next when the two units are juxtaposed. Voiced obstruents conversely act as "hard" or "opaque" consonants that block such spreading due to their retention of a consonantal low tone. A third group of voiced consonants, including nasals, glottals, and glides, contain no consonantal low tone, and therefore also permit high tone spreading from high tone units juxtaposed to them. The author finds some variation in these phenomena between the three varieties of Dagara which he then attributes to geographic location, stating that the varieties spoken further inland have better preserved the more complex features of the language.

39. Penou-Achille, Somé. "Tout Ton Flottant Bas Autorise-t-il la Propagation du Ton Haut Précédent en Dagara-Wule?" *Studies in African Linguistics* 30, no. 2 (2001/2002): 195-236.

This article is a follow up to an article written three years prior in which Somé discusses the presence of transparent and opaque consonant in three dialects of Dagara that either permit or block high tone spreading. The author has since determined that Dagara also utilizes two different floating low tones that he refers to as "peripheral" and "internal". Some suggests that although internal floating low tones behave in a manner similar to opaque consonants in that they block high tone spreading, the two features are in fact distinct linguistic entities.

40. Pike, Kenneth L. "Tune and Tone: Generalized Syntagmatic Pitch Patterns Constrained by Particular Lexical Patterns." *Journal of West African Languages* 12, no. 2 (1982): 22-41.

Pike discusses some less commonly explored tonal phenomena in five African languages, including Moba and Lobi (Gur), and Ebrie (Kwa). A portion of the analysis in this article makes use of tonal matrices to illustrate the various possibilities for tonal interactions. The author also explores anti-assimilation (a type of tone polarity) and a phenomenon he refers to as tonal "flip-flop".

41. Rialland, Annie. "Le Système Tonal du Gurma (Langue Gur de Haute-Volta)." *Journal of African Languages and Linguistics* 3, no. 1 (1981): 39-64.

Rialland presents a descriptive account of the tonal system of Gurma while paying particular attention to the presence of downstep of the high tones in the language. Although the study of autosegmental phenomena such as downstep has progressed significantly from the publication of this work, the study provides a thorough and well-expressed explanation of the tone interactions in a language that has not been studied extensively.

42. Rialland, Annie. "Le Système Tonal du Moba Comparé a Celui du Gurma." In *Current Approaches to African Linguistics*, edited by Jonathan Kaye, Hilda Koopman, Dominique Sportiche and Andre Dugas, 217-36. Dordrecht: Foris Publications, 1983.

Rialland presents this chapter with reference to previous descriptive work that focused on tonal phenomena in Gurma. Rialland extends the previous study to include another closely related Gur language, Moba, spoken in parts of Togo and Burkina Faso. The author uses the information gathered in these two studies to forge ahead with a comparison of the languages with a historical perspective. The data in this work focus particularly on the formation of contour tones and other unique prosodic properties found in these Gur languages.

43. Rialland, Annie, and Somé Penou-Achille. "Dagara Downstep: How Speakers Get Started." In *Advances in African Linguistics*, edited by Vicki Carstens and Frederick Parkinson, 251-64. Trenton/Asmara: Africa World Press, Inc., 2000.

The authors of this paper describe a feature of tonal downstep in Dagara that they find to be distinct from similar downstep mechanisms in Yoruba. The authors focus on nonautomatic downstep in Dagara and reveal the constraints that this feature places on production of tones by speakers. They explain the mechanisms that trigger nonautomatic downstep in the language and the ways in which speakers adjust the pitch of their utterances in anticipation of the forthcoming downsteps. The paper is a follow up to earlier work by both authors, also found in this bibliography.

44. Rietkerk, Dieke. "Tone on Mbelime Verbs." *Gur Papers* 5 (2000): 141-48.

This brief descriptive article focuses on the tonal features of verbs in Mbelime, a Gur language spoken in northern Benin. Rietkerk describes the overall verbal system in the language, after which the author discusses several specific applications of tonal phenomena. Specific topics discussed in the work are tonal spreading, the interaction of tones in verbal constructs, and downstep.

45. Roberts, David. "Tone Spreading in the Kabiye Associative Noun Phrase." *Gur Papers* 6 (2003): 95-100.

This article by Roberts stands out against others in the types of tonal phenomena that he explores. Rather than focusing specifically on common tonal features such as downstep or final lowering, Roberts discusses the intricacies of stray erasure, blocked tone spreading, and tone plateaus in his analysis of Kabiye, a Gur language spoken in Togo and other surrounding countries. The author considers these tonal concepts in his analysis of a number of noun phrase constructs.

46. Schwarz, Anne. "Perfective Verb Tone in Buli." *Gur Papers* 5 (2000): 149-56.

This short article focuses specifically on the construction of the perfective verb in Buli, a Gur language spoken in Ghana. Schwarz devotes a small portion of the article to the explanation of typical tonal patterns observed in the language. Of interest are the various tense and aspect outcomes that result from differing surface tonal representations on verbs.

47. Schwarz, Anne. "Low Tone Spreading in Buli." *Gur Papers* 6 (2003): 121-30.

Schwarz illustrates the utility of an autosegmental framework to describe the tonal processes involved in low tone spreading in Buli. This article explains the conditions affecting low tone spreading, as well as describing the grammatical domains subject to this process. The author argues that the tonal behavior observed in Buli reconfirms the presence of a contrastive mid tone in the language that is not derived from high and low tones, although mid tone may surface phonetically as a result of their interaction.

Kwa –

48. Abakah, E. N. . "Tone in Akan Nominals." In *Studies in the Languages of the Volta Basin*, edited by M. E. Kropp Dakubu and E. K. Osam, 193-218. Legon: University of Ghana, 2005.

This article discusses the tonal surface representations that one observes in Akan Twi when various lexical components (adjectives, numerals, and quantifiers) become nominalized. In addition to describing the tonal inventory and other basic information about tonology in the language, Abakah continues his description by discussing the structure and function of several nominalizing affixes. The author argues that the nominal prefix is underspecified for tone and therefore is subject to tonal processes that affect its phonetic realization.

49. Ahoua, Firmin. "The Autosegmental Representation of Tones in Akan: More Evidence for the Tone Mapping Rule with Reference to Baulé." In *The Phonological Representation of Suprasegmental*, edited by Koen Bogers, Harry van der Hulst and Maarten Mous, 63-78. Dordrecht: Foris Publications Holland, 1986.

Ahoua explores the theoretical possibilities put forward by previous work to explain the tonal phenomena observed in Baulé, a Kwa language spoken in the Ivory Coast. The author discusses competing theories (the Well-Formedness Condition and the Tone Mapping Rule) regarding the proper mapping of tones onto syllables. Ahoua explains the Well-Formedness Condition fails to account for the effects contributed by a floating low tone in Baulé. Data in this paper show that the presence of a floating low tone in this language blocks the mapping of the tone onto the following high tone syllable. Ahoua concludes that the Tone Mapping Rule more adequately accounts for tonal phenomena in Baulé.

50. Bradshaw, Mary M. "A Crosslinguistic Study of Consonant-Tone Interaction." Ph.D. dissertation, Ohio State University, 1999.

Bradshaw explores the interactions between consonants-and tones in this thesis that covers twenty-five languages of Africa and Asia, including Ewe, Dagara, and Ebríé. The author posits several important hypotheses and offers a wide variety of information of interest to individuals studying various subfields of linguistics, particularly those linguists interested in the intricacies of the relationship shared by phonetics and phonology. Bradshaw highlights limitations and conditions affecting this relationship throughout her thesis.

51. Capo, Hounkpati B. C. *A Comparative Phonology of Gbe*. Vol. 14, Publications in African Languages and Linguistics. Berlin: Foris Publications, 1991.

This work on Gbe, a Kwa language, is a valuable tool of reference for any Africanist phonologist. Though this book is a component of the same series as the sketch of Igbo tonal phonology by Clark, it does not focus specifically on the tone system in the Gbe. Hounkpati rather chooses to highlight the overall phonological system in the language which rightfully mentions important information considering tonal description of Gbe, as it differs in some ways

from that used to describe other tone languages. The author includes other mention of tone in Gbe in relevant portions of the work.

52. Casali, Roderic F. "Nominal Tone in Nawuri." *Journal of West African Languages* 24, no. 2 (1994): 45-64.

Casali explores the derivation of seemingly unpredictable surface tones on noun-class prefixes in Nawuri, a Kwa language spoken in Ghana. By analyzing the underlying tonal representations on noun stems, the author argues that noun stems which carry a surface low tone are underlying toneless and receive their low tone only by a default rule. Casali then draws upon previous work by Snider (see entry 62-63) and Pulleyblank (see entry 91) to explain the reasons for which surface tones on noun-class prefixes behave in the manner that he observes.

