Ghost vowels and syllabification

Evidence from Bulgarian and French

by

Georgi Ivanov Jetchev

M.A. St. Kliment Ohridski University of Sofia (Bulgaria), 1988
D.E.A. University of Paris 7 (France), 1991

Director: Prof. Pier Marco Bertinetto (SNS di Pisa)
Committee: Prof. Ernest A. Scatton (University at Albany, SUNY)
Prof. Pierre Encrevé (EHESS, Paris)
Prof. Jerzy Rubach (Universities of Warsaw and Iowa)

Thesis

Scuola Normale Superiore di Pisa

1997
Acknowledgments

This dissertation would have probably never been written if I had not been taught French Phonetics by Professor Michel Nikov at Sofia University. He is the first person who encouraged me to do some research on variation in spoken French. I owe him a debt of gratitude.

I would like to thank the French Government for giving me a one-year grant to study Phonetics and Phonology in Paris. Professor Georges Boulakia deserves recognition for accepting me in his D.E.A. of Phonetics at Université de Paris 7 and giving me the freedom to attend a great variety of courses not only in phonetics, but also in phonology.

My thanks to Scuola Normale Superiore di Pisa whose professorial staff accepted me as a Ph.D. student, giving me a three-years grant.

Special thanks to Professor Pier Marco Bertinetto, the director of this thesis. Most of the ideas I develop here were born in his study during our long-term conversations and around the seminars he asked me to give for the small group of linguists and students of linguistics at Scuola Normale. Especially, Professor Giovanna Marotta and Livio Gaeta made very useful remarks during and after these seminars.

I must acknowledge my committee, Professor Ernest Scatton, Professor Pierre Encrevé and Professor Jerzy Rubach, who willingly accepted to comment on the texts that I produced at various stages of my work, thus contributing very much to improve the final version of this thesis.
Introduction

This dissertation provides description and phonological accounts for the patterns of ghost vowel alternations in two languages where these alternations are largely conditioned by constraints on syllabification: modern standard Bulgarian and a variety of standard French spoken in Paris.

Much more space (the whole chapter 1) is devoted to description of the Bulgarian data. This is necessary, because apart from Scatton's books, there are very few publications on Bulgarian phonetics and phonology written in languages other than Bulgarian. The description argues for distinguishing between ghost schwas that are underlyingly present and schwas that are triggered by epenthesis.

As for French schwa/zero alternations, there is a great deal of literature on the subject. Moreover, the French data I refer to are given very detailed description in a series of well-known publications. However, chapter 4 discusses the data from French and claims that different phonological status should be attributed to two distinct classes of French ghost vowels. Sensitivity of [Œ]/zero alternations to the rhythmic structure of the utterance is another point of emphasis. Needless to say, I am perfectly aware that schwa/zero alternations in French are a widely variable phenomenon. I do not presume that the data on which my analysis is based reflect the behavior of all French speakers. However, to the extent that they represent one particular dialect of the language, as attested by the authority of the scholars who collected them, they constitute a valid test for the phonological model here exploited. Further research is needed to enlarge the coverage, taking into account other dialects of French.

Chapter 2 begins with comments on previous treatments of Bulgarian ghost vowels and of liquid/schwa metathesis in Bulgarian. The proposal for an alternative linear analysis (§2.3) aims to demonstrate that doing without word-final jers is possible in every framework. Then I give two accounts for the Bulgarian data in two different frameworks: Harmonic Phonology (the 3-level M/W/P model) and Optimality Theory (the 2-level Correspondence Theory version). Both accounts use the same underlying representations fro words with ghost vowels: all ghost [e]'s and the ghost schwas that are viewed as underlyingly present are represented as floating vowels at M-level. In both accounts, some of the ghost schwas are assumed not to be present underlyingly and to be the product of default vowel insertions.

Chapter 3 offers a diachronic view on the Bulgarian ghost vowel alternations. My hypothesis is that both representations and rules associated with the Old Church Slavonic jer vowels (that gave rise to the modern ghost vowel alternations) have been subjected to reanalysis during the Middle Bulgarian period.
The variety of French discussed in chapter 4 is treated only in the framework of Harmonic Phonology. However, since this model is also applied to the analysis of Bulgarian, this makes it possible to conduct a contrastive description of the mechanism of ghost vowel alternations in Bulgarian and French (§4.4).
TABLE OF CONTENTS

