Phonology in Grammar Writing

Keren Rice

University of Toronto

rice@chass.utoronto.ca

International Symposium on Grammar Writing:
Theoretical, Methodological, and Practical Issues
8 December 2009

I.   Introduction

1.   The topic: Phonology in grammar writing
In descriptive grammars, it seems to be the case that the phonology tends to get much less coverage in comparison to the morphosyntax.

- Why is this the case?

- What is the problem caused by this tendency?

- What kinds of and how much phonological information should a well-balanced descriptive grammar contain?

2.   My interests

3.   A roadmap through this talk
a.   What is a grammar?

b.   Who is the audience?

c.   Is phonology given short shrift in grammars?

d.   Why might there be a perception that phonology is given short shrift?

e.   How do grammars represent phonology? A brief chronological survey

f.   A return to the question: Does phonology receive less coverage than it should? The initial questions revisited

II.   Some context 1: What is a grammar?

4.   On grammars
Nicholas Evans and Alan Dench. 2006. Introduction. In Felix K. Ameka, Alan Dench, and Nicholas Evans (editors). *Catching language: the standing challenge of grammar writing*. Berlin: Mouton de Gruyter. 1-39
"Descriptive grammar are our main vehicle for representing the linguistic structure of the world's 6,000 languages in all their bewildering variety. Each grammar seeks to bring together, in one place, a coherent treatment of how the whole language works, and therefore forms the primary source of information on a given language, consulted by a wide range of users: areal specialists, typologists, formal linguists, historical linguists, and members of the speech communities concerned. The writing of a descriptive grammar is a major intellectual and creative challenge, often taking decades to complete. It calls upon the grammarian to balance a respect for the distinctive genius of the language with an awareness of how other languages work, to combine rigour

with readability, to depict elegant structural regularities while respecting a corpus of real and sometimes messy material, and to represent the native speaker's competence while recognizing the patterns of variation inherent in any speech community.

What does it mean to write a descriptive grammar? The grammarian seeks to capture the essential structural features of a language, and in codifying these presents them to a diverse and critical audience … The grammar writer must be sensitive to this diversity. While letting the language 'tell its own story', and while letting its speakers 'speak for themselves, creating a record of spontaneous speech in natural communicative setting' (Mithun 2001: 53), the grammarian must still locate their description within the broad comparative concerns of linguistic typology and the received traditions of description within a language family. But at the same time they must remain open to new analyses that are either more comprehensive or insightful or less bound by a particular traditional descriptive template. A grammar should also be written with a respect for the constantly evolving questions and concerns of formal linguistic modeling…

… the grammarian must incessantly struggle with what should be in the grammar and what should be left out, of where the boundaries lie between grammar and lexicon, between linguistic description and ethnography, between one linguistic variety and another, and between the current state of the language and its evolving history. The question of when to formulate explanation, and when to stop at description, always lurks close at hand. The boundary between description and prescription can also become blurred, since as soon as one admits speaker acceptability judgments as sources of data alongside a naturalistic corpus these may call forth prescriptive biases." Evans and Dench 2006:1-2

5. A grammar should:
    a. Capture the essential features of a language
    b. Be sensitive to the diversity of the audience
    c. Let the language tell its story
    d. Be located in the broad comparative concerns of typology and traditions in the family
    e. Be open to more comprehensible or insightful analyses
    f. Respect constantly evolving theoretical concerns

6. In terms of phonology
    a. What are the essential features of a language?
    b. How do these interact with other aspects of the language?

III.   Some context 2: The larger setting for grammars

7.   "Each grammar seeks to bring together ... a coherent treatment of how the whole language works, and therefore forms the primary source of information on a given language, consulted by a wide range of users: ... and members of the speech communities concerned." Evans and Dench 2006: 1

8.   The need for grammar-writing
      Noonan, Michael. 2005. Grammar writing for a grammar reading audience. In Thomas Payne and David Weber (guest editors) *Studies in Language* 30.2. 351-365.
      "– We have full-scale grammars and dictionaries and abundant textual material for perhaps 500 languages;
      – We have grammatical sketches or short grammars, and dictionaries for perhaps another 2000 languages — many of these are of poor quality;
      – We have only rudimentary documentation [word lists, a few sentences, perhaps a paper on some aspect of the grammar] for another 2500 languages;
      – We have little useful grammatical or lexical data for about 2000.
      So, not only are most of the world's languages inadequately described, but given the rate at which languages are becoming moribund or extinct, we are engaged in a race against time ... to preserve as much of the world's linguistic heritage as possible." Noonan. 352