53. Chumbow, Beban Sammy. "Contraction and Tone Polarization in Ogori." *Journal of West African Languages* 12, no. 1 (1982): 89-102.

This work by Chumbow attempts to provide a more suitable description of several tonal processes observed in Ogori, a Kwa language spoken in Nigeria. Chumbow argues that the term "contraction", popularized by other linguists studying tonal phenomena in Kwa languages, does not provide an adequate description of the phonological processes occurring in these languages. The author also introduces his Tone Reduction Principle to account for yet another tonal feature observed in languages of this sub-family.

54. Clark, Mary M. "Ewe and the Theory of Tone Spreading." In *Current Approaches to African Linguistics*, edited by Ivan R. Dihoff, 213-26. Dordrecht: Foris Publications, 1983.

This work begins with a recapitulation of earlier work by Clark in which she presents a new notational system to visualize pitch relationships in terms of pitch change markers that capture the degree of pitch change in a language relative to surrounding tones. This notational scheme takes into account the differences in high versus low pitch that can be found within a word, utterance, or larger prosodic unit. Clark argues that one can use notational pitch change markers to act as anchors that indicate pitch in relation to some neutral level on the edges of pitch contours. The insertion or deletion of such pitch change markers, which Clark claims is accomplished by rules, therefore affects the spreading of tones in a language.

55. Clements, George N. "The Description of Terraced-Level Tone Languages." *Language* 55, no. 3 (1979): 536-58.

This article defines the standards for description and analysis of prosodic features in tonal languages that have downstep and other tone terracing phenomena. Clements questions earlier work that describes downstepped tones as separate tonemic entities and proposes an alternative model of analysis. The author draws examples and evidence for his arguments from both Akan Twi and Kikuyu.

56. Dolphyne, Florence A. "Tone and Grammar in Akan: The Tone of Possessive Constructions in the Asante Dialect." In *The Phonological Representation of Suprasegmentals*, edited by Koen

Bogers, Harry van der Hulst and Maarten Mous, 35-50. Dordrecht: Foris Publications Holland, 1986.

Florence Dolphyne, of the University of Ghana, outlines and describes the tonal system of Asante Akan, the most widely spoken language in Ghana. The paper focuses on three particular points in Akan tonology: first, one can place Akan nouns into two classes based upon their tonal structure; second, tonal downdrift is phonologically conditioned, and finally, certain other tonal phenomena are grammatically conditioned.

57. Ford, Kevin C. "The Tonal Phonology of Siya (a Central-Togo Language) and the Historical Significance of Its Major Functions." In *The Phonological Representation of Suprasegmentals*, edited by Koen Bogers, Harry van der Hulst and Maarten Mous, 79-94. Dordrecht: Foris Publications Holland, 1986.

This paper is a descriptive account of the tonal components of Siya, a Kwa language spoken in Ghana. The descriptive content of this work is of significant importance owing to the ever-decreasing number of speakers utilizing this language. At the time of publication, Siya had only about ten thousand speakers. On a wider scope, this paper offers a historical look at tonal components, their lexical functions, and constraints on their surface features for the entire Volta-Congo subfamily of Niger-Congo languages.

58. Gbeto, Flavien. "Esquisse de la Tonologie Synchronique de Ayizo d'Allada, Dialecte Gbe du Sud-Benin." *Journal of African Languages and Linguistics* 27, no. 1 (2006): 29-52.

As the title of the work suggests, Gbeto provides a phonological description of the tone system of Ayizo, a dialect of the Gbe language spoken in southern Benin. The author presents a rather complex description of the tonal phonology of this language, including spreading and insertion rules that she has constructed in order to explain the derivation of seven tonal contours used in the language, including those she refers to as "allotones", from just two underlying tones. This paper includes a comprehensive list of examples that illustrate the derivation and distribution of the various tones and tonal contours on Ayizo nouns.

59. Leben, William R. "Tone in the Verbal System of Anyi." In *Current Approaches to African Linguistics*, edited by Ivan R. Dihoff, 177-84. Dordrecht: Foris Publications, 1983.

This work is a short descriptive account of tonal features found in a small portion of words in Anyi, a Kwa language spoken in the Ivory Coast and Ghana. This particular article focuses on affirmative verbs in the language. Tonal phenomena mentioned include non-final tone lowering, tone spreading, and final low tone raising.

60. Lojenga, Constance Kutsch. "The Tones of the Ebrié Associative Construction." *Journal of African Languages and Linguistics* 7, no. 1 (1985): 1-22.

Lojenga has chosen for her platform Ebrié, a Kwa language spoken in the Ivory Coast. This paper explores the possibility of analyzing tone in Ebrié in terms of high, low, and downstepped tones, rather than four distinct tones and their possible contour combinations. Lojenga explains

that such a reanalysis is necessary and possible based upon similar work conducted on other West African tonal languages. She chooses to restrict her data to nouns in various associative constructions in order to limit difficulties in analysis introduced by more complex morphosyntax of verbal constructs in the language.

61. Manfredi, Victor. "Spreading and Downstep: Prosodic Government in Tone Languages." In *The Phonology of Tone: The Representation of Tonal Register*, edited by Harry van der Hulst and Keith Snider, 133-84. Berlin: Mouton de Gruyter, 1993.

Manfredi presents information drawn from two Benue-Kwa languages spoken in Nigeria, Yamba and Igbo, to argue against studies utilizing rule-based tone typology. The author demonstrates the many tone rules that have been necessary to explain tone phenomena in a number of Kwa languages, a point that is problematic for linguistic typology. He chooses rather to support tone system analysis on the basis of tight interactions between syntax and prosodic phonology.

62. Snider, Keith. "Tonal 'Upstep' in Engenni." *Journal of West African Languages* 27, no. 1 (1998/99): 3-16.

This article serves as an argument against a standing tonal description of Engenni, a Kwa language spoken in Nigeria. Snider describes the tonal characteristics of the language, including previous descriptions of an automatic and predictable upstep. The author argues that rather than Engenni having automatic upstep, the normal high tones previously observed in the language are actually downstepped high tones, and the upstepped tones are true the high tones.

63. Snider, Keith L. "Apocope, Tone and the Glottal Stop in Chumburung." *Journal of African Languages and Linguistics* 8, no. 2 (1986): 133-44.

Snider provides evidence for the nature of the glottal stop and the historical phonological data that it carries in Chumburung, a Kwa language spoken in Ghana. Snider includes a description of the two-tone system of Chumburung in order to illustrate the downstep observed across word boundaries. Through tonal analysis of these words, Snider concludes that the glottal stops surfacing word-finally in Chumburung are the result of apocope. He argues that the lost vowel carried low tone which surfaces in the downstepped high tone found word-initially in the following word.

64. Stewart, John M. "The Asante Twi Tone Shift." In *Current Approaches to African Linguistics*, edited by Ivan R. Dihoff, 235-44. Dordrecht: Foris Publications, 1983.

Stewart tackles the issue of tone spreading in three particular dialects of Akan, a Kwa language spoken widely throughout Ghana. Stewart draws part of his analysis from earlier work on tone spreading in Bantu. The author focuses on the Asante dialect of Twi and puts the emphasis in his analysis on rightward movement of tone. Stewart argues that, in a historical perspective, all dialects of Akan have undergone a leftward tone shift, but this leftward motion was reversed by a rule for rightward tone shift. These tonal shifts have had different realizations in each of the Akan dialects studied in this paper.

65. Stewart, John M. "Dschang and Ebrié as Akan-Type Total Downstep Languages." In *The Phonology of Tone: The Representation of Tonal Register*, edited by Harry van der Hulst and Keith Snider, 185-244. Berlin: Mouton de Gruyter, 1993.

Stewart reanalyzes tonal phenomena in Akan in light of new theoretical evidence from languages that exhibit overt versus covert total downstep. The author then draws upon this reanalysis in order to compare two additional languages, Dschang and Ebrié, which share several similar tonal properties. That data that Stewart collects allows him to contrast the tonal features of Dschang and Ebrié to tonal phenomena in Akan. These comparisons allow the author to posit interesting typological and historical hypotheses about the genesis of different tonal systems in African languages.

