Two spoken Arabic dialects compared

By Sam Hellmuth

1. Introduction

In this book Watson aims to ''provide a comprehensive and integrated account'' of the phonology and morphology of Arabic by focussing on two spoken Arabic dialects from the eastern group: San'ani Arabic (SA) and Cairene Arabic (CA). The book is thematically organised, with successive chapters treating different aspects first of phonology and then of morphology. Copious examples of each theme are provided from each of the two chosen dialects then analysed in a rule-based framework, with descriptive and theoretical attention to detail throughout. The result is a series of potentially stand-alone chapters which serve as an invaluable reference point on many issues related to Arabic phonology and morphology.

2. Overview of chapters

In chapter 1 (Introduction) Arabic is introduced by outlining the properties it shares with other members of the Semitic language family including a distinctive consonantal inventory, root + template word formation processes, and syntactic word order similarities. The historical spread of the language and its development from Proto-Semitic is described culminating in today's diglossia where geographical and social dialectal varieties exist alongside a standard variety. Watson then justifies her choice of SA, spoken in the old city of the capital of Yemen, and CA, spoken in the sprawling metropolitan capital of Egypt, as representative samples of Arabic phonology and morphology. The two dialects represent extremes on a continuum from conservative dialects, experiencing slow change and fewer divergences from Standard Arabic, to progressive dialects, innovating rapidly in an urban setting. Whilst SA and CA share important features in common (trochaic stress system, similarities of syllable inventory, retention of the basic a/i/u vowel), they differ interestingly in details of their consonantal inventories and metrical structure.

In chapter 2 (The phoneme system of Arabic) first the consonantal system of Classical Arabic is described, then the dialectal reflexes of each class of consonants in spoken dialects (not just SA & CA) are reviewed in some detail. The result is a very useful first reference point for researchers on any dialect of Arabic which if not exhaustive is certainly extensive. For example, in addition to the usual survey of how segments such as *ji:m* [ž] and *qa:f* [q] emerge in different dialects, patterns of reduction in the set of emphatic coronals for different dialects are described. There is some bias towards Yemeni dialects, which is perhaps to be expected given the author's expertise and interest in this area. The chapter continues with a comprehensive review of the consonantal inventories of SA and CA, including marginal 'loan' segments in CA. The rich consonantal inventory of Arabic (28 segments) contrasts with a sparsely populated vocalic space. Vocalic contrasts in both quality and quantity are discussed for Standard Arabic, SA and CA, as well as specific patterns of diphthong coalescence vs. non-coalescence in CA.

Chapter 3 (Phonological features) gives a feature geometry account of the phonemic inventories of SA and CA using monovalent features. Root, stricture and laryngeal nodes are analysed standardly, but for place (articulator) features Watson takes Selkirk's (1993) '[labial]-only theory' in which all labiality is a reflex of the feature [labial] and expands the notion to 'articulator-only'. This means all distinctions arise predictably from phonetic interpretation of place features which may be either 'primary' or 'non-primary'. Default primary place assigned to particular manners of articulation, for example a primary [labial] stop is bilabial by default, a primary [labial] fricative is labiodental, a primary [labial] vocoid is round. Multiple articulations involve a combination of primary + non-primary features. The four place features employed are: [labial] [coronal] [dorsal] [guttural].

Watson analyses the consonants in CA and SA using this framework. The coronals represent the greatest challenge to the 'articulator-only' account, and are analysed by means of secondary and tertiary non-primary features. The pharyngeal and pharyngealised consonants are analysed as having non-primary [guttural], in addition to primary [guttural] in the case of the pharyngeals. The account of emphasis spread proposed in chapter 10 relies on this particular view of emphatic consonants. The

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chapter closes with a consonant and vowel feature matrix for both SA and CA.

A large section at the start of chapter 4 (Syllable structure and syllabification) is devoted to a detailed comparison of competing theoretical analyses of syllabic structure (skeleton-based 'x-slot' theory vs. moraic theory). Watson frames her analysis in moraic theory in the light of widely accepted general theoretical advantages which she outlines, but acknowledges an element of Arabic phonology which moraic theory fails to capture: the syllabic status of an offglide which originates in the trilateral lexical consonantal root.

Syllable inventories for both CA and SA are given. The minimal syllable in both dialects is monomoraic and the maximal syllable bimoraic. Vowels and geminate consonants are lexically moraic whereas non-geminate coda consonants are assigned a mora by a Weight-By-Position (WBP) rule. A domain-final CVC syllable is light in both CA and SA (consonant extrametricality) which is analysed as invisibility of domain-final consonants to the WBP rule.