9.   Grammars are playing a key role in language conservation, language revitalization, and language reclamation.

10.   Focus of this work
      Grammars of undescribed/underdescribed and mostly endangered languages

11.   Audience
      a.   The multifaceted audience described by Evans and Dench
            "consulted by a wide range of users: areal specialists, typologists, formal linguists, historical linguists, and members of the speech communities concerned"

      b.   Mithun, Marianne. 2005. Grammars and the community. In Thomas Payne and David Weber (guest editors). *Studies in Language* 30.2. 281-306.
            "It is not yet clear whether one grammar can serve all potential audiences [linguists, interested laymen, community members] and purposes. Whether it can or not, however, there is a good chance that it will eventually be pressed into service for more than one. This likelihood is increased in the case of endangered languages, where further description may not be possible." Mithun 281

      c.   Speakers and learners of a language are working on revitalization and reclamation with whatever material on the language is available.

12. The goal of a grammar reviewed
    Capture the essential features of a language

13. Important questions
    a. What are essential features with respect to phonology?

    b. How can phonology be presented to meet the needs of the various audiences, focusing to some degree on the audience that might someday be interested in revitalization and reclamation?

IV. Is phonology given short shrift in grammars?

14. Answer 1: Yes

15. Some evidence: Phonology receives little attention in the recent books on grammar writing
    a. Ameka, Evans, and Dench 2006
       Papers on general topics: art and craft of grammar writing, the roles of native and non-native speakers, cross-linguistic grammatography, linguistic typology, basic linguistic theory, the role of theory in grammar, the grammar-lexicon trade-off, field semantics, diachrony and synchrony, polylectal grammars, writing culture in grammar
       Papers on specific topics: word order, function words, converbs, 'disposal' constructions in Sinitic languages, ma- in Taglog

    b. Payne and Weber 2005
       Papers on general topics: contextualizing a grammar, grammar and the community, collective fieldwork, growing a grammar
       Paper on specific topics: from parts of speech to the grammar

    c. Munich survey, 1995 (Linguist List May 1995; summary of results reported October 1995)
       A grammar should have an emphasis on morphology and syntax.

16. Answer 2: No
    The balance with syntax
       Cristofaro, Sonia. 2006. The organization of reference grammars: A typologist user's point of view. In Felix K. Ameka, Alan Dench, and Nicholas Evans (editors). *Catching language. The standing challenge of grammar writing*. Mouton de Gruyter. 2006. 137-170
       "… it was not uncommon for grammars written until about the '80s to privilege phonology and morphology over syntax. Thus, several grammars written in that period have long and detailed sections about noun and verb structure, while the space devoted to sentence structure is comparatively limited" Cristofaro 138

17. Yes or no?
    a. We must understand what phonology is, and what phonology is necessary in a grammar, to know if the answer is yes or no.

    b. Maybe the absence of discussion of phonology is because there is no debate about what phonology consists of.

V. Why might there be a perception that phonology is given short shrift?

18. The traditional goals of grammars

    An important goal of traditional grammars
    Describe a language to help in reading it.

    Old English
    Mitchell, Bruce and Fred C. Robinson. 1992. *A guide to Old English*. Fifth edition. Blackwell.
    The grammar is good for "those wishing to acquire a reading knowledge of the language. But potential specialists in phonology should find it a help in their preliminary studies of the essential grammar."

    Wright, Joseph and Elizabeth Mary Wright. 1925. *Old English grammar*. Third edition. London: Oxford University Press.
    "… we should strongly recommend the beginner not to work through the phonology at the outset … In fact, it is in our opinion a sheer waste of time for a student to attempt to study in detail the phonology of any language before he has acquired a good working knowledge of its vocabulary and inflexions."
    (preface to the first edition)
    Beyond a chapter on orthography and pronunciation that includes information on vowels, consonants, and accentuation, the phonology in this grammar deals largely with comparative and historical phonology.