1. THE DATA

1.1. DATA ON GHOST [a] AND [e] VOWELS

1.1.1. Domain of ghost vowel alternations ................................................................. 2

1.1.2. Ghost vowels in roots .............................................................................. 2

1.1.2.1. Ghost vowel alternations with inflection .............................................. 2

1.1.2.1.1. Inventory of ghost vowel Ø-inflected roots

1.1.2.1.1.1. Masculine noun Ø-inflected roots with ghost vowels

1.1.2.1.1.2. Feminine noun Ø-inflected roots with ghost vowels

1.1.2.1.1.3. Adjectival Ø-inflected roots with ghost vowels

1.1.2.1.2. Ø-inflected ghost vowel root + Vocalic suffix:

1.1.2.1.2.1. In noun declension

i. The plural inflection -i

ii. The plural inflection -ove

iii. Vocative affixes for masc. sg. nouns

iv. The masc. sg. definite article

v. The count plural inflection -a

1.1.2.1.2.2. In adjectival declension

1.1.2.1.3. Ø-inflected GV root + Consonantal inflectional suffix

1.1.2.1.3.1. In noun declension

1.1.2.1.3.2. In verb conjugation

i. The aorist participle suffix -l/-l-

ii. GV alternations in Present tense vs. Aorist

1.1.2.2. Ghost vowel alternations with derivation .............................................. 18

1.1.2.2.1. Ø-inflected ghost vowel root + Vocalic suffix

1.1.2.2.2. Ø-inflected ghost vowel root + Consonantal suffix

1.1.2.2.3. V-inflected ghost vowel roots

1.1.2.2.3.1. Neuter noun roots in -o and -e

1.1.2.2.3.2. Feminine noun roots in -a

1.1.2.2.4. Stabilized jers in perfectives vs. imperfectives

1.1.2.2.5. GV alternations in Derived imperfectives vs. Perfectives

1.1.2.2.6. Prefixes

1.1.2.3. Ghost vowel alternations with compounding ........................................... 27

1.1.3. Ghost vowel root types: an overview ......................................................... 28

1.1.3.1. Ø-inflected and V-inflected ghost vowel roots

1.1.3.2. Sonorant and obstruent GV roots. Special status of [v].

1.1.3.3. GV roots in derivation only. Cases of allomorphy.

1.1.4. Ghost vowels in suffixes ........................................................................... 29
1.1.4.1. The nominalizing suffix -ec/-c-
1.1.4.2. Adjectivizing suffixes with ghost schwa
1.1.4.3. The -EN adjectivizing suffixes
1.1.4.3.1. -en/-n- and -en/-en-
1.1.4.3.2. Semantically-conditioned selection of -en/-en-
1.1.4.3.3. Phonologically-conditioned selection of -en/-en-. CS-roots
1.1.4.4. Allomorphy of the suffixes -stvo/-estvo and -ski/-eski/-ki
1.1.4.5. GV suffix after a j-root. The root zaek, zajc+i.

1.1.5. The general pattern for GV syncopation .......................................................... 36

1.1.6. Suspensions of ghost vowel alternations............................................................. 36

1.1.6.1. Morphophonologically-conditioned suspensions
1.1.6.2. Phonologically-conditioned suspensions
1.1.6.2.1. GV roots that select the GV suffix -en/-n-: suspended syncopation
1.1.6.2.2. GV roots that select the -en/-en- suffix: regular syncopation
1.1.6.3. GV roots in combination with the GV suffix -ec/-c-: two alternative patterns

1.2. DATA ON LIQUID-SCHWA METATHESIS................................................................. 41

1.2.1. Ø-inflected roots with a sequence 'liquid/schwa'................................................ 41
1.2.2. Domain of metathesis .......................................................................................... 42
1.2.3. Metathesis with inflection .................................................................................... 43
1.2.3.1. Metathetic root + Vocalic inflection....................................................................
1.2.3.1.1. In noun declension
1.2.3.1.2. In adjectival declension
1.2.3.1.3. In verb conjugation
1.2.3.2. Metathetic root + Consonantal inflection
1.2.3.2.1. In noun declension
1.2.3.2.2. In verb conjugation
1.2.4. Metathesis with derivation.................................................................................... 46
1.2.4.1. Ø-inflected metathetic root + Vocalic derivational suffix
1.2.4.2. Ø-inflected metathetic root + Consonantal derivational suffix
1.2.4.3. V-inflected metathetic root + Consonantal derivational suffix
1.2.4.4. Metathesis in V-suffixed derivatives vs. C-suffixed derivatives
1.2.5. Metathesis with compounding .............................................................................. 49
1.2.5.1. Metathetic root (Root 1) + Linking vowel + Root 2
1.2.5.2. Root 1 + Linking vowel + Metathetic root (Root 2)
1.2.6. The general pattern for metathesis ...................................................................... 50
1.2.7. Suspensions of metathesis .................................................................................... 51
1.2.7.1. No suspensions in the declension of masc. nouns
1.2.7.2. Morphophonologically-conditioned suspension before the imperfectivizing suffix -va-
1.2.7.3. Phonologically-conditioned suspensions
1.2.7.3.1. Metathetic roots in combination with GV suffixes
1.2.7.3.2. -en/-en- adjectives from metathetic CS-roots
1.2.7.4. Metathetic root + Ø-inflected GV -ect- suffix: regular metathesis
1.2.7.5. Special effect of other GV suffixes on some metathetic roots