66. Tresbarats, Chantal. "Tone in Abidji Verb Morphology." *Studies in African Linguistics* 21, no. 1 (1990): 107-43.

Tresbarats, of the Mission of the Assemblies of God of France in Cote d'Ivoire, provides a description of tonal interaction in Abidji, a Kwa language spoken in the Ivory Coast. This paper demonstrates high and low toneme interactions that result in various tense/aspect manipulations of the verb. Tresbarats describes this phenomenon using autosegmental phonology. The article includes a summary of possible tone patterns in the language, as well as the various ways in which these patterns combine on verbs to produce a given tense/aspect combination. She includes examples of each tonal pattern and tense/aspect combination, thereby providing the reader with a quick reference to verbal morphology in this language.

67. Wiesemann, Ursula. "Tone and Intonational Features in Fon." *Linguistique Africaine* 7 (1991): 65-92.

Wieseman explores the possible presence of a superimposed intonational feature tier in Fon, a Gbe language spoken in Benin. The author introduces the tonal components of the language and explains that, while many of the tonal phenomena and interactions that one observes in Fon can be explained by rules concerning phonological environment, one cannot explain all instances of tone in this way. The paper includes discussion about the presence of conjunctive, disjunctive, and neutral phonetic borders in words which dictate either the necessity or optionality of tonal changes.

Kru –

68. Charette, Monik. "La Construction Associative en Bété de Gbadi." In *Current Approaches to African Linguistics*, edited by Jonathan Kaye, Hilda Koopman, Dominique Sportiche and Andre Dugas, 99-126. Dordrecht: Foris Publications, 1983.

This short descriptive article focuses on the construction of the associative complex in Bete, a Kru language spoken in the Ivory Coast. Charette explains the formation of the associative complex between nouns or a noun and a verb, including the tonal patterns that can occur within the complex. The author shows that the tones on the constituent words of the associative complex behave differently when they are in isolation as compared to when they are juxtaposed.

69. Newman, Paul. "Contour Tones as Phonemic Primes in Grebo." In *The Phonological Representation of Suprasegmentals*, edited by Koen Bogers, Harry van der Hulst and Maarten Mous, 175-94. Dordrecht: Foris Publications Holland, 1986.

This study by Newman of Grebo, a Kru language spoken in Liberia, serves as an interesting contrast to many other West African languages concerning the production of contour tones. The data in this paper suggest that contour tones, rather than being formed by the addition of contrasting level tones, contrast with these tones themselves. Newman explores this feature of Grebo tonal phonology, in which he discusses the major features of the tonal system of the language and the typical mechanisms by which tones spread and alternate with one another.

70. Paradis, Carole. "Le Comportement Tonal des Constructions Associatives en Wobé." *Journal of African Languages and Linguistics* 6, no. 2 (1984): 147-72.

Paradis provides insight into the system of tones in Wobé, a Kru language spoken in the Ivory Coast. The paper serves as a reaction to the proposals put forward by other researchers as to the nature of tonal constructions in Wobé, particularly of downstep, and the effect that the opacity of consonantal low tones have on it. Paradis describes two specific points of departure that separate her line of thinking from that of her predecessors and argues that the explanation that she provides to explain these tonal phenomena are far simpler than that found in previous work done on this language.

71. Singler, John Victor. "On the Underlying Representation of Contour Tones in Wobé." *Studies in African Linguistics* 15, no. 1 (1984): 59-76.

Singler provides a reanalysis of the underlying toneme system in Wobé, a Kru language spoken in the Ivory Coast. His reanalysis presents as a simplification of a fourteen toneme system proposed by Bearth and Link (1980). Singler argues that a more "traditional" toneme system, based on only four level tones suits the phonological features of Wobé more successfully. The traditional toneme system that he proposes is one that calls for combinations of level tones rather than underlying contour tones, thereby easing the burdens of analysis. He then presents his evidence and examples in an autosegmental phonology framework.

Dogon –

72. Ongoiba, Oumarou-Samba. "Étude Phonologique du Dogon, Variante Gamsaj." Ph.D. dissertation, Université Laval, 1988.

This thesis is a detailed and comprehensive account of the phonological and tonological system of one dialect of Dogon, a family of languages spoken in southeastern Mali and surrounding areas. Ongoiba includes descriptions of the each constituent in the phonetic system and devotes portions of each chapter specifically to describing the tonal elements of the language. Included in the work are measurements of frequency, duration, and intensity of the various phonetic elements of the language, as well as analyses of specific prosodic phenomena.

Benue-Congo -

Cross River

73. Ekere, Michael Edoabasi. "Tone Patterns in Ibibio Noun Phrase Structures." *Journal of West African Languages* 26, no. 2 (1996/97): 45-54.

Ekere provides a concise description of tonal phenomena related to noun phrase constructions in Ibibio, a Delta-Cross language spoken in Nigeria. The author devotes a brief section of the article to a number of surface tonal phenomena, including downdrift, floating tone docking, and final tone rising. Ekere explains the data observed in Ibibio by positing that these various tonal processes operate unidirectionally from left to right, thereby illustrating the importance and bearing of the tonal properties of the left-hand components on components following them.

74. Essien, Margaret M. "Deep-Level High Tone as a Relational Link in Certain Ibibio Constructions." *Journal of West African Languages* 22, no. 2 (1992): 59-68.

Essien provides a brief commentary on the role that particular tones play in grammatical functions in Ibibio. This particular article highlights the function of a non-associated underlying high tone morpheme that affects the surface tonal characteristics of certain words, particles, and affixes upon their juxtaposition.

75. Faraclas, Nicholas. "Tone and Phrase Stress: The Extra High Tone in Obolo." *Journal of West African Languages* 14, no. 1 (1984): 3-18.

Faraclas investigates several prosodic characteristics of Obolo, a Delta-Cross language spoken in Nigeria. The article includes discussion about the potential complications imposed on the study of tone by the presence of phrasal stress and accents. The author concludes that prosodic phenomena observed in Obolo may lead one to posit that the language is undergoing a slow process of tonal exodus as supported by similar data presented by other linguists on other tonal African languages.

76. Faraclas, Nicholas G. "Elision and Other Morpheme Boundary Phenomena in the Western Dialects of Obolo." *Journal of West African Languages* 12, no. 2 (1982): 69-82.

This article is an overview of various interactions, including those involving tonal representations, that occur upon the juxtaposition of morphemes in Obolo, a Cross River language spoken in Nigeria. Faraclas comments briefly on a number of linguistic phenomena in an attempt to address and describe the overall phonological and environmental factors influencing phonetic output in this language. Specific sections involving tone include tonal interaction across morpheme boundaries and tone/vowel interaction across consonants.

77. Faraclas, Nicholas G. "Tone, Stress, and the Obolo Verbal Focus System." *Journal of African Languages and Linguistics* 6, no. 2 (1984): 127-46.

Faraclas, currently of the University of Puerto Rico, takes on the task of describing the pitch variations related to focus in Obolo, a language spoken in the eastern Niger Delta. This article includes an introduction to the tonal system of Obolo though the specific focus of the work Faraclas is on pitch patterns in verbs. Faraclas chooses to explore various methodological approaches to analyzing the tonal phenomena that he observes in Obolo which include both the generative and autosegmental models. The author chooses to champion the autosegmental method in addressing and accounting for tone, focus, and stress in the same language.

78. Ikoro, Suana M. "A New Approach to Tones in Associative Constructions: Insights from Kana." In *Issues in African Languages and Linguistics: Essays in Honour of Kay Williamson*, edited by E. Nolue Emenanjo and Ozo-mekuri Ndimele, 51-63. Aba: National Institute for Nigerian Languages, 1995.

Ikoro argues for a reanalysis of the tone rules traditionally applied in the associative construction in Khana, a Cross Rivers language spoken in Nigeria. Ikoro postulates that, although Khana follows the typical Benue-Congo pattern of tonal alternation in the associative construction, it differs from other constituent members of the family in the member of the associative pair or group that alternates.

79. Iwara, Alexander, Akinbiyi Akinlabi, and Hubert Truckenbrodt. "The Tonal Phonology and Phonetics of the Future Negative in Lokaa." In *Linguistic Typology and Representation of African Languages*, edited by John M. Mugane, 103-16. Trenton: Africa World Press, Inc., 2003.

The authors of this article attest that Lokaa, a Benue-Congo language spoken in Nigeria, contains a future negative construction that triggers leftward tone spreading of the suffixal low tone to the stem and ultimately to the prefix of verbs. This paper contains phonetic evidence that demonstrates the presence of this spreading in both high tone and low tone verb stems. Phonetic data included also show that the leftward spreading of low tone contributes to leftward temporal displacement of tone on the verbal prefix, thereby suggesting an interaction between the suffix and prefix tones as a result of the future negative construction.