19. Is phonetics/phonology part of grammar?
    University College, London: Department of Phonetics and General Linguistics was formed in 1971, amalgamating two former departments

20. Representing sound is a challenge 1
    Goddard, Ives. 1996. The description of native languages of North America before Boas. In Ives Goddard (editor). *Handbook of North American Indians*. Volume 17. Languages. Washington: Smithsonian Institution. 17-42.
    "From the beginning visitors who came into contact with American Indians recorded individual words and word lists. All early recorders struggled with the problem of writing unfamiliar sounds with the imprecise alphabets of standard European languages. This problem of phonetic accuracy remained until a comprehensive scientific understanding of phonetics emerged, beginning in the last third of the nineteenth century. Before there was a general science of phonetics, students of language had no way of accurately describing and hence understanding how sounds were produced by the organs of speech, and hence

even when an observer learned to recognize a new sound there was no way of defining a new phonetic symbol for it or of otherwise communicating clearly to others the nature of the sound. Thus there was little effective cumulative knowledge about the sounds used in the languages of the world." Goddard 17

21.   Representing sounds is a challenge 2: transcription systems do not give full details
       What is, for instance, [u]? [t]?

22.   Representing sounds is a challenge 3: variation
       There is often considerable variation in pronunciation.
           e.g., Dene variation between [j] and [ʒ]
           "There is widespread variation between [zh] and [y] in morpheme-initial position, with both /zh/ and /y/ varying. This variation is apparently free, and is at the least not controlled by phonological factors." Rice, Keren. 1989. *Grammar of Slave*. Berlin: Mouton de Gruyter. 32

prefix-initial	stem-initial
y	y ~ ʒ
y ~ ʒ	y ~ ʒ
(ʒ	ʒ)
(y	y)

23.   Representing sounds is a challenge 4: the understanding of sounds is filtered through the native language
       Boas, Franz. 1911. Introduction. *Handbook of American Indian Languages*. Vol. 1. Bureau of American Ethnology, Bulletin 40. Washington: Government Print Office, Smithsonian Institution, Bureau of American Ethnology.
       "It has been maintained that this is not a characteristic found in more primitive types of languages, and, particularly, examples of American languages have often been brought forward to show that the accuracy of their pronunciation is much less than that found in the languages of the civilized world. It would seem that this view is based largely on the fact that certain sounds that occur in American languages are interpreted by observers sometimes as one European sound, sometimes as another. Thus the Pawnee language contains a sound which may be heard more or less distinctly sometimes as an *l*, sometimes an *r*, sometimes as *n*, and again as *d*, which, however, without any doubt, is throughout the same sound, although modified to a certain extent by its position in the word and by surrounding sounds. ... This peculiar sound is, of course, entirely foreign to our system; but its variations are not greater than those of the English *r* in various combinations, as in broth, mother, where."

24.   Theoretical developments
       a.   "Recent advances in semantic fieldwork ... have begun to give us better techniques for tackling these problems" [production of good meaning-based grammars] Evans and Dench 2006: 16

b.   Just as semantics, the scope and methods of phonology are evolving.

25.   Summary
       There are several reasons why phonology might be seen to receive less attention, including historical reasons, the challenges of representing sound on the page, problems in interpreting sound, and theoretical changes in what phonology is considered to be.

VI.   A brief survey of what is included in phonology: 'early' days (focus on North America)

26.   Petitot , Emile. 1876. F. S. 1876. *Dictionnaire de Langue Dene-Dindjie, dialectes Montagnais ou Chippewyan, Peaux de Lievre et Loucheux, etc.* Paris: E. Leroux. 367 pp.
       a.   The alphabet

       b.   A description of how the sounds are made

       c.   Discussion of 'semantics 'of consonants

VII.   Boas, Sapir, and Haas

27.   Boas, Franz. *Introduction to the Handbook of American Indian Languages.*
       "In our present discussion we … confine ourselves to the discussion of articulate speech: that is, to communicate by means of groups of sounds produced by the articulating organs – the larynx, oral cavity, tongue, lips, and nose." 11

       "One of the most important facts relating to the phonetics of human speech is, that every single language as a definite and limited group of sounds, and that the number of those used in any particular dialect is never excessively large." 11

28.   Sapir, Edward. 1912. *The Takelma language of southwestern Oregon. Handbook of American Indian Languages.* Bulletin 40. Bureau of American Ethnology. pp. 1-296. Reprinted in Golla, Victor (editor). 1990. *The collected works of Edward Sapir VIII: Takelma texts and grammar*. Berlin: Mouton de Gruyter.
       Phonology: sections 2-24
       Section 2.   Introduction, comparing with other geographically close languages
       Section 3.   Vowels: description of the vowels
       Section 4.   System of vowels:
              Vowel/glide alternations
              biliut'e$^{\varepsilon}$ 'I jump'   biliwa`t' 'you jump'

              minimal pairs
              gai- 'eat'   gāi- 'grow'