1.3. GHOST VOWELS AND STRESS IN BULGARIAN ............................................................... 56
1.3.1. The Bulgarian stress system
1.3.2. Additional lexical marks regarding stress
1.3.3. Stress patterns with ghost vowels

1.4. INTERACTION OF GHOST [o]'s WITH PALATALIZATION .................................................. 59
1.4.1. Restrictions for palatalization in Bulgarian
1.4.2. Interaction of Velar/Affricate Palatalization with ghost [e]'s

1.5. GHOST [e]'s AND THE A-ALTERNATION ................................................................. 61

1.6. GENERALIZATIONS ............................................................................................................. 62
1.6.1. GV-alternating vs. Metathetic roots
1.6.2. Inventory of underlying representations
1.6.2.1. GV-alternating roots
1.6.2.2. GV suffixes
1.6.2.3. Metathetic roots
1.6.2.4. Allomorphy of roots
1.6.3. <V>-roots vs. CS-roots, -EN derivatives.
1.6.4. -EC derivatives from CS-roots. Allomorphy of the suffix.
1.6.5. -EC derivatives from metathetic roots. The Fratricidal Ghost Effect.
1.6.6. List of examples for testing the phonological models

2. PHONOLOGICAL TREATMENTS OF THE BULGARIAN DATA

2.1. JER ACCOUNTS FOR THE BULGARIAN GHOST VOWEL ALTERNATIONS............................. 76
2.1.1. Scatton's treatment of ghost vowel syncopation: DEL and LOW ...................................... 76
2.1.1.1. Abstract segments: inflectional jers
2.1.1.2. How to order DEL and LOW ?
2.1.1.3. Deriving the object definite forms (kratâk člen)
2.1.1.4. Is the schwa of the postpositive masc.sg. definite article
2.1.1.5. Derivational jers
2.1.1.6. Distinguishing CS-roots from roots with an underlying <V>
2.1.2. Zec's Lexical Phonology analysis of GV alternations in Bulgarian ................................. 81
2.1.3. Doing without inflectional jers ..................................................................................... 82

2.2. ACCOUNTS FOR METATHESIS IN BULGARIAN ............................................................... 82
2.2.1. Scatton's treatment of metathesis ............................................................................... 82
2.2.1.1. Double application of Syllabification + Syllabic reinterpretation
2.2.1.2. Word-initial sequences "sonorant + schwa"
2.2.1.3. About Scatton's treatment of suspended metathesis before -va-
2.2.2. Zec's treatment of metathesis

2.3. \textbf{AN ONLY-STEM-INTERNAL (OSI) JER ANALYSIS}

2.3.1. \textbf{Enlarging the focus of SYL: Sonorant Syllabification}
2.3.2. \textbf{Pre-Sonorant Schwa Epenthesis}
2.3.3. \textbf{Sonorant Desyllabification}
2.3.4. \textbf{Testing the rule set of the OSI Jer Analysis}
2.3.5. \textbf{Problems relating to the rules of the OSI Jer Analysis}

2.4. \textbf{HARMONIC PHONOLOGY ACCOUNT FOR THE BULGARIAN DATA}

2.4.1. \textbf{Some principles of Harmonic Phonology}

2.4.1.1. Levels and representations in Harmonic Phonology
2.4.1.2. Two types of rules: intra-level and cross-level. No extrinsic ordering of rules.
2.4.1.3. Syllabification. Autosigmatic licensing.