80. Iwara, A. U. "Some Elements of Lokaa Phonology Revisited." In *Issues in African Languages and Linguistics: Essays in Honour of Kay Williamson*, edited by E. Nolue Emenanjo and Ozo-mekuri Ndimele, 82-97. Aba: National Institute for Nigerian Languages, 1995.

This work is a descriptive sketch of various components of the phonological system of Lokaa, a Benue-Congo language spoken in Nigeria. Iwara devotes a small portion of the paper specifically to tone and draws limited conclusions based upon tonal observations. Of importance is the ability of tonemes to combine to form contours, and the ability of vowel/sonorant combinations that carry tone to act as long vowels.

81. Paster, Mary. "Tone Specification in Leggbo." In *Linguistic Typology and Representation of African Languages*, edited by John M. Mugane, 139-50. Trenton: Africa World Press, Inc., 2003.

Paster, of the University of California at Berkeley, describes the tonal system of Leggbo, an Upper Cross language spoken in Nigeria. The author introduces this language as one that does

not follow tonal patterns previously attested by linguists who have studied related languages. This paper focuses on the phonological activity of the mid tone in Leggbo and argues that one cannot consider it the default tone in the language. Paster argues that if this analysis holds true, the assignment of default tone in tone languages must be a language-specific feature rather than a universal.

82. Urua, Eno. "The Status of Contour Tones in Ibibio." In *Theoretical Approaches to African Linguistics*, edited by Akinbiyi Akinlabi, 329-44. Trenton: Africa World Press, Inc., 1995.

Urua revisits his earlier work as well as that of several other linguists in this descriptive work on Ibibio, a Benue-Congo language spoken in Nigeria. The claims presented in this work challenge the idea that contour tones in Ibibio contrast. The author proposes that the Ibibio has only two contrasting underlying level tones that combine to form contour tones depending on the tonal melody of words. His evidence for this claim includes several examples illustrating various autosegmental phenomena in Ibibio.

83. Urua, Eno E. "A Phonetic Analysis of Ibibio Tones: A Preliminary Investigation." *Journal of West African Languages* 26, no. 1 (1996/97): 15-26.

This article is a descriptive account of the features and constituent tonal components in Ibibio, a Lower-Cross language spoken in Nigeria. Urua explores the various downtrend processes in the language (e.g., downstep, downdrift), and provides acoustic measurements of the fundamental frequency of vocalic pitches in words undergoing some downtrend process. The author argues for the presence of three contrastive tones in Ibibio, as well as unique realizations of downstepped high tones versus downdrift.

Defoid

84. Baloubi, Désiré. "The Morphonemics of the Idaacha Dialect of Yoruba." Ph.D. dissertation, Ball State University, 2000.

Baloubi devotes the fourth chapter of his thesis to the discussion of tones and tonal phonology in Idaacha, a dialect of Yoruba spoken in Benin. While the information given on the tonal system of this dialect is mainly descriptive, the author does assert the presence of a three-way tonal contrast in Idaacha with a degree of neutralization between the mid and low tones. In later chapters, Baloubi touches briefly on tonal interactions which he considers to be a result of phonotactics and morphology.

85. Bisang, Walter, and Remi Sonaiya. "The Functional Motivation of the High Tone Syllable in Yoruba." *Journal of African Languages and Linguistics* 20, no. 1 (1999): 1-19.

The authors of this article explain the more detailed complexities of the marker that they refer to as High Tone Syllable (HTS). Their aim is to address what this marker is, what it does, and the reason why it is incompatible with certain other constructs in Yoruba. The authors explain various classifications in the literature as to the function and origin of HTS and demonstrate the instances in which Yoruba speakers use it and in which constructs it is possible. The authors

conclude that the HTS is a marker associated with the third person and that the presence or absence of the marker in Yoruba speech is expressly motivated.

86. Connell, Bruce, and D. Robert Ladd. "Aspects of Pitch Realisation in Yoruba." *Phonology* 7, no. 1 (1990): 1-30.

The importance of this article is two-fold owing to the fact that the material presented is of exceptional quality and that it was published in a top-ranking journal of theoretical linguistics outside of the Africanist community. Connell and Ladd review theoretical information about tonal and prosodic phenomena, including downstep, downdrift, final lowering, and tone terracing. The authors draw their data from Yoruba, demonstrating the ways in which underlying tones interact based on their environment and proximity to one another to yield unique surface representations.

87. Laniran, Y. "Intonation in Tone Languages: The Phonetic Implementation of Tones in Yoruba." Ph.D. dissertation, Cornell University, 1992.

This thesis by Laniran is a comprehensive reference for both Yoruba specialists and anyone interested in tonal phenomena in African languages. Laniran makes a number of important observations and assertions about tonal features, constructions, and their interactions in the various chapters of this work. A selection of topics from the work include high tone raising in low-high-low tonal patterns, declining fundamental frequency of like tones, and the subjection of final high or low tones to abrupt lowering.

88. Laniran, Yetunde O., and G. N. Clements. "Downstep and High Raising: Interacting Factors in Yoruba Tone Production." *Journal of Phonetics* 31, no. 2 (2003): 203-50.

The authors of this often-cited work explore the various tonal interactions that take place to yield downstep and raising in Yoruba. Laniran and Clements comment on the combinatory factors that influence tonal outcomes and therefore argue for a compositional model of tone production. The authors draw a large portion of the experimental data included in this article from the 1992 dissertation by Laniran, also included in this bibliography.

89. Nagano-Madsen, Yasuko. *Mora and Prosodic Coordination: A Phonetic Study of Japanese, Eskimo and Yoruba*. Lund: Lund University Press, 1992.

This book is fascinating in its breadth and comprehensive comparison of metrical and prosodic features from three vastly different languages. Nagano-Madsen explores a number of areas of interest to linguists who study languages utilizing prosodic manipulation to convey lexical, grammatical, or pragmatic information. The author devotes specific chapters to pitch and perception, various types of prosodic coordination, and a detailed look at the properties of the mora.

90. Ola, Olanike Olajumoke. "Optimality in Benue-Congo Prosodic Phonology and Morphology." Ph.D. dissertation, The University of British Columbia, 1995.

This thesis explores tonal and prosodic constructions in a number of languages that will be of interest in this bibliography (e.g., Yoruba, Gokana, Emai, Ibibio). Ola describes the prosodic features of these and other languages in terms of optimality theory, therefore positing that one can explain these features in terms of violable ranked constraints that vary from language to language. The author devotes specific chapters to a number of metrical, syllabic, and tonal phenomena, including moraic sonority constraints, syllable structure, foot structure, and the properties of the prosodic word.

91. Pulleyblank, Douglas. "Tone in Lexical Phonology." Ph.D. dissertation, Massachusetts Institute of Technology, 1983.

This thesis is a seminal work in the area of tonal and lexical phonology. Although Pulleyblank does not concentrate specifically on languages that are of concern in this bibliography, some of the examples and analysis that he has included in this thesis draw from Yoruba and Tiv, two languages spoken in Nigeria. This work includes information on the separability of lexical and postlexical phonetic components in tone languages as well as the role of underspecification in tonal phonology. Pulleyblank argues that several phenomena associated with tones, rather than being automatic, are language specific. The thesis also includes information on the importance of extrametricality in tone and stress.

Edoid

92. Amayo, Airen. "Tone Rules and Derivational History in Edo Phonology." In *Current Approaches to African Linguistics*, edited by Ivan R. Dihoff, 185-96. Dordrecht: Foris Publications, 1983.

The paper by Amayo is a descriptive account of several tonal phenomena found in Edo, an Edoid language spoken in Nigeria. The author introduces two novel rules to the tonology of the language while commenting and expanding upon rules previously described by others. The work that Amayo puts forth in this article follows and contributes to the generative model of tonal phenomena in African languages.

93. Aziza, Rose. "Nasality in Urhobo: An Autosegmental Perspective." *Journal of West African Languages* 29, no. 2 (2002): 11-22.

Aziza takes a somewhat unconventional stance on the nature of nasality in Urhobo, an Edoid language spoken in Nigeria. The author argues that nasality exists on a separate autosegmental tier due to the particular characteristics of nasal segments in this language. Such a treatment of nasality differs from its placement in a linear framework, which is a more widely accepted practice.

94. Aziza, Rose. "An Overview of the Tone System in Urhobo." *Journal of African Languages and Linguistics* 27, no. 2 (2006): 113-26.