                "It is, naturally enough, not to be supposed that the long vowels and diphthongs always appear in exactly the same quantity. Speed of

utterance and, to some extent, withdrawal of the stress-accent, tend to reduce the absolute quantities of the vowels, so that a normally long vowel can become short, or at least lose its parasitic attachment … On the other hand, vowels naturally short sometimes become long when dwelt upon for rhetorical emphasis." 12-13

Description of vowels, with comparison to vowels in other languages "The *e* is an open sound, as in the English LET; it is so open, indeed as to verge, particularly after *y*, toward *a*. … The *i* is about the same quality as in English HIT, while the long ī¹ is closer, corresponding to the eat of English beat." 13

Section 5. 	Stress and pitch-accent
"In the uninterrupted flow of the sentence it becomes often difficult to decide which syllable of a word should be assigned the stress-accent. … it not infrequently happens that the major part of a clause will thus be strung along without decided stress-accent until some emphatic noun or verb-form is reached. … the following passage occurs in one of the myths:
qanēhiᵋ dewenxa lāᵃlē honoᵋ p'ele´xᵋ 	literally translated, And then to-morrow (next day) it became, again they went out to war
All that precedes the main verb-form p'ele´xaᵋ THEY WENT OUT TO WAR is relatively unimportant, and hence is hurried over without anywhere receiving marked stress.
Nevertheless a fully accented word is normally stressed on some particular syllable." 15

Musical notation is used to show tone levels.

Section 6. 	Vowel hiatus
"So carefully, indeed, is each vowel kept intact that the hiatus is frequently strengthened by the insertion of a catch." (written with ᵋ) 38
Section 7. 	Dissimilation of u
Section 8. 	i-umlaut
regressive assimilation of non-radical –a- to –i- before –i- in following suffixed syllable 24
Section 9. 	k- sounds preceded by u- vowels
Section 10. 	Inorganic a
Section 11. 	Simplification of double diphthongs
Section 12. 	System of consonants
discussion of pronunciation, organization of chart
Section 13. 	Final consonants
Section 14. 	Consonant combinations: general remarks
Section 15. 	Initial combinations
Section 16. 	Final combinations
Section 17. 	Medial combinations
Section 18. 	Dropping of final consonants
Section 19. 	Simplification of double consonants

Section 20.   Consonants before x
Section 21.   Dissimilation of n to l and m
      yalalana`t' 'you lost it' (cf. yalnanada´ᵋ you will lose it, with *n* preserved
      because it forms a consonant-cluster with *l*)
Section 22.   Catch dissimilation
Section 23.   The influence of place and kind of accent on manner of articulation
Section 24.   Inorganic *h*

Areas that are now considered under phonology: reduplication, ablaut

29.   Haas, Mary. 1940. *Tunica*. Extract from *Handbook of American Indian languages*
    4. New York: J.J. Augustin. 1-143.
    phonetics
       phoneme charts
       syllable types (stressed and unstressed)
       tone
       sound descriptions: : "*e* is a somewhat close mid front vowel (cf. *a* in Eng.
       make); ε is a low vowel, slightly closer than the *a* of Eng. *mat* but no so
       close as the *e* of Eng. *met*" (15)
       consonant clusters
    phonomechanics
       internal sandhi (vocalic contraction, assimilation, and syncope)

30.   The information on phonology found in the Takelma and Tunica grammars
    forms the core template for phonology in the grammars I surveyed.

    Phonology: list of sounds, pronunciation (consonants, vowels, prosody)
    Phonotactics
    Allophones and allomorphs

VIII.   Two grammars from 1964

31.   Southern Sierra Miwok
    Broadbent, Sylvia M. 1964. *Southern Sierra Miwok language*. Berkeley:
    University of California Publications in Linguistics 38.

    Consonant system. Defined in terms of Bloch and Trager
    Positional variants
    vocalic system: chart, variation in quality
    distribution
    syllable canon and stress
    intonation and juncture
    phonological definition of word
    morphophonemics
    Individual variation
    "The phone [s�] occurred only in the speech of Chief Leeme. The alveolar variant
    appeared only in forms said to represent the Yosemite dialect, or when the

informant was slightly inebriated. Castro Johnson, who lived in Yosemite for several years as a young man, accepted such forms as characteristic of Yosemite speech. Other informants, however, said that they did not represent Yosemite or any other Southern dialect, saying that the alveolar spirant was a Central Sierra feature. Only Chief Leeme claimed to speak the Yosemite dialect; other informants refereed to their memory of the speech of undisputed Yosemite individuals, now deceased. If this variable phone was present in Southern Sierra, then, it occurred only in the Yosemite dialect, and its presence there is disputed by the informants currently available. In other dialects, it is regularly replaced by /h/." 13

32.   Klamath
        Barker, M.A.R. 1964. *Klamath grammar*. Berkeley: *University of California Publications in Linguistics* 32.