Superheavy CVVC syllables are found in both dialects in domain-final position, with CVCC restricted to utterance-final position in CA. The domain-final consonant in these cases is analysed as extrasyllabic. 'Super-superheavy' CVCCC syllables occur in SA but the final two consonants in these clusters are always [tš] of which the second member is the negation enclitic particle [-š]. Watson treats domain-final [tš] as an affricate, providing supporting evidence from the retention of [tš] in loanwords into SA from English; in CA the same sequence is broken up by epenthesis. CVVCC syllables in SA appear elsewhere in the book (example 50 on page 67) but are not mentioned here; these also have final [tš] clusters so are amenable to the same analysis.

The domain of syllabification is the phonological phrase in CA and the phonological word in SA. A worked example of a syllabification algorithm is provided for CA. Potentially ill-formed sequences are avoided by means of a number of syllable repair processes which are described in detail with examples and a rule-based phonological analysis of each: epenthesis, consonant prosthesis, closed syllable shortening and syncope. Cross-dialectal differences are noted, for example, whilst in both dialects syncope serves to reduce the number of monomoraic syllables, in CA only certain short vowels syncopate and the process is blocked if it would result in an unsyllabifiable sequence. In SA any short vowel may delete and 'structure-violating' consonant clusters often result. In a survey of such clusters in word-initial position Watson finds that 30% represent 'sonority reversals', analysed as re-linking of the initial consonant to the mora of the deleted vowel. Whilst CA syncope patterns are consistent with an 'optimal bimoraic syllable' approach (Broselow, 1992) Watson points out that the SA facts present a significant challenge to such an account.

Chapter 5 (Word stress) starts with a summary of the word stress facts for CA and SA, a stress-assignment algorithm for each dialect, and exceptions. Neither CA nor SA pronunciation of Standard or Classical Arabic is included in the account. CA word stress has previously been extensively treated in the literature as have many other Arabic dialects, so the detailed account of SA word stress presented in this chapter is a welcome addition to the Arabic word stress literature.

The stress systems are analysed using Hayes' (1995) Metrical Stress Theory and the model is described in some detail. In CA consonant extrametricality applies, moraic trochees are constructed left-to-right, word level prominence follows End Rule Right and there is an absolute ban on degenerate feet. A key feature of CA stress is the absence of foot extrametricality, contrasting with Levantine dialects (compare CA *muškíla* vs. Levantine *múškila*). Possible accounts of exceptions to the main stress rule are outlined and a lexicalisation analysis favoured.

The key features of SA stress, contrasting interestingly and significantly with CA, are:

i) assignment of stress to a penult or antepenult CVV or CVG (geminate) syllable even if the final syllable is superheavy; ii) foot extrametricality (*múškilah*); and iii) tolerance of degenerate feet in strong prosodic positions. A domain-final CVVC or CVCC superheavy syllable cannot be analysed as a canonical heavy syllable + extrametrical consonant in SA (as it is in CA) because a CVC syllable is light in some positions but heavy in others. Watson uses a two-layer metrical grid representation where potentially well-formed bimoraic feet are constructed on the upper layer first. This captures the fact that a domain-final CVV foot is extrametrical only if another bimoraic foot is present on the upper layer. It is made clear however that the account does not capture the lack of distinction between CVV and CVG syllables when there are no potential bimoraic syllables on either layer. SA also displays stress fluctuation in connected speech, including stress assignment to degenerate feet at both left and right edges of the word (contra Hayes, 1995).

Chapter 6 (Morphology) opens with a brief discussion of different types of morphology. Arabic displays both root + pattern non-concatenative (templatic) morphology at Level 1, and root + affix concatenative morphology at Level 2. These two types of morphology are treated separately in chapters 6 & 7 respectively. Watson describes the development of templatic analyses of Arabic non-concatenative morphology culminating with the work of McCarthy & Prince (1990a, 1990b) whose theory of Prosodic Morphology is assumed in the analyses that follow.