In this article, Aziza, of the Delta State University in Nigeria, explores the tonal inventory of Urhobo, an Edoid language spoken in Nigeria. The author introduces the reader to the necessity of this research as several scholars who have studied the tonal complexities of Urhobo have yet

to come to a conclusion about the nature of a particular tone found only have high tones in the language. While some linguists have suggested that this third tone is a mid tone added to the other attested high and low tones of the language, Aziza provides evidence supporting the findings of others that this tone is rather a downstepped high tone. The examples provided in this paper provide an excellent comprehensive view of the tonal system of Urhobo. Perhaps most interesting in this particular paper is the evidence that Aziza provides illustrating that Urhobo functions to preserve its high tone at the expense of both the low tone and downstep.

95. Hyman, Larry. "Register Tones and Tonal Geometry." In *The Phonology of Tone: The Representation of Tonal Register*, edited by Harry van der Hulst and Keith Snider, 75-108. Berlin: Mouton de Gruyter, 1993.

In this paper, Hyman proposes a formal tonal geometry with which he explains the relationship between tonal components in a language. Rather than exploring tonal oppositions in terms of downstep and downdrift, Hyman introduces readers to the idea of upstep or tone raising. Such upstepped tones often occur in environments where a high tone proceeds a low tone when a floating low tone is found at a specific location in the register level of the geometry. He draws examples from three African languages, one of which is of particular interest for this bibliography, namely Engenni, an Edoid language spoken in Nigeria.

96. Omozuwa, Victor Edosa. "Speech Tempo, Consonant Deletion, and Tones in Edo Nouns." *Studies in African Linguistics* 20, no. 3 (1989): 317-38.

Omozuwa, of the University of Benin in Nigeria, devotes a sizeable portion of this article to the effect that speech tempo and consonant deletion have on the overall tonal melody of words in Edo. This article challenges earlier work on this phenomenon in Edo by Westermann. Omozuwa provides evidence that the main factors contributing to consonant deletion are the nature of the consonant itself and the tempo of the speech in which the words are delivered. Pitch contour analysis in this experiment shows that these same factors do not contribute to an overall mutation of the tonal melody in this language.

97. Omozuwa, Victor Edosa. "Acoustic Cues for the Perception of Tones of Disyllabic Nouns in Edo." *Studies in African Linguistics* 22, no. 2 (1991): 135-56.

Omozuwa provides an acoustics analysis of disyllabic Edo nouns that shows that form and direction of change in pitch drive the ability of speakers to perceive tone in the language. The author provides an overview and summary of the tenets of Edo tonology and then uses the acoustic results of his experiments to support these findings. The results reveal that the perception of pitch by speakers of Edo depends greatly on the fundamental frequency of the initial vowel in a disyllabic noun in comparison to that of the following vowel and that these acoustic cues vary according to tone patterns and characteristics of a given toneme. Omozuwa suggests that one can apply his findings generally to speakers of other languages in that the importance of fundamental frequency pitch differentials in the mother tongue will affect the ability of a speaker to perceive similar variations in tone in other tonal languages.

98. Schaefer, Ronald P., and Francis O. Egbokhare. "Emai Verbal and Preverbal Tone: Preliminaries." In *Theoretical Approaches to African Linguistics*, edited by Akinbiyi Akinlabi, 183-98. Trenton: Africa World Press, Inc., 1995.

Schaefer and Egbokhare undertake a unique approach to describing tonal phenomena in Emai, an Edoid language spoken widely in Nigeria. The authors explain that their work takes a step away from other contemporary work on tonal phonology in that it focuses on auxiliary and preverbal elements rather than nouns and verbs. Their research as presented in this paper showcases the ways in which agreement patterns, modality, and the imperative mood constrain tonal domains.

Igboid

99. Anyanwu, Rose-Juliet. *Aspects of Igbo Grammar: Phonetics, Phonology, Morphology and the Tonology of Nouns*. Hamburg: Lit Verlag, 1996.

This thesis attempts to explain several tonal peculiarities in Igbo in the light of other linguistic features. In addition to providing novel information about the tonal system of Igbo, Anyanwu also provides a historical overview of the study of several important tonal phenomena of interest to linguists studying many West African tonal languages. Some selected topics for discussion in this work include morphotonology, the interaction of tones in associative constructions, and the unique tonal features of adjectives.

100. Badecker, William. "Object Clitics and Tone Mutation in Igbo." In *Current Approaches to African Linguistics*, edited by Gerrit J. Dimmendaal, 15-30. Dordrecht: Foris Publications, 1986.

Badecker highlights the phenomena of tonal mutations that occur in object pronouns in Igbo, an Igboid language spoken in Nigeria. The author presents data demonstrating that the tone of Igbo object pronouns undergoes changes according to its relationship to the following verb in the sentence. This paper explores the optionality of such tonal mutations in Igbo, the cliticization of the pronoun onto the verb if the mutation does occur, and the grammatical mechanisms underlying these processes.

101. Clark, Mary Morris. "A Dynamic Treatment of Tone: With Special Attention to the Tonal System of Igbo." Ph.D. dissertation, University of Massachusetts, 1978.

Mary Clark, of the University of New Hampshire, offers an alternate but non-confrontational opposition to some tenets of autosegmental phonology. She argues in this thesis that languages utilizing any type of tone, pitch, or prosody can be analyzed by considering tonal transitions and contours, rather than looking at distinct levels of tone. Clark suggests that her method of analysis is a "dynamic tone theory" and explains that the intonational contours that one observes in any language can be described by a system of tone markers that illustrate a rise or fall in pitch.

102. Clark, Mary M. *The Tonal System of Igbo*. Vol. 10, Publications in African Languages and Linguistics. Dordrecht: Foris Publications Holland, 1990.

Mary Clark, of the University of New Hampshire, has written a book that succeeds in its intended goal of being a valuable tool for both theoretical linguists and those interested specifically in African linguistics. Clark provides a detailed view of the tonal system of Igbo, a language of Nigeria, including its applications to phonology, morphology, and syntax in the language. Clark presents and analyzes the Igbo data in an autosegmental framework that she argues is the best representation for the tonological phenomena she has observed in the language. She devotes specific chapters to tonal representation, lexical phonology, phrasal phonology, verbal constructions, and noun and associative constructions.

103. Echeruo, Michael J. C. "Case-Tone Marking in Igbo Nouns, with Special Reference to the Associative Construction." In *Language History and Linguistics Description in Africa*, edited by Ian Maddieson and Thomas J. Hinnebusch, 147-54. Trenton/Asmara: Africa World Press, Inc., 1998.

Echeruo, of Syracuse University, provides commentary on the traditional classification of nouns with High-Downstep into a separate class of nouns. He has drawn his observations from work in dictionary compilation, and while he states his lack of linguistic credentials, his argument is one that linguists can take into consideration. Echeruo clearly looks at the data rather than letting the theoretical underpinnings of tonology and autosegmental phonology sway his judgment about the presence and effect of High-Downstep on Igbo nouns. Echeruo concludes that, based upon the evidence that he has observed, a four-class noun system is adequate in Igbo.

Jukunoid

104. Koops, Robert George. "Aspects of the Grammar of Kuteb." Ph.D. dissertation, University of Colorado, 1990.

Koops discusses tonal phonology and syllable structure in Kuteb, a Jukunoid language spoken in Nigeria, in the third chapter of his dissertation. Examples of minimal pairs demonstrate the various tonal contrasts of both level and contour tones. The author closes his discussion of these prosodic features by discussing the processes of tone spreading and updrift.

Mande

105. Bamba, Moussa. "The Role of Accent in the Tonal System of Odyene Dyula." In *Current Approaches to African Linguistics*, edited by John P. Hutchison and Victor Mandredi, 1-14. Dordrecht: Foris Publications, 1990.

Bamba explores the distinctions between tones and accent in this article on Odiene Dyula, a Mande language spoken in the Ivory Coast. Bamba argues that the notion of high tone in Dyula is actually an underlying accent which is realized as tone at a lexical level. The author challenges previous work on this language and illustrates the utility of his hypothesis through tonal and metrical analyses. Bamba suggests that the analysis that he puts forth in this article can apply to languages with two underlying tones that have multiple surface tonal realizations.

106. Bracconier, Cassian. "Le "Morpheme Tonal d'Enonce Incomplet" du Dioula d'Odienne." *Mandenkan* 20 (1990): 3-26.

Bracconier describes the presence of a tonal constituent that accompanies "incomplete" utterances in the dialect of Jula spoken in Odienne, a city in the north-western portion of the Ivory Coast. The author describes this additional tone as floating after the final vowel of an utterance but attaching to its preceding vowel in a pattern governed by tonal polarity. Bracconier argues that this tone has not been attested in other Mande languages and is therefore unique to this dialect of Jula.