        Symbols, consonants with variation, vowels, pitch and stress, juncture; anomalous phenomena (r, f); alternate analyses
        "Phenomena such as stuttering, swallowing, coughing, and hesitation vowels are frequent on the tapes." 48
        "**Voice qualifiers** are common in the texts: falsetto utterances for little cute characters, deep bass utterances for older and more respected figures, growled utterances, whispered utterances, and many other varieties." 49
        "Extra vowel length for emphatic purposes is characteristic of Klamath. It is an added device for **narrative style**. It may occur with any stressed vowel and may be of any duration. It may have unusual pitch contours, such as wavering, ululating, etc." 49

IX.   "Best practices": guidelines for grammar writing

33.   Comrie, Bernard and Norval Smith. 1977. Routledge Descriptive Grammar Series. Lingua Descriptive Studies: Questionnaire. *Lingua* 42. 1-71.
        It is important to provide a standard framework to the series as a whole, helping as a "catalyst in the elicitation of all information that could be of interest for theoretical work ..." 5

        "Such a framework has problems, and should not be interpreted as a straitjacket."

        "In the section of phonology all examples should be accompanied by the relevant phonemic or phonetic transcription (in, respectively, obliques and square brackets) in terms of the IPA phonetic alphabet. In sections not dealing specifically with phonetic detail it may be possible to use an adaptation of the IPA system for typographic convenience (for instance, by using š rather than ʃ, ...). Any departures from the IPA system should, however, be made quite explicit and cleared with the editors in advance."

Comrie and Smith place phonology as the third section of a grammar, followed by lexicon and basic vocabulary. [Note that this has not been very well accepted.]

In the section on phonology, they call for glossing and using IPA symbols, and they provide a list of descriptive articulatory features to use with respect to place of articulation, manner of articulation, laryngeal features, and so on.

Phonological information to include in the grammar:
Sections on phonological units (segmental), including allophony, phonetic realization, restrictions with respect to word classes and phonotactics. phonotactics, including positional restrictions, sequence restrictions (both adjacent and long distance), syllable shape and restrictions, and word class restrictions.

Suprasegmental phonology, including length, stress, pitch, intonation, with discussion of distribution, tactics, processes, etc.
morphophonology, segmental and suprasegmental.
> Segmental: assimilation, dissimilation, other alternations, metathesis, coalescence, deletion, insertion, reduplication
> Suprasegmental: changes in stress and tone under morphological processes

Most of the phonology is contained in this section, with a few references to phonology in sections of the outline on morphology and syntax.

34.   Cambridge University Press Grammar Series (edited by Dixon and Rice)

Consonant and vowel phonemes in tabular array, with description of phonetic realizations including allophones and environments and dialect differences; IPA unless a good reason

Labels for tables, details

Explicit information on phonotactics, stress, tone, segmental features functioning prosodically, etc.

Intonation marking commands, polar questions, content questions, etc.
Criteria for defining word (phonological, grammatical)

X.   A few more recent grammars

35.   Chelliah, Shobbhana L. 1997. *A grammar of Meithei*. Berlin: Mouton de Gruyter. "These consultants assisted my research in a number of ways: they provided me with raw data (in the form of conversations, translations from English to Meithei of comic book stories and narration of folk tales) ... of the 35 texts recorded, 30 were transcribed ... and 13 were studied in some detail." 13-14

Consonant phonemes
> Contrastive distribution
> Free variation

Complementary distribution
Vowel phonemes
Syllable structure
Tone
Pitch tracks to compare vowels of different tones
Lexical rules
Post-lexical rules

36. Aikhenvald, Alexandra. 2003. *A grammar of Tariana*. Cambridge Grammatical Descriptions. Cambridge: Cambridge University Press.
Segmental phonology
Consonants
Vowels
Syllable structure, vowel sequences and the problem of diphthongs
Stress
Primary stress
Stress in monomorphemic words
Stress in polymorphemic words
Secondary stress
Vowel reduction
Phonological word
Primary stress and prosodic classes of morphemes
Nasalization
Aspiration
Vowel harmony
Word delimiting prosodic parameters in Tariana: a summary
Phonological processes
h-metathesis
vowel fusions
phonological processes within foots and affixes
Prosodic classes of morphemes and their properties
Pause marking
Phonological phrase
Intonation patterns

