WORD STRUCTURE
IN
NGALAKGAN

Brett J. Baker

A thesis submitted in fulfilment of the requirements for the degree of Doctor of Philosophy

Department of Linguistics
University of Sydney
December, 1999
DECLARATION

Except where otherwise indicated
this thesis is my own work

Brett Baker
December 1999
Abstract

In Ngalakgan (Gundjegree family, northern Australia), morphology plays a key role in constructing meaning. This thesis is concerned with the interface between morphology and prosody in Ngalakgan.

Ch 1 provides background information on the speakers and the language, and an overview of the theoretical framework used. Following Ch 1, there are two parts to the thesis: I and II. Part I provides a description of the prosodic and morphological structure in simple roots and complex words. Part II discusses theoretical issues in Ngalakgan concerning the interaction of geminates and glottal stops with prosody.

In Ch 2 I examine prosodic patterns in simple and complex words. In Ngalakgan, there is a distinction between two kinds or 'levels' of morphology: word-level and root-level. Only word-level structure is consistently reflected in prosodic structure; forms which are complex only at the root-level are treated as prosodic units.

In Ch 3 I show that all word-level morphemes constitute prosodic domains: every word-level stem, affix and clitic potentially begins a new domain for metrical foot structure.

Geminates and glottal stops are over-represented at morpheme boundaries in complex words. In Ch 4 I propose that they constitute 'boundary signals' to morphological structure, in a similar fashion to stress.

Quantity-sensitivity is the topic of Ch 5. I show that syllable weight in Ngalakgan is correlated with perceptual difficulty. It is the most perceptually marked syllable which is stressed.

Ch 6 concludes with a brief summary of the discussion and claims in the rest of the thesis.
Acknowledgements

First and foremost, this thesis would not have been possible without the dedication of my Ngalakgan teachers. Roy Golokgurndu, Splinter Gerrepbere, and Doreen Duncan Nyulpbu have taught me tirelessly over the last five years. I hope I can live up to some of your expectations. Gamakgun yini-mutjjiny gun-gu-yang-nunggorre. Thanks also to Dicky - we'll miss him.

My non-Ngalakgan teachers Jane Simpson, Michael Walsh and more recently Mark Harvey and Toni Borowsky have kept me on track. It was Michael Walsh who inspired me to go on fieldwork in Australia, and introduced me to the work of Jeffrey Heath, which gave me a burning desire to work on prefixing languages. Jane Simpson has done her best to teach me what constitutes an argument, and a grammar, and showed how well theory and description can be melded. Mark Harvey has provided a constant source of encouragement, and insightful analysis. Toni Borowsky has done her utmost to teach me how to write, and has been a challenging and engaged supervisor. Thanks also to my examiners - Juliette Blevins, Nick Evans, and Armin Mester - who provided many heartening and thoughtful comments.

Fieldwork has been possible with the ongoing generous support and assistance of the Australian Institute of Aboriginal and Torres Strait Islander Studies, grant numbers 93/4657, and L95/4932, the University of Sydney Faculty of Arts Fieldwork Fund (1996) and Postgraduate Research Fund (1997). Special thanks to Mark Harvey, for giving me the break which allowed me to make a great start to fieldwork in the Roper, and to Kingsley Palmer and Tamsin Donaldson at the Institute, for taking a chance.

Fieldwork was made easy by Diwurruwurru-jaru Aboriginal Corporation (the Katherine Language Centre). The Language Centre helped me out in more ways than I can mention here. Thanks to the staff there. Among fellow Top Enders I'd especially
like to thank: Dani Adone, Denise Angelo, Hugh Belfrage, Carolyn Coleman, Stephen Hill, Robin Hodgson, Frances Kofod, Patrick McConvell, Prudy McLaughlin, Jen Munro and David LeMay, Carmel O'Shaughnessy, Lindsay Parkhill, Greg Patricks, Adam Saulwick and Fiona Salmon. Thanks also to the parents, teachers and children of Urapunga School especially Hannah and Margaret Duncan, Fae Pomeranke, and Laraine Kuhl; and the staff of Mutju CEC (Ngukurr School), especially Gwen Rami and Neil Gibson.