The chapter then describes Level 1 verbal and nominal morphology in CA and SA in detail. The degree of productivity of the verbal forms ('binyan') in the two dialects is compared. For example, a form VII verbal form is preferred in CA to express the passive, whereas SA still uses an apophonic change to

a Form I verb. Copious examples are given of the verbal forms and their derivatives and a rule-based analysis provided, together with variations of the rule for non-triliteral and defective stems. Non-concatenative plural formation forms ('broken plurals') are described in detail with an analysis following McCarthy & Prince (1990b) in which the plural template is an expansion of a minimal word extracted from the left edge of the singular stem.

Chapter 7 (Morphology 2) treats the little studied subject of concatenative Arabic morphology. Apart from the negation circumfix [maa- -š] in Arabic all Level 2 affixes are applied to the outcome of Level 1 templatic morphology. Of the two dialects CA has the richer Level 2 morphology, due to increased influence from other languages (eg Turkish) and subsequent borrowing of affixes. The chapter lists verbal, nominal and adjectival affixes found in each dialect and provides tables to describe ordering tendencies among different classes of affix. Distributional differences between the dialects are described in detail. For example, SA differs from CA in retaining a gender distinction in 2nd and 3rd person plural subject and object agreement prefixes. Rules of allomorphy, related syllable repair processes and the behaviour of loanword affixes are described with many examples and a rule-based analysis provided for each.

Chapters 8–10 describe the phonological processes found in CA and SA. These are divided into two groups: those which are sensitive to lexical information or morphological structure (lexical phonology in ch.8) and those which are not (post-lexical phonology in chs. 9 & 10). Each chapter further subdivides into melodic and prosodic processes.

Chapter 8 (Lexical phonology) lists prosodic and melodic lexical-phonological processes found in CA and SA, with many examples as well as a worked illustration of a moraic rule-based analysis for each. An example of a prosodic process occurring in both dialects is 'n-strengthening' (*min + ha > minnaha* 'from her') analysed as a restriction on affixation of Level 2 morphemes to sub-minimal stems; the situation is repaired by mora reduplication and secondary association of the stem-final [n] to produce a bimoraic stem. The melodic processes involve total assimilation for which Watson employs Mohanan's (1993) 'dominance' account. In general assimilation is found more extensively in CA than in SA and distributional differences between the dialects are noted. For example, the well known phenomenon of assimilation of the final consonant of the definite article [-*l*] to following coronals in fact differs in its application between CA and SA since in CA [-*l*] may optionally assimilate to a following velar stop also. Watson provides evidence of the reduced productivity of this exception to support her claim that this is in fact a separate process: [-*l*] assimilation to coronals arises from an OCP violation, whereas [-*l*] assimilation to velar stops is due to dominance of a velar stop over a coronal.

Introducing chapter 9 (Post-lexical phonology) Watson notes that whilst the majority of lexical processes are prosodic, most post-lexical phonology process are melodic; similarly, lexical assimilation is usually total, whereas post-lexical assimilation is partial (emphasis spread, a partial assimilatory process, is treated separately in some depth in chapter 10). The domain of application of post-lexical processes in this chapter is described with reference to prosodic domains both above and including the prosodic word (clitic group, phonological phrase etc). Sensitivity of phonological processes to higher prosodic structure in Arabic is largely untreated in the literature so this is a welcome innovation.

Post-lexical prosodic processes, in addition to the syllable repair processes described in chapter 4, are listed for both CA and SA. Distributional differences between the dialects are noted. For example, resolution of a *V-V sequence may take several forms: deletion of one vowel, glottal epenthesis or glide formation. Vowel deletion is the preferred option in both dialects within the prosodic word; between prosodic words however the dialects vary with vowel deletion or glottal epenthesis preferred in CA, and glide-formation preferred in SA. Analysis of melodic assimilatory processes relies on the feature geometry account of chapter 3: in many cases OCP-violating adjacency of primary or non-primary features triggers spreading of some other (primary or non-primary) feature. An example in both dialects is assimilation of adjacent sibilants (*ma + daras + š > madarašš* 'he did not learn'). In CA this can be treated as an OCP violation of [coronal] in the context of [strident] resolved by deletion of leftmost place features + spreading of rightmost place features. In SA the directionality of deletion/spreading is not fixed but determined by relative dominance.

Local and long-distance spreading of non-primary features from 'emphatic' segments in CA and SA are described and analysed in chapter 10 (Emphasis). The emphatic segments are the pharyngealised coronals, uvulars and pharyngeals, as well as some velars and laryngeals in CA.