What else is in this grammar?
Discourse organization
Pragmatic basis for constituent order
Ellipsis
Floating enclitics and discourse (tense-evidentiality, evidentiality and mood markers, etc): They can go onto any constituent in the clause, if it is in contrastive focus and preposed to the predicate.
Repetition and sentence-linking devices
Head-tail linkage. ... involves repeating the last grammatical word(s) of the preceding clause in the following clause. This is

widespread in conversation and stories with sequences of actions, but hardly ever used in traditional stories. 578
Recapitulating phrase overlay
Grammatical properties of narratives and conversations
Phonological issues relating to discourse are not discussed!

37.   Dixon, R.M.W. 2004. *The Jarawara language of Southern Amazonia*. Oxford: Oxford University Press.
Vowels
Consonants, and historical development
w and o
Phonotactics
Loans
Stress
Grammatical and phonological word
Long vowels
Phonological rules

This book was awarded the Bloomfield Book Award by the Linguistic Society of America in 2006.
> "R. M. W. Dixon's *The Jarawara Language of Southern Amazonia*, written with the assistance of Alan R. Vogel, is an invaluable record of a language in serious danger of extinction. The complexities of the language are unraveled with a clarity and insight that allow the reader to share in what the author describes as 'the intellectual pleasure of working out such a magnificent system'."

The phonology, while of great depth, is quite traditional.

38.   Genetti, Carol. 2007. *A grammar of Dolakha Newar*. Berlin: Mouton de Gruyter
Consonants
Vowels
Processes
Phonotactics
Syllable structure
Word structure
Stress

Prosody
Intonational units
Phrasal accent
Terminal pitch contours
Units above the level of word
"... prosody is one of the central systems by which speakers parse and organize connected speech. It is used both to break the speech into manageable chunks (intonation units) which are easily processed cognitively. It is also used to highlight and background particular units, and particular words within those

units. And, crucially, it is used as a 'signpost' which provides cues to the hearer about the relationships between units, as well as whether or not the material constitutes embedded direct quotation. However, the signpost function does more than simply provide cues to the hearer. It also allows for higher level prosodic structuring, as speakers use transitional continuity to combine single intonation units into structured groups. … There is one other important function of prosody which I am not able to address, that of conveying affect, or the emotional state or attitude of the speaker." 89

Prosodic and syntactic structuring
"It is at the sentence level that one can witness the interaction of the clause-combining strategies … and the genius of the design principles that form the basis of the grammar. … the syntactic structuring … gives a partial view of how speakers are segmenting the speech stream … and relating those units …. Simultaneous to the syntactic structuring of speech is the prosodic structuring of speech. …. examining the interaction of the syntactic and prosodic levels allows us greater insight into how speakers simultaneously utilize these distinct domains in the formation of sentences and the construction of narrative." 485

… /\   daŋga   par-ai ju-   ju-eni   "lo   bāˈbu. /\
       astonishment feel-BV be-FS   be-PART   EXCL   baby

… /\   thijin   u   anauṭhā   khā   khoŋ-gu.   _
       1pINC.ERG   this   strange   matter see-1pPST

       He felt astonished: "Lo baby! We saw a strange thing…' 491

Syntax/prosody mismatches are also discussed
86% of prosodic-unit boundaries follow a noun-phrase or clause boundary
81% of finite clauses occurred with final intonation
99% of non-finite clauses occurred with continuing intonation

XI.   Conclusions

39.   Does phonology receive less coverage in grammars than it should?

No
Grammars have incorporated more phonology as the field has changed.
        Early: Languages have systems of sounds that can be described.
                Pronunciation of those sounds.
        Later: What is in an abstract sense a single sound can vary in its
                pronunciation.
                Sound includes not just segments but prosody.
                Variation is important.
                        Particular sounds
                        Discourse context
        Most recent: Sound at larger levels than the word
                Interfaces of components of the grammar

14

Grammars reflect a changing definition of phonology (and grammars play an important role in changing that definition of phonology).

Yes
The heart of phonology is traditionally about sounds, their pronunciation (phonetics), sound systems, interaction of sounds, variation in sounds.

We write about sounds, and represent sounds on the page, but we do not represent sounds themselves in a grammar, only rough approximations.

Phonology is much more than the segments of the language, and the interaction of sounds, broadly speaking, with larger constituents than the word needs to be discussed in a grammar; while grammars include discussion of syntax and, in some grammars, discourse structure, the phonology of these is often not mentioned.