Thanks to colleagues and friends at Sydney Uni who have discussed ideas and Donohue, Andrew Ingram, Que Chi Luu, Chris Manning, JoAnne Page, Bill Palmer, Nick Riemer, and Heather Robinson. Special thanks to Stephen, Andrew and Bill for their friendship over the years. Friends and colleagues elsewhere have contributed valuable ideas, help, and support: Gavan Breen, Andy Butcher, Stuart Davis, Rebecca Green, Ilana Mushin, Rob Pensalfini, Cheryl Zoll. Francesca Merlan took time out from her busy schedule to answer queries on several occasions.

Faculty at UMass - Ellen Woolford who sponsored my visit, John McCarthy, John Kingston, Hagit Borer, Greg Lamontagne - all made my stay there intellectually stimulating and rewarding. Friends and colleagues John Alderete, Diamandis Gafos, Bart Hollebrandse, Caroline Jones, Winnie Lechner, Steve Parker, Maribel Romero, Rachel Walker and especially Kyle Johnson who looked after us, provided the much-needed social as well as intellectual input.

Thanks also to the helpful comments of audiences at BLS, WCCFL, HOT '97, UMass, MIT, ALS, UCSC, SUNY Buffalo and the Australianists' meeting 1997 (by proxy thanks to Jane Simpson), in particular Eric Bakovic, Ed Keer, Armin Mester, and Bernard Tranel.

Last, and most importantly, thanks to my family Jan, John, Damon and Jeannine for believing in me. Damon: Now it's finished, okay? And thanks especially to Karan, for love and understanding.
To my parents
Table of Contents

Abstract.......................................................................................................................... i
Acknowledgements....................................................................................................... ii
Maps ............................................................................................................................ ix
Tables ........................................................................................................................... ix
Figures ........................................................................................................................ ix
Abbreviations ............................................................................................................... x

Chapter 1 Introduction ................................................................................................. 1
1.1 The Ngalakgan people and their language .......................................................... 2
   1.1.1 Features of the language .............................................................................. 2
1.2 The speakers, their social environment, and the fieldwork ................................. 3
   1.2.1 Informants .................................................................................................. 3
   1.2.2 Linguistic situation ..................................................................................... 4
   1.2.3 Fieldwork .................................................................................................. 5
   1.2.4 Data and methodology ............................................................................. 6
1.3 Previous work on Ngalakgan .............................................................................. 6
   1.3.1 Differences from previous work ............................................................... 7
   1.3.2 The thesis in the current Australian linguistic context ............................... 8
1.4 Optimality Theory ............................................................................................... 8
   1.4.1 The basic apparatus ................................................................................... 9
1.5 Outline of the chapters ....................................................................................... 13
1.6 Phonological inventory and orthography .......................................................... 15
   1.6.1 Orthography ............................................................................................. 16

Part I: Word Structure and Word Prosody

Chapter 2 Root, Word and Compound Stress ......................................................... 19
2.1 Simplex words .................................................................................................... 20
   2.1.1 Analysis of simplex forms ........................................................................ 22
Chapter 3 Affixation and Prosodic Domains