The articulatory and acoustic correlates of emphasis are first described in some detail. Watson then follows earlier work (Watson, 1999) in analysing emphasis as pharyngealisation, in contrast with the competing analysis in the literature of emphasis as uvularisation (eg Shahin, 2002). The uvularisation analysis is only briefly described and it would have enhanced the usefulness of this chapter to newcomers to Arabic phonology to have the relative merits and demerits of both accounts outlined in more detail. Watson analyses emphasis as spreading of non-primary [guttural] which is characterised by pharyngealisation and enhanced by labialisation.

Both the phonetic realisation and the domain of non-primary [guttural] spread varies depending on the trigger segment, and in Watson's account this is predictable from the feature specification of the trigger segment (proposed in chapter 4). Spread from

a pharyngeal (which has both primary and non-primary [guttural]) is local because non-primary [guttural] is not dependent on other features in the segment. In a coronal emphatic [guttural] is contingent on the primary feature [coronal] so the spread is long-distance. Emphasis spread is blocked by dorsal vocoids and this is also predicted from contingency relations between primary and non-primary features. In SA weakening of pharyngealised consonants in some lexical items (eg Standard Arabic *b-S-r* 'to see' vs. SA *b-s-r* 'to see') has led to enhancement of non-primary features in these segments. In SA then emphasis involves spreading of both non-primary [guttural] and non-primary [labial], spreading within different domains and in different directions, but predicted from contingency relations among features.

3. Discussion

This is an extremely thorough and detailed survey of the phonology and morphology of two contemporary spoken dialects of Arabic. The wealth of analytic detail could perhaps be daunting for relative newcomers to either phonology or Arabic, however this factor is amply compensated for by two consistent strengths of the book: firstly, the stand-alone nature of the chapters, made possible by extensive cross-referencing, and secondly the extensive provision of clearly-presented examples throughout.

Watson's choice of CA and SA as representatives of Arabic in general is no doubt influenced by the extent of her own experience of those two dialects. It could be argued that fruitful comparison might equally be made between a western (= North African) dialect and an eastern one such as CA. However the choice of CA vs. SA proves to be insightful as the contrast between progressive and conservative dialects probably lends itself more easily to application to other dialects. The book provides a model of comparative Arabic phonology in its re-working of analyses originally conceived for CA (or other dialects) in response to the facts of SA.

The book concentrates on providing an account of contemporary spoken varieties. In particular it is welcome to see a dialect whose future is uncertain (old city SA) as the subject of thorough theoretical analysis and data from a relatively unknown dialect thus added to the literature. This contrasts favourably with repeated reanalysis, even in recent works, of previously published data from a small number of dialects in certain theoretical areas such as word-stress.

Many of the theoretical approaches referred to in the book, and their application to Arabic data in particular, have since been re-worked or re-interpreted, for example in constraint-based frameworks, and reference to some of these would have been helpful for newcomers to the literature. Nonetheless this book provides an invaluable and exhaustive first point of reference for the recurring themes of concern to students of the phonology and morphology of Arabic.

References

BROSELOW, E. (1992) Parametric variation in Arabic dialect phonology, in E. BROSELOW, M. Eid and J. MCCARTHY (eds) *Perspectives in Arabic Linguistics IV*, 7–45. Amsterdam: J. Benjamins.

HAYES, B. (1995) *Metrical Stress Theory: Principles and Case Studies.* Chicago: University of Chicago Press.

LOMBARDI, L. (1991) *Laryngeal Features and Laryngeal Neutralisation*. PhD, UMass.

MCCARTHY, J. and PRINCE, A. (1990a) Prosodic morphology and templatic morphology, in M. EID and J. MCCARTHY (eds) *Perspectives in Arabic Linguistics II*, 1–54. Amsterdam: J. Benjamins.

MCCARTHY, J. and PRINCE, A. (1990b) Foot and word in prosodic morphology: the Arabic broken plural. *Natural Language & Linguistic Theory*, 8, 209–83.

MOHANAN, K. P. (1993) Fields of attraction, in J. GOLDSMITH (ed.) *The Last Phonological Rule: Reflections on Constrains and Derivations*, 61–116. Chicagoe: Universty of Chicago Press.

SELKIRK, E. O. (1993) [Labial] relations. ms. UMass, Amherst.

SHAHIN, K. N. (2002) *Post-velar harmony*. Amsterdam: J. Benjamins.

WATSON, J. C. E. (1999) The directionality of emphasis spread in Arabic. *Linguistic Inquiry*, 30, 289–300.