40. The field has moved from using the written form to access the grammar to try to give as much information about the sounds as possible – how pronounced, variation within and between individuals

   But this is a representation on the page, and, for many reasons, something is lost in translation.

41. Developments in technology allow for something much more.

42. Do we need the sound itself? Is the representation of the sound on the page sufficient?
   Transcriptions represent an idealization.

   Transcriptions are often difficult to interpret.

   Transcriptions take some of the life out of the language.

43. Sound would make a big difference in situations of language revitalization and language reclamation.

   Parsons Yazzie, Evangeline and Margaret Speas. 2007. *Diné Bizeed bínáhoo'aah/Rediscovering the Navajo Language. An introduction to the Navajo Language*. Flagstaff, Arizona: Salina Bookshelf Inc.
   "It is virtually impossible to learn a language by reading and memorizing material in a textbook. You must use the language to communicate! Practice with your classmates, but also seek out fluent speakers of Navajo and talk with them…. We know that you will succeed if you persist."
   "It is vital that you realize pronunciation is extremely important to the Navajo language." 17

   Rice, Keren and Leslie Saxon. 2002. Issues of standardization and community in Aboriginal language lexicography. In William Frawley, Kenneth C. Hill, and Pamela Munro (editors) *Making dictionaries. Preserving Indigenous languages of the Americas*. Berkeley: University of California Press. 125-154.

"... invaluable information would be lost from a story's telling if the pronunciation variants that the storyteller used were washed over by means of standardized spellings. In the Western tradition, on the contrary, the written text is taken as primary and authoritative in almost all contexts." 130

44. Sound would make a difference to the field of linguistics.
     Noonan on the responsibility of the grammar writer
     "... we should be aware that when we are writing grammars of those languages which will likely be moribund or extinct by the end of the century – that is, the great majority of the world's languages – that we are writing for the ages. So, we must make sure that what we are doing reaches for a very high standard." 354

45. What would that standard be?
     From Noonan's survey (2005: 357)
     In explaining phonetics, standard IPA characters should be used (not practical orthography); IPA symbols should be accompanied by a statement describing their value.

     To the degree possible, detailed instrumental documentation of the phonetics should accompany descriptive statements.

     Provide a full description of the segmental and suprasegmental contrasts and an explanation of the basis for arriving at them.

     Provide a description of distributional patterns of the elements of the phonology (syllables, words, other units with different distributional possibilities).

     Grammars should contain good descriptions of the phonetics and the phonology as well as of the morphology and the syntax.

     Where practical, audio and video recordings should be made of various language genres.

46. What might the 'ultimate' phonological section of a grammar include?
     Detailed description of sound system, accompanied by sounds

     Interpretation of orthography, when necessary

     Allophony and variation

     Allomorphy

     Processes not shown in the orthography
              This can be useful in morpheme recognition

     Discussion of variation within and between speakers, illustrating different genres and some notion of the factors that are involved in the variation. (sociolinguistics)

     Prosody, word level and above (sentence, discourse), including how it might signal information structure
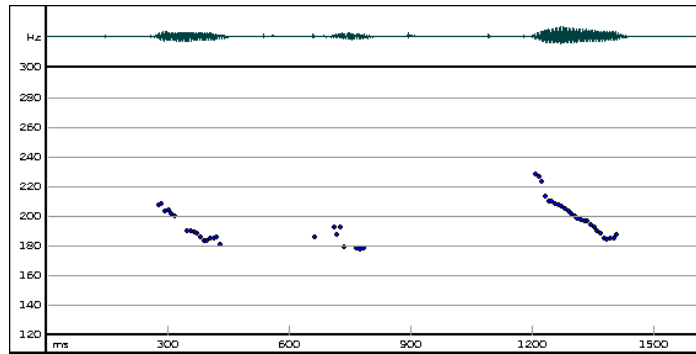
Gary Holton. 2005. Pitch and intonation in Tanacross. In Sharon Hargus & Keren Rice (eds). *Athabaskan prosody*. Amsterdam: Benjamins. 249-275.
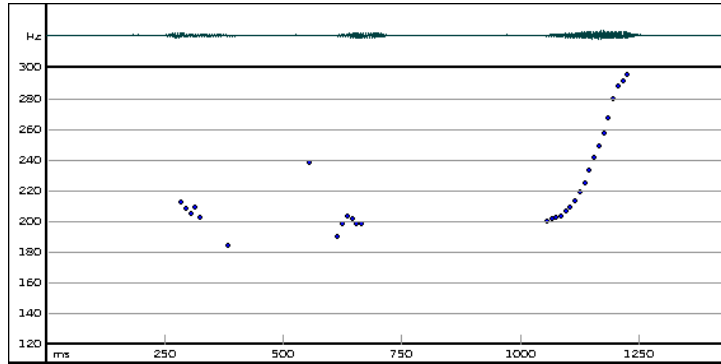
	łuˑg	i̧h	-t'éˑθ
lexical tone	L		H
intonation			H* H%

"Are you frying the fish?"