3.1 The morphology of affixes and clitics

3.1.1 Distinguishing clitics and affixes

3.1.1.1 Affix allomorphy

3.1.1.2 Distribution of mid-vowels

3.1.1.3 Apical distinctions

3.1.2 Prosodic characteristics of affixes and clitics

3.1.2.1 General patterns: disyllabic suffixes and clitics

3.1.2.2 Monosyllabic suffixes and clitics

3.1.2.3 Morphemes as prosodic domains

3.1.2.4 Analysis of affix and clitic patterns

3.2 Further applications of M PrDom

3.2.1 Warlpiri and Diyari stress

3.2.2 Against Align

3.3 The pre-head string

3.3.1 Prosody of modifying prefixes
<table>
<thead>
<tr>
<th>Section</th>
<th>Page</th>
</tr>
</thead>
<tbody>
<tr>
<td>3.3.2 Prosody of inflectional prefixes</td>
<td>95</td>
</tr>
<tr>
<td>3.3.3 Analysis of prefix prosodic structure</td>
<td>98</td>
</tr>
<tr>
<td>3.3.4 Modifying prefixes</td>
<td>103</td>
</tr>
<tr>
<td>3.4 Conclusion</td>
<td>106</td>
</tr>
</tbody>
</table>
Part II: Theoretical Aspects of Prosody in Ngalakgan

Chapter 4 Geminates as Boundary Signals ......................................................108

4.1 The contrast ..................................................................................................109
  4.1.1 Phonetic correlates ...............................................................................110
    4.1.1.1 Duration .....................................................................................111
    4.1.1.2 Voicing .....................................................................................116
    4.1.1.3 The phonological representation of geminates .......................121
    4.1.1.4 Assignment of [spread glottis] .................................................123
  4.1.2 Vowel allophony ..................................................................................130
    4.1.2.1 The effect of geminates on vowel allophony .........................134
  4.1.3 Distribution of geminates in syllable structure ...............................137

4.2 Gemination and laryngealisation at morpheme boundaries ...................139
  4.2.1 The historical and synchronic sources ...........................................140
  4.2.2 Reasons for boundary gemination and laryngealisation ...............143

4.3 Geminate alternation ...............................................................................147
  4.3.1 Geminate alternation is prosodically-conditioned .......................153
  4.3.2 Analysis .............................................................................................157
    4.3.2.1 Faithfulness to laryngeal features ..........................................168
    4.3.2.2 Faithfulness to Morphological Words ..................................170
  4.3.3 Prosodic effects on margins in other languages .........................172
    4.3.3.1 Glottal stop alternations in Yolngu ......................................172
    .................................................................................................179
    4.3.3.3 Implications for other languages .........................................184
  4.3.4 Geminates and morpheme structure constraints ............................187

4.4 Conclusion ...............................................................................................189

Chapter 5 Weight and Prominence ...............................................................191

5.1 The nature of weight ................................................................................192
  5.1.1 Geminates in a Moraic Theory .......................................................195

5.2 Contextual markedness of segments and clusters .................................201
  5.2.1 A perceptual theory of markedness ..............................................204
5.2.2 Markedness and moraicity .............................................................. 212
5.3 Heavy syllables elsewhere in the word ............................................. 217
  5.3.1 Word-final consonants ................................................................. 218
  5.3.2 Syllable prominence and stress in other languages ....................... 224
5.4 Prominence-based stress in Ngalakgan ............................................. 228
  5.4.1 Excursus: the contribution of onsets to stress ............................. 232
  5.4.2 Sonority-based prominence in other languages ............................. 238
  5.4.3 Summary: markedness and sonority ............................................. 241
5.5 The interaction of glottal stop and weight ........................................ 244
  5.5.1 The phonetics of glottal stops ..................................................... 245
  5.5.2 Light medial glottal-final syllables ............................................. 247
  5.5.3 The quantity of roots ................................................................. 252
  5.5.4 WORD-reduplication ................................................................. 262
    5.5.4.1 Morphology of -reduplication ............................................. 263
    5.5.4.2 Prosodic characteristics of -reduplication ....................... 265
5.6 Conclusion ......................................................................................... 269

Chapter 6 Conclusion ............................................................................. 271

Bibliography 274
List of Maps

Map (1): The location of Ngalakgan in relation to neighbouring languages  xiii

List of Tables

Table (1): Consonant phonemes 15
Table (2): Vowel phonemes 16
Table (3): Orthographic consonants 17
Table (4): Orthographic vowels 17
Table (5): Durations of post-tonic singletons 112
Table (6): Durations of post-tonic geminates 114
Table (7): Average durations of geminates and singletons 115