107. Churma, Donald G. "The Nature of Tonological Representation: Evidence from Loko." In *Current Approaches to African Linguistics*, edited by Gerrit J. Dimmendaal, 93-106. Dordrecht: Foris Publications, 1986.

Churma re-examines two aspects of autosegmental phonological theory in regards to tonological representations by using Loko, a Mande language spoken in Sierra Leone, as his platform. He also draws examples from previous work on Mende. The author demonstrates the thesis that certain phonological properties of Loko require sequences of like tones, which violates the major tenet of the Obligatory Contour Principle. Churma then argues that these results point towards a universal violation of this phonological principle.

108. Conteh, Patrick, Elisabeth Cowper, Deborah James, Keren Rice, and Michael Szamosi. "A Reanalysis of Tone in Mende." In *Current Approaches to African Linguistics*, edited by Jonathan Kaye, Hilda Koopman, Dominique Sportiche and Andre Dugas, 127-38. Dordrecht: Foris Publications, 1983.

The authors of this article devote a large portion of their study to the recapitulation and review of several previous studies on tonal phenomena in Mende, a Mande language spoken in Sierra Leone. The authors present a small amount of new material where they describe the presence of segmentless morphemes, one of which is associated with expressing possession. The analysis provided follows an autosegmental framework of phonology.

109. Creissels, Denis. "Esquisse du Système Tonal du Korokan." *Mandenkan* 14/15 (1987/1988): 81-106.

This article offers a descriptive sketch of the tonal system of Korokan, a Mande language spoken in eastern portions of the Ivory Coast. Creissels informs the reader that the data presented is not meant to be a complete or comprehensive account of the features of the language, but rather a brief summary of tonal features and phenomena observed in this underdocumented language. The author devotes portions of the article to describing tonal classes, tone interactions, and tonal laws that he claims dictate the described tonal interactions.

110. Creissels, Denis. "Tonologie du Bambara: Bilan et Perspectives." *Mandenkan* 24 (1992): 1-46.

This article reports on the many complexities and variabilities of tone in standard Bambara. In addition to providing a comprehensive historical sketch of the study of Mande tonology,

Creissels moves on to discuss some of the more concrete tonal features and phenomena related to tonal phonology in Mande languages, particularly in Bambara. The author devotes specific portions of the chapter to describing tonal interactions in words of varied syllabicity, the presence of tonal polarity in Bambara, as well as a number of tone terracing and contour effects observed in the language.

111. Creissels, Denis, and Claire Gregoire. "La Notion de Ton Marque Dans l'Analyse d'une Opposition Tonale Binaire: Le Cas du Mandingue." *Journal of African Languages and Linguistics* 14, no. 2 (1993): 107-54.

Creissels and Gregoire analyze tone marking in Mande languages, focusing specifically on the dialect of Maninke/Bambara spoken in Kita, Mali. The main points of this lengthy paper include the consideration of high tone as marked in Mande languages as well as the relationship between tone and accent in Mande prosodic systems. The authors argue for their chosen theoretical underpinnings and apply their ideas to mono- and polysyllabic words in Kita Bambara.

112. Diagana, Yakouba. "La Tonalite du Constituant Nominal en Soninke." *Mandenkan* 19 (1990): 13-38.

Diagana explores the various lexical and grammatical outcomes resulting from the placement of contrasting tones in different combinations on nouns in Soninke. The author then suggests that the tonal schemes of nouns in this language fit into one of three paradigms, providing relevant examples demonstrating this point. The article concludes with examples illustrating the various ways in which tones map from segmental tiers onto words, thereby resulting in a number of different phonetic outputs and tonal contours.

113. Diarra, Sékou Oumar. "Le Système Tonal du Fuladugukakan." *Mandenkan* 23 (1992): 25-66.

Diarra explores the similarities and differences in the tonal system of Fuladugukakan, a Mande language similar to Bambara spoken widely in rural Mali, in comparison to other larger Mande dialects spoken in the area. The author explains that Fuladugukakan offers linguists a wealth of information on many levels due to the fact that it is spoken on and across a major isogloss boundary in southern Mali.

114. Dramé, Mallafé. "Aspects of Mandingo Grammar." Ph.D. dissertation, University of Illinois at Urbana-Champaign, 1981.

Dramé devotes the second chapter of his thesis to describing the morphotonology of Mandingo, a Mande language spoken in western Mali and surrounding areas. He explores the tonal components of the language, including the ways which they interact with one another in nouns, adjectives, and verbs. Dramé devotes particular attention to the representation of tones in Mandingo noun phrases, as well as those found in phrase-final positions.

115. Dumestre, G. "Contribution a l'Etude des Tons du Bambara." *Mandenkan* 7 (1984): 63-74.

Dumestre presents an overview of several opinions proposed by linguists to explain with some simplicity the tonal patterns observed in nouns in Bambara, a Mande language spoken in Mali. One of the key components of the arguments presented concerns whether or not one can posit that nouns in this language follow a pattern of assimilation or dissimilation. The author concludes that, in order to determine the true motivations behind tonal patterns in these words, it is necessary to look beyond this lexical category and outside the standard Bamako dialect for comparison.

116. Keita, Boniface. "La Compacité Tonale dn Dialonke." *Mandenkan* 18 (1989): 61-68.

This article provides information about the tonal interactions observed in Dialonke, a northern Mande language spoken in several nations in West Africa. Keita provides examples of phonetic output in several Mande languages that result from tonal juxtapositions, illustrating that the observed tonal behavior of Dialonke differs from that of other languages in this family. The author concludes that there must be a law of "tonal compactness" governing this process of juxtaposition that produces differing phonetic outcomes in these languages.

117. Koné, Moriba. "La Tonalité des Substantifs Dans le Parler Mandingue de Gbéléban." *Mandenkan* 26 (1993): 21-66.

Koné describes the constituent tones and some tonal features of Gbéléban, a Mande language spoken in northwestern Ivory Coast, in comparison to other closely related languages spoken in the same region as described by other linguists. The author focuses on the tonal features of grammatical substantives, including the ways in which determination is represented on them tonally. The author concludes that the observed tonal behavior in Gbéléban represents an important way in which this language differs from others surrounding it.

118. Koulibaly, Bakary. "Le Phénomène du Rehaussement Tonal en Jula." *Mandenkan* 6 (1983): 9-20.

Koulibaly explores various instances of tonal enhancement in Jula, a Mande language spoken in northern Côte d'Ivoire. The author presents data illustrating six unique types of tonal enhancement which, he argues, are the result of various phonotactic, morphological, and articulatory constraints present in the language.

119. Mountford, Keith William. "Bambara Declarative Sentence Intonation." Ph.D. dissertation, Indiana University, 1983.

This thesis is an analytical look at the acoustic properties of high and low tones in Bambara, a Mande language spoken in Mali and surrounding countries. Mountford develops a system by which one can analyze the tones in Bambara, which then allows him to offer an explanation for the degree of downstep in high tones that appears to be consistent in various phrases and sentences in the language.

120. Mugele, Robert, and Michael Rodewald. "Aspects of Bandi Tonology." *Studies in African Linguistics* 22, no. 2 (1991): 103-34.

This article covers three distinct topics related to tonology in Bandi, a southwest Mande language spoken in Liberia. A point of key interest in this article is the presence of opaque low tones in Bandi, a feature whose characteristics become apparent only when interaction with other surrounding high tones occurs. The authors separate the rules of Bandi tonology into phonetic and morphological categories based upon their particular domains of application. The authors include that this study is non-exhaustive and that other tonal phenomena exist in Bandi related to vowel gemination and elision vowel and tonal melody assignment. The authors close by suggesting that the Obligatory Contour Principle presents an unnecessary complication to the study of Bandi tonology and that the best solution to analyzing tones in Bandi is to consider the assignment of underlying tonal melodies for specific sentence constituents.

121. Rialland, Annie. "La Structure du Système Tonal Soninké." *Linguistique Africaine* 5 (1990): 49-76.

The information that Rialland discusses in this paper serves as a continuation of earlier work by the same author and colleagues on the tonal system of Mande languages. Previous studies focused on Bambara, while this study explores Soninke, both languages spoken in Mali. The author explains that much of the study devoted to these languages has been done in order to propose a scheme or system of analysis of the tonal phenomena present in this language family. This paper in particular focuses on nominal and verbal tonal structures.

122. Rialland, Annie, and Mamadou Badjime. "Reanalyse des Tons du Bambara: Des Tons du Nom à l'Organisation Générale du Système." *Studies in African Linguistics* 20, no. 1 (1989): 1-28.