Figure 2: *Pitch track for yes/no interrogative with high tone stem*

	łúˑg	ɛk	t'éˑθ
lexical tone	L		H
intonation			H* L%

"I'm frying the fish"

Figure 5: *Pitch track for declarative with high tone stem*
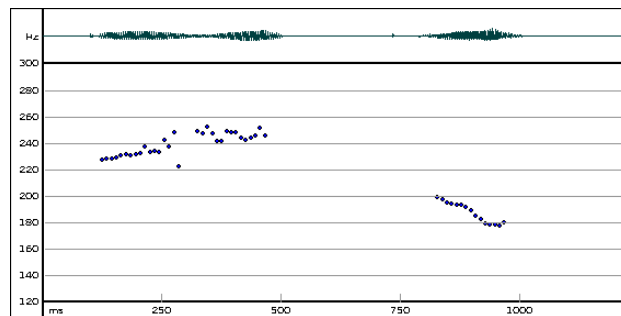
	díˑ	i̧h	t'éˑθ
lexical tone	H		H
intonation			H+L* L%

"What are you frying?"

Figure 7: *Pitch track for content interrogative with high tone stem*

17

Audio: sounds, texts (with time-aligned transcription)

Visual ways of representing language that are interpretable

Mosel, quoting Dixon 1994: 229, on interfaces
> "The most important point is that a language can only profitably be studied as a whole. One must recognize and distinguish different levels of structural organization – phonological, morphological, syntactic, semantic, discourse and pragmatic – but each of these continuously interrelates with the others."
> R.M.W. Dixon 1994. *Ergativity*. Cambridge: Cambridge University Press; cited in Ulrike Mosel. Grammatography: The art and craft of writing grammars. In Felix K. Ameka, Alan Dench, and Nicholas Evans (editors). *Catching language. The standing challenge of grammar writing*. Berlin: Mouton de Gruyter. 2006. 41-68. 63

47.   Meeting the needs
For the linguist (phonologist, phonetician, typologist, historical linguist):
> Higher quality data to help better understand the particular language

> Ability to look at new areas (e.g., phonetics; prosody and information structure)

> Wider materials available to study variation

48.   Meeting the needs
For the speaker/heritage learner
The language becomes 'real' through the sound, just as it becomes real through the use of real examples, drawn from texts, conversations, working with speakers. This can include examples of different syllable shapes, examples of sounds contrasted with other sounds, sounds in context

49.   Human value
With revitalizing and reclaiming languages, the need for careful descriptions becomes even stronger, and descriptions accompanied by sound, with a sense of variation as well as what is considered core.

50.   The questions revisited
In descriptive grammars, it seems to be the case that the phonology tends to get much less coverage in comparison to the morphosyntax.

- Why is this the case?
  > In one sense we must ask if this is the case.
  > As phonology has evolved, grammars have changed; as grammars have changed, phonology has evolved.

  > In another sense this is very true: the very substance of phonology is not adequately represented on the page.

- What is the problem caused by this tendency?

  From the perspective of a linguist, there are issues of verifiability, accountability, scientific rigour, limitations of areas of study.

  From the perspective of the community, there are issues of abstractness, and lack of a kind of reality in the translation of sound to page.

- What kinds of and how much phonological information should a well-balanced descriptive grammar contain?

  The usual – phonological inventory and realization, with careful description; phonotactics; allomorphy; extended to levels beyond the word, including segmental and prosodic properties; accompanied by sound with time-aligned transcription/orthography, and video when feasible.

Another issue: transcription is important for recognition of morphemes. The failure to do a good job on phonology might mean (i) not all sounds are recognized, and morphemes that are in fact phonologically different are treated as the same, with consequent mis-analysis; (this might be the case especially with prosodic features and failure to recognize, e.g., tonal morphemes) (ii) the reverse: allophonic/morphophonemic processes are not recognized, and what is one morpheme is treated as two, with consequent mis-analysis.

Need for perspective on recordings – to honour protocols set up (as with any language materials).