List of Figures

Figure (1): /mu-wucur/ iii-grindstone 119
Figure (2): / ‘we two singe it’ 120
Figure (3): /kamakkun/ 'properly' 126
Figure (4): / meat-dat 127
Figure (5): /cetpe¡e/ 'archer fish' 128
Figure (6): / ‘we have to stop those two’ 129
**Abbreviations**

**Agreement and noun class prefixes**

1, 12, 2, 3: 1st, 1st incl., 2nd, 3rd person  
m/MIN: minimal number (non-plural)  
a/AUG: augmented number (plural)  
f. feminine/female  
m. masculine/male  
NC noun class (I, II, III, IV)  
O object  
S subject (that is, Agent of a transitive or Subject of an intransitive verb)

**Other grammatical abbreviations**

ABL ablative  
ALL allative  
AUX auxiliary, finite verb stem  
COM comitative  
DAT dative  
DUR durative  
ERG ergative  
FAM familiar (presupposed or discourse-given participant information)  
F/FUT future  
GEN genitive  
IN incorporated noun  
INST instrumental  
INT interrogative clitic  
IRR 1st position verb prefix, obligatory for 3min/NC subjects (and 3min/NC objects if there is one) in Future (positive), and (depending on predicate class) Present (positive) and Present Negative  
ITER iterative  
KINPROP Propriete suffix to kinship terms (Yolngu)  
LAT lative  
LOC locative  
PC past continuous  
PNEG/PRNEG/FNEG past/present/future negative suffixes  
POSS possessive  
POT potential  
PP past punctual, present perfective  
PR present  
RED reduplication  
REL relative/subordinator  
RR reflexive/reciprocal
SAP: speech act participant (1st and 2nd person referents)
VBSR: verbaliser
(P)GN  (Proto-)Gunwinyguan (language family)
P-NgR  Proto-Ngalakgan-Rembarrnga
Dlbn   Dalabon
Jwyn   Jawoyn
Myli   Mayali
Ngkn   Ngalakgan
Ngdi   Ngandi
Rmba   Rembarrnga

sp     species

**Kinship**
Kinship terms are classificatory

**Categories**
Mo     mother
Fa     father
Zi     sister
Br     brother
So     son
Da     daughter
Ch     child
Si     sibling

**Operators**
+      elder
-      younger
m      male's
f      female's

Categories and operators can be combined to derive further categories, e.g. terms
glossed 'FaFa' are those referring to persons in father's father's category; 'mCh' is
'male's children', including children of a man and his brother; 'mZiCh' is 'male's sister's
children', and so on.
Conventions for transcriptions and glosses

Orthographic forms are given in Times font, italic style. Underlying, phonemic representations are given in PalPhon font, in slashes. Surface, phonetic representations are given in SILDoulosIPA or PalPhon font, in square brackets. For example:

SR [yE@rkkega0]
UR = yerrkge-gah
\textit{ludaun} below-LOC

In glosses, a period '.' separates two glosses corresponding to one item in the transcription, for example:

1mS-be.standing+PR

I use two boundary symbols: plus sign '+' and hyphen '-'. The former indicates a tightly bound, unproductive ROOT-level relationship, the latter indicates a loosely bound, productive WORD-level morphological relationship (and see Ch 2 for a discussion of this distinction).

Glosses such as '1mS/2mO' for a portmanteau agreement prefix such as indicate 1st person minimal subject acting on 2nd person minimal object.

A change of font style in Ngalakgan data marks material as a borrowing, e.g. ngu-laydimap-miny: 1minS-light-PP (< Kriol laydimap < English 'light 'em up'). Occasionally, I quote Kriol translations of Ngalakgan data given by the speakers. These should not be regarded as full translations or glosses, they are mainly intended for those familiar with Kriol, and are only included where they shed light on a complex construction or interpretation. My transcriptions of Kriol have some inconsistencies with respect to segmental quality; this reflects the nature of the language, at least as
spoken by my consultants.