Rialland and Badjime provide a description of tonal phonology in Bambara as a comparison to that found in Mende. The Mende analysis, in turn, draws from earlier work by Leben (1978). Their article describes the presence of a floating high tone in Bambara nouns, including the ways in which these tones interact progressively. The authors pay particular attention to tones found on the ultimate syllable in Bambara nouns and the ways in which these tones spread to other sentence components that follow them, including adpositions and auxiliaries. They term the phenomenon that they describe in this paper as "ton haut de liaison". Additional points of discussion include high tone downstep and non-association. Although the article is written in French, individuals with knowledge of Bambara and limited knowledge of French may find the examples useful.

123. Rodewald, Michael Kenneth. "A Grammar of Bandi and Mende Tone." Ph.D. dissertation, The University of Texas at Arlington, 1989.

Rodewald, after extensive field research in Liberia, is the first to describe the tonal system of Bandi in this thesis. He relates his observation of tonal structure in Bandi to Mende, languages that are closely related to one another in the southwest Mande subfamily. The author explores variations in tonal forms between the two languages and challenges previous analyses of Mende tonology offered by Leben in his 1973 dissertation (also found in this bibliography).

124. Sanogo, Mamadou Lamine. "Tons, Segments et Règles Transformationnelles en Jula." *Mandenkan* 30 (1995): 41-54.

This article represents an attempt by Sanogo to define the tonal system of Jula, a Mande language spoken in both Mali and the Ivory Coast, in terms of three distinct components. The author argues that a system of autosegmental analysis applied to the tonal system of Jula remains the most sufficient way to account for observed data, even in light of more recent theoretical considerations offered since the early 1970s.

125. Vydrine, Valentin F. "Tonal System of Looma Language." *Mandenkan* 18 (1989): 81-98.

Vydrine explores the relation of tonal phenomena in several dialects of Looma, a Mande language spoken in Liberia, to data that she has collected on a dialect spoken in Guinea. While the author does not include a significant amount of data of her own collection, she does compile and comment on the relationship between syllable structure and tone in these various dialects. The author concludes that the tonal systems of these dialects may well be in a state of fluctuation or decline due to the variations in data collected by different linguists over a period of approximately forty years.

Reference Materials

126. Childs, G. Tucker. *An Introduction to African Languages*. Amsterdam/Philadelphia: John Benjamins Publishing Company, 2003.

Childs devotes a sizable portion of this work to information about tone in the phonetic and phonological systems of African languages. The treatment by the author is not meant to be comprehensive but rather an overview of necessary concepts one must know when studying tonal African languages. Specific areas of focus include grammatical tone, tonogenesis, tonal phonological rules, and downdrift/downstep.

127. Chomsky, Noam, and Morris Halle. *The Sound Pattern of English*. New York, Evanston, and London: Harper & Row Publishers, 1968.

This book, by two of the leading and most well-known minds in linguistics, is an often-cited reference to many of the theoretical underpinnings that have helped to steer the study of phonology and phonetics for nearly a half century. The book follows the principles of generative linguistics and linguistic universalities. Although the book does not directly cite African languages or the study of tonology, it does contain detailed information and discussion on many linguistic components that must figure into the study of prosodic phonology and phonetics.

128. Clements, G. N. "The Hierarchical Representation of Tone Features." In *Current Approaches to African Linguistics*, edited by Ivan R. Dihoff, 145-76. Dordrecht: Foris Publications, 1983.

Clements proposes a new comprehensive framework within which linguists can analyze the tonal features of a language. He takes as his points of discussion the necessity of analyzing both tone

level and tone terracing in tonal languages. The author proposes creating basic feature categories for each of these phenomena which one can expand to subcategories if necessary for a given language. Clements argues that this framework easily accounts for other tonal phenomena such as floating tones and downstep. This work clearly supports the description of tonal phenomena in terms of linguistic universalities rather than as language-specific features.

129. Creissels, Denis. *Aperçu Sur les Structures Phonologiques des Langues Négro-Africaines*. 2 ed. Grenoble: Ellug, 1994.

This work provides a thorough and comprehensive description of the tonal features found in many African languages while concentrating on methods of analysis and identification of key components of tonal systems. Creissels explores the various vocalic and consonantal features of African languages before delving into the various tonal interactions that one can expect to find in languages spoken in sub-Saharan Africa. Specific areas of focus include tonal alternations, tone polarity, and features of tonal systems versus those of pitch and/or accent systems.

130. Cruttenden, Alan. *Intonation*. Edited by Bernard Comrie, C. J. Fillmore, R. Lass, R. B. le Page, J. Lyons, P. H. Matthews, F. R. Palmer, R. Posner, Susan Romaine, N. V. Smith, J. L. M. Trim and Arnold Zwicky, Cambridge Textbooks in Linguistics. Cambridge: Cambridge University Press, 1986.

This text, along with its companion volume in the Cambridge series, *Tone*, serves as a helpful reference to any linguist studying autosegmental and prosodic features of phonology. Although the content of this work draws mainly from English phonology, one can easily transfer the concepts included to other languages. Cruttenden discusses stress, accent, rhythm, and larger sentential and phrasal intonation schemes and functions.

131. Fromkin, Victoria A., ed. *Tone: A Linguistic Survey*. New York, San Francisco, London: Academic Press, 1978.

This volume includes work by many experts in tonal phonetics and phonology, many of whose later works are also included in this bibliography. The papers included in this book focus on theoretical considerations of tonal phenomena, rather than on the description of individual languages. Chapter topics include tone production, perception, and representations, as well as historical tonology and tone acquisition.

132. Goldsmith, John A. "Autosegmental Phonology." Ph.D. dissertation, Massachusetts Institute of Technology, 1976.

John Goldsmith, currently of the University of Chicago, provided a significant contribution to the study of tonal and prosodic phonology with the completion of this dissertation. This work is one of the first to describe, in detail, the idea of segmental tiers of linguistic features in a language, a theory that the field would grow to know as autosegmental phonology. Goldsmith explains the ways in which the thesis grew out of earlier ideas about suprasegmental phonology. This is one of the most often cited works in the field of African prosodic phonology, as it introduced several important tonal phenomena to African linguistics.

133. Goldsmith, John A. *Autosegmental and Metrical Phonology*. Oxford: Basil Blackwell, Inc., 1990.

This book is one of the most often-cited in work on prosodic and tonal phonology, due to the fact that such a vast number of studies on African tonal languages utilize an autosegmental phonological framework for analysis. Chapter topics include an introduction to autosegmental phonology, skeletal tiers, syllable structure, lexical phonology, and metrical phonology.

134. Hombert, Jean-Marie, John J. Ohala, and William G. Ewan. "Phonetic Explanations for the Development of Tones." *Language* 55, no. 1 (1979): 37-58.

Individuals interested in exploring the phonetic treatment of tonal phenomena will find this article an important reference. The authors provide an explanation of tonogenesis based upon data they observe in a variety of languages. The authors argue that a number of phonetic, phonological, and phonotactic factors influence the development of a variety of tonal systems in the languages of the world.

135. Huang, C. T. J. "The Autosegmental and Metrical Nature of Tone Terracing." In *African Linguistics: Essays in Memory of M. W. K. Semikenke*, edited by Didier L. Goyvaerts, 209-38. Amsterdam/Philadelphia: John Benjamins Publishing Company, 1985.

This article by Huang is a descriptive look at tone terracing that one can readily apply to various African tonal languages. The author explores various tone terracing concepts through metrical analysis and argues that prosodic features of language, such as tone, pitch and stress, though related, should be considered independently of one another. Huang claims that the necessity of such an independent treatment is so that linguists may make theoretical observations or apply rules to one feature without concern for an impact on the others.

136. Hyman, Larry M. "Syllable Structure Constraints on Tonal Contours." *Linguistique Africaine* 1 (1988): 49-60.

This article is of particular interest in its universality of application to many different tonal languages in Africa. Hyman provides a description of several tonal schemes utilized by African languages that differ according to their tone bearing unit and method of tone assignment. This paper focuses on languages of a type that have tone associated to the mora and have the ability to have more than one mora per syllable. By using this language type as a model, Hyman explores the complexities of tonal contours and their contrasts on mono- and bi-moraic syllables.

137. Hyman, Larry M., and Russell G. Schuh. "Universals of Tone Rules: Evidence from West Africa." *Linguistic Inquiry* 5, no. 1 (1974): 81-116.

This article is one of great importance in studying the tonal aspects of languages. Hyman and Schuh move beyond the work of their contemporaries by focusing on the phonetic realizations of tone, rather than their underlying representations. This article surveys and describes a number of possible pitch/tone systems in various African languages while using examples to explore general tonal tendencies in these languages. Some of the phenomena highlighted by the authors

include downstep, low-high raising, tone spreading, tone polarization, and consonantal interactions. The reference section for this article is a great place to find bibliographic information about old seminal works about tonal phonology and phonetics.