2.4.2. \textbf{Underlying structures for ghost vowels}

2.4.2.1. Ghost vowels in autosigmatic (multilinear) frameworks
2.4.2.2. Floating vowels and epenthetic schwas instead of jers

2.4.3. \textbf{Rules regarding ghost vowels}

2.4.3.1. The cross-level (M,W) rule of Floater Anchoring
2.4.3.2. The intra-level (W,W) rule of Schwa Epenthesis
2.4.3.3. A rule adjusting M-level representations to describe the FGE

2.4.4. \textbf{Harmonic Phonology account for examples 1-9, Table 3}

2.4.4.1. \textless V\textgreater -roots, examples 1a-e
2.4.4.2. CS-roots, examples 2a-e
2.4.4.3. Metathetic \textless V\textgreater -roots, examples 3a-e
2.4.4.4. Metathetic CS-roots, examples 4a-e
2.4.4.5. CS-roots + -EC, examples 5 & 6
2.4.4.6. Metathetic \textless V\textgreater -roots + -EC, examples 7a-e
2.4.4.7. Metathetic CS-roots + -EC, examples 8
2.4.4.8. Lexically-marked FGE metathetic roots, examples 9

2.4.5. \textbf{Generalizations. Comparison with the linear analysis}

2.4.5.1. The Harmonic Phonology treatment of GV syncopation and Metathesis
2.4.5.2. The Harmonic Phonology treatment of the phonologically-conditioned suspension of GV syncopation and metathesis
2.4.5.3. Advantages of the Harmonic Phonology analysis

2.5. \textbf{OPTIMALITY THEORY ACCOUNT FOR THE BULGARIAN DATA}

2.5.1. \textbf{Some principles of Optimality Theory}
2.5.2. \textbf{A two-level OT account for Bulgarian ghost vowels}
2.5.2.1. Constraints
2.5.2.2. Constraint ranking
2.5.3. OT accounts for the patterns of examples 1-9, Table 3 ........................................ 129
2.5.3.1. <V>-roots, examples 1
2.5.3.2. Metathetic <V>-roots, examples 3
2.5.3.3. CS-roots, examples 2 and 4
2.5.3.4. CS-root + -<e>cl/, examples 5
2.5.3.5. Metathetic <V>-root + -<e>cl/, examples 7
2.5.3.6. Metathetic CS-root + -<e>cl/, examples 8
2.5.3.7. FGE-marked roots, examples 9
2.5.4. Conclusion ........................................................................................................ 141

3. A DIACHRONIC VIEW ON THE BULGARIAN DATA
3.1. JERS AND LIQUIDS ........................................................................................................ 143
3.1.1. Strong and weak jers. Havlík's Law
3.1.2. Two types of 'liquid-jer' sequences in Old Church Slavonic
3.1.3. Acoustics: syllabic liquids vs. sequences 'liquid-schwa'
3.1.4. Sound changes: schwa epenthesis and schwa loss
3.2. MERGER OF SYLLABIC SONORANTS AND SEQUENCES 'SONORANT-JER'.......................... 149
3.3. SCHWA- AND [ə]-EPENTHESES .................................................................................. 151
3.4. REANALYSIS OF HAVLÍK'S LAW ................................................................................. 152
3.5. REANALYSIS OF LEXICAL REPRESENTATIONS .......................................................... 154
3.6. CONCLUSION .............................................................................................................. 158

4. GHOST [Œ] VOWELS IN FRENCH
4.1. DISCUSSION OF THE DATA .......................................................................................... 160
4.1.1. The system of mid vowels in modern standard French ............................................. 162
4.1.2. Alternating and non-alternating [Œ] in French .......................................................... 163
4.1.3. Two classes of alternating [Œ]'s ................................................................................ 165
4.1.4. Sensitivity to rhythm ................................................................................................ 168
4.1.4.1. Rhythm-insensitive [Œ]-syncopation
4.1.4.2. Rhythm-sensitive [Œ]-syncopation
4.1.5. The nature of Class 1 and Class 2 alternating [Œ]'s: underlying or epenthetic? .......... 171
4.2. HARMONIC PHONOLOGY ANALYSIS
4.2.1. The French syllable: structural restrictions ............................................................. 174
4.2.2. <Œ>-Anchoring ........................................................................................................ 176
4.2.3. Œ-Deletion .............................................................................................................. 176
4.2.3.1. Two and more Œ's in contiguous syllables
4.2.3.2. Special behaviour of certain sequences of monosyllables
4.2.4.  Rules relating to Class 2 [Œ]’s............................................................................. 182
  4.2.4.1.  Ò-Creation
  4.2.4.2.  Liquid Deletion
  4.2.4.3.  [Œ]-Insertion

4.2.5.  Interaction of Œ-Deletion and [Œ]-Insertion................................................... 185
  4.2.5.1.  The treatment of quelques, presque
  4.2.5.2.  The treatment of entre, contre
  4.2.5.3.  The treatment of words like «pègre», «astre», «buffle»

4.3.  CONCLUSION........................................................................................................... 189

4.4.  CONTRASTING THE BULGARIAN AND FRENCH GHOST VOWEL ALTERNATIONS............. 190