138. Kager, René. *Optimality Theory*. Cambridge: Cambridge University Press, 1999.

This work is yet another publication in the Cambridge Textbooks in Linguistics series. The book offers an important reference to African linguists in that a great number of phonologists studying African tonal languages have utilized and continue to utilize optimality theoretic frameworks for their phonological and syntactic analyses.

139. Leben, William R. "Suprasegmental Phonology." Ph.D. dissertation, Massachusetts Institute of Technology, 1973.

This thesis is one of several seminal works centering on the description and analysis of the tonal features and properties of African languages. Particular languages described in this work are Mende, Tiv, Maninka, Bambara, and Hausa. Although portions of the analysis and conclusions that Leben offers in this work have long since been dismissed by other linguists in the decades following its completion, the thesis remains an often-cited reference for Africanists studying tonal phonology and other prosodic phenomena. Owing to the time during which Leben wrote this thesis, the analysis follows a generative linguistic framework.

140. Nespor, Marina, and Irene Vogel. *Prosodic Phonology*. Vol. 28, Studies in Generative Grammar. Dordrecht: Foris Publications Holland, 1986.

The work by Nespor and Vogel is an important reference for Africanist linguists interested in learning and exploring the theoretical basis and experimental techniques for prosodic and autosegmental phonology. Although the languages from which the authors draw data in this book are mostly from Indo-European stock, the concepts that they explore have wider applications in African linguistics. Chapter topics include the syllable, the phonological word, clitics, phrases, utterances, and intonation.

141. Odden, David. "On the Role of the Obligatory Countour Principle in Phonological Theory." *Language* 62, no. 2 (1986): 353-83.

This article by Odden is an argument against the utility of application of the Obligatory Contour Principle. Odden uses evidence and his experience with many languages of Africa to show that the Obligatory Contour Principle, previously classified as a non-violable constraint in phonology, is in fact readily violated in many languages. A significant contribution of this particular article is the suggestion by Odden to consider the various types of associations between tones and vowels in autosegmental phonology as distinct from one another.

142. Odden, David. "Domains and Levels of Representation in Tone." Paper presented at the 1st World Congress of African Linguistics, Kwaluseni, Swaziland 1994.

Prosody and Intonation in Non-Bantu Niger-Congo Languages

David Odden, of Ohio State University, provides a thorough and comprehensive look at the historical treatment of tonal representation in languages. Though one usually associates Odden with the tonal study of Bantu languages, the author draws information and examples from a variety of African languages in several language families spanning sub-Saharan Africa. Linguists, whether they are interested in African languages or not, will find this article a beneficial addition to their library.

143. Odden, David. "Tone: African Languages." In *The Handbook of Phonological Theory*, edited by John Goldsmith, 1995.

This article serves as a comprehensive quick reference on many topics related to tonology in African languages. Odden discusses autosegmental theory, feature geometry, phonological conditions and principles to which some linguists claim tones are subject. The author also devotes a portion of the paper discussing the relationship between tone and accent languages.

144. Rialland, Annie. "Tonologie Africaine et Modélisation Prosodique." In *Théories Linguistiques et Langues Sub-Sahariennes*, edited by P. Sauzet and A. Zribi-Hertz. Paris: L'Harmattan, 2004.

This article offers an interesting perspective on how the study of African tonal languages has given direction to the general study of prosodic phonology and phonetic theory. Rialland comments on previous work on African prosodic phonology as well as her own research to highlight methods of analysis that have been shaped by the study of African tonal languages, as well as by the study of prosody in French.

145. Singler, John Victor. "The Status of Lexical Associations and the Obligatory Contour Principle in the Analysis of Tone Languages." In *African Linguistics: Essays in Memory of M. W. K. Semikenke*, edited by Didier L. Goyvaerts, 491-509. Amsterdam/Philadelphia: John Benjamins Publishing Company, 1985.

Singler discusses the constraints imposed by the obligatory contour principle and other tenets of autosegmental and suprasegmental phonology at length in this article. The author draws data for this article from several different African languages that have been revisited and revised from earlier work by other authors. The question at hand throughout the article is whether the highly constrained frameworks of these theories can effectively account for the linguistic forms observed. Singler argues in his conclusion that, although the tenets of autosegmental phonology are more constrained than those of revised suprasegmental phonology, it is still the preferred method for analysis based upon observed data.

146. van der Hulst, Harry, and Norval Smith, eds. *The Structure of Phonological Representations*. Vol. 1/2. Dordrecht: Foris Publications, 1982.

These two volumes include a number of papers dealing with prosodic and intonational phonology that focus on both African languages and languages spoken on other continents around the globe. The editors describe the papers included in this set as dealing with "three-dimensional phonology", a term that has fallen out of fashion. Nonetheless, the volumes contain

interesting and important papers from linguists whose work is found elsewhere in this bibliography; among them Goldsmith, Hyman, and Leben.

147. van der Hulst, Harry, and Norval Smith, eds. *Autosegmental Studies on Pitch Accent*. Dordrecht: Foris Publications, 1988.

This edited volume is quite original in its scope considering that there exist relatively few languages that have pitch accent systems around the world. The editors offer an introduction illustrating the placement of pitch accent languages among other prosodic systems. Several of the papers included in this work explore the peculiarities of these unusual prosodic systems specifically in African languages of different genetic stock.

148. van der Hulst, Harry, and Keith Snider, eds. *The Phonology of Tone: The Representation of Tonal Register*. Berlin, New York: Mouton de Gruyter, 1993.

Many of the contributing authors to this volume are well-known Africanists whose work the reader will find elsewhere in this bibliography. The works included in this volume explore a variety of possibilities for the representation of a tonal register in tonal languages around the world. The introduction by the editors is a helpful reference and review of contemporary theories on the subject.

149. Westermann, Diedrich, and Ida. C. Ward. *Practical Phonetics for Students of African Languages*. 2 ed. London/New York: Kegan Paul International Ltd, 1990.

This book remains an indispensable tool for students and professionals alike who are looking for information on describing and comparing African languages based on their phonetic and phonological features. This book by Westermann and Ward, first published in 1930, includes a portion of their book specifically to the study of tone languages and the appropriate methodologies with which to record data. In addition to methodological information, the authors include several key examples from tone languages as well as exercises for the student to train oneself to hear and use tones.

150. Williams, Edwin S. "Underlying Tones in Margi and Igbo." *Linguistic Inquiry* 7, no. 3 (1976): 463-84.

This is an exceptionally important article to individuals seeking a historical explanation of the progress made in the study of tonal phonology. Williams explores competing theories of tonal phonology (segmental, syllabic, morphemic), all of which were considered plausible at the time that this article was written. Williams is the first to introduce the idea of tone mapping to explain the abstract relationship between segmental and autosegmental tiers.

151. Yip, Moira. *Tone*, Cambridge Textbooks in Linguistics. Cambridge: Cambridge University Press, 2002.

Linguists interested more specifically in lexical and grammatical tone, rather than with larger phrasal and sentential prosodic structures will find this work a helpful reference. Yip defines,

discusses, and illustrates many properties of tones and tonal phenomena in a variety of theoretical treatments ranging from a generative framework, to autosegmental phonology, and optimality theory. The author devotes a portion of the text specifically to the description of tonology in African languages within which she uses features of Igbo as prototypical examples.

152. Zhang, Jie. *The Effects of Duration and Sonority on Contour Tone Distribution: A Typological Survey and Formal Analysis*. Edited by Laurence Horn, *Outstanding Dissertations in Linguistics*. New York/London: Routledge, 2002.

Zhang draws information from a number of different tonal languages spoken around the world in this thesis. While the work does concentrate on a general typological comparison of the behavior of contour tones, the author does include case studies and instrumental studies of particular African languages demonstrating his arguments that are of interest for this bibliography.

153. Zhiming, Bao. "On the Nature of Tone." Ph.D. dissertation, Massachusetts Institute of Technology, 1990.

Although this thesis does not touch upon the subject of tone in African languages, the material and analysis contained within it are a valuable asset to those analyzing any language that has tonal features. Zhiming illustrates the properties of tone in Chinese through a feature geometry analysis, where register and contour are represented as constituents of tone, thereby leading him to posit that tone is defined by laryngeal features of its component parts. Zhiming later argues that the geometric properties of tone require that one consider it to be located on the same autosegmental plane as the syllable, rather than on a plane of its own.

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