

Editors' Introduction

Arabic linguistics has a long and rich tradition originating in the work of the medieval Arab grammarians. This tradition has been the subject of insightful, in-depth analysis in the work of scholars such as Versteegh (1997, 2001) and Bohas, Guillaume and Kouloughli (1990). More recently, the monumental *Encyclopedia of Arabic Language and Linguistics* (Versteegh et al. 2009) provides a comprehensive overview of the history and structure of the many varieties of Arabic, as well as a review of the major findings of research in Arabic linguistics. The goal of this introduction is not to recapitulate the overviews provided in these works, but rather to highlight the contributions of this volume to the field of Arabic linguistics as well as to the wider field of linguistics. We begin with a discussion of the ways in which research in Arabic linguistics has contributed to research on human language.

1. Linguistics and Arabic Linguistics

Modern research in Arabic linguistics has taken place within the context of a linguistic theory that has as its goal the understanding of language as a human phenomenon, from which it follows that languages are considered to be more similar than different. Thus, while Arabic linguistics maintains its focus on Arabic, it makes contributions to the field as a whole, since other languages display structures and processes similar to those found in Arabic. In the following section we discuss the ways in which Arabic linguistics has contributed to recent research in linguistics in several different areas: the development of theories of language universals and typology; the connection between typology, language acquisition, and language change; the interface between grammatical modules; and the increased reliance on experimental and corpus data. In section 2 we discuss the ways in which these issues are reflected in research in the Arabic linguistics tradition and specifically in the papers in this volume.

Universals and Cross-language Variation

One goal of linguistic research of the past decades has been to determine whether all human languages share specific properties, and to define the ways in which languages can differ. This question is far from settled; a recent issue of *Behavioral and Brain Sciences* devoted to the topic of linguistic universals presents viewpoints ranging from the claim that “Languages differ so

fundamentally from one another at every level of description (sound, grammar, lexicon, meaning) that it is very hard to find any single structural property they share” (Evans and Levinson 2009: 429) to replies arguing that even languages that exhibit superficial differences may exhibit striking similarities at more abstract structural levels (e.g., Baker 2009).

Detailed investigation of a variety of languages, both within and across language families, is obviously crucial to developing and testing theories of linguistic universals and typology. Research on Arabic has had increasing impact on such theories. For example, in phonology, patterns found in Arabic dialects have been influential in the development of theories of word stress; Hayes’ (1995) volume on metrical structure, for example, includes data from eleven varieties of Arabic. In syntax, Classical Arabic has attracted attention as a verb-initial language, and much work has focused on the implications of Arabic data for theories of syntactic typology (Fassi Fehri 1982, 1988, 1993, Mohammad 1990, 1999, Benmamoun 1990, 1992, 2000, Eid 1991, Shlonsky 1997, and Brustad 2000, to cite just a few). In theories of word structure, Arabic data has been of particular interest, as Semitic languages have often been described as presenting a relatively exotic morphological system, in which discontinuous consonantal roots are interleaved with vocalic patterns or templates. Much research has been devoted to investigating whether Semitic morphology is truly different in kind from more familiar concatenative morphology, with some researchers questioning the psychological reality of consonantal roots (e.g., papers in Shimron 2003, Farwaneh 2007), or arguing that Arabic morphology is fundamentally word-based, with templatic effects arising from stringent restrictions on maximal word size that force stem vowels to be replaced by affixal vowels (Ussishkin 2003). Even in an analysis assuming roots and templates as morphological primitives, McCarthy (1981) argued that the principles used to associate roots with templates parallel those operating in other languages to associate tonal melodies with segments. An additional strand of research has focused on the role of roots and templates in the processing of Arabic words (Boudelaa and Marslen-Wilson 2000, 2001, 2003, 2004, 2005). The various analyses of Arabic morphology illustrate the ways in which Arabic data has been used to test and refine hypotheses concerning the limits of structural differences across languages.

Within Arabic linguistics, interest in cross-language variation has increased in recent years. Whereas earlier work tended to focus mainly on Standard Arabic, much of the recent work on Arabic has been comparative in nature (e.g., Brustad 2000, Benmamoun 2000, Aoun,

Benmamoun , and Choueiri 2010 in syntax, Farwaneh 1995 and Watson 2002 in phonology). Many of the papers in this volume fall within this tradition of investigating the fit between specific hypotheses concerning the limits of variation across human languages and the data of one or more varieties of Arabic.

Sources of Typological Tendencies: Language Acquisition and Language Change

The claim that there exists a preponderance of structural similarities across even historically unrelated languages leads inexorably to the search for an explanation of why particular structural patterns should be preferred. Hypotheses about why some structural features are rare and others virtually ubiquitous are crucially tied to theories of language acquisition and language change, and approaches to this question span a continuum. At one end are innatists who argue that language acquisition is shaped by universal linguistic principles which limit the space of possible grammars assumed by language learners; in this camp are approaches assuming a universal set of parameters (e.g., Chomsky and Lasnik 1993) or, in some work in Optimality Theory, a universal set of constraints (e.g., Prince and Smolensky 1993). At the other end of the continuum are accounts that attribute cross-linguistic tendencies to the fact that as language is transmitted across generations, certain structures are more susceptible to misperception or misintepretation (e.g., Blevins 2004, Croft 2000), or that general properties of learning or memory that make certain structures more likely to be mastered (e.g., Givon 1984/92). In the Arabic tradition, we also find a range of approaches, including work that proposes analyses of Arabic grounded in a set of putative universal, innate principles (Fassi Fehri 1982, 1988, 1993, Mohammad 1990, 1999, Benmamoun 1990, 1992, 2000, Eid 1991, Shlonsky 1997, to cite just a few) and work taking a functionalist perspective (e.g., Brustad 2000). Researchers have used data from both first and second language acquisition to test hypotheses concerning the role of innate principles and general cognitive factors in language acquisition. For example, the fact that children learning Egyptian Arabic fail to master the formation of the plural until relatively late (as opposed to learners of other languages) was cited by Slobin (1973) as an example of the role of inherent structural complexity in determining the course of language acquisition. The acquisition-oriented papers in this volume contribute to this ongoing discussion.

Interfaces of Linguistic Subsystems

Along with the development of linguistic descriptions of increasing scope and complexity has come the realization that languages function as integrated systems rather than as discrete modules of phonology, morphology, syntax, and semantics. Recent years have seen a burgeoning interest in the interfaces between different components of grammar, and in the development of formal models to describe these interactions (e.g., Truckenbrodt 2007). Arabic data is beginning to have increasing influence in the development of these models. For example, we can see increasing attention to Arabic intonation, an area at the juncture between phonetics, phonology, syntax, and discourse. While Ladd's (1996) overview of intonation and sentence stress contains the caveat that "The sample of languages considered in this chapter and the next is unquestionably Eurocentric... rather little is known about intonation in languages in other parts of the world..." (Ladd 1996:118), the 2008 edition cites Egyptian Arabic (following Hellmuth 2007) as an exemplar of a language in which each content word tends to be accented. Several papers in the current volume reflect this increasing interest in the interface of syntax, semantics, phonology, and pragmatics.

Linguistic Data

While early linguistic research in the philological tradition defined the object of study as the language itself, much linguistic research in the twentieth century has defined linguistics as a cognitive science, with the goal of understanding the speaker's internalized grammatical system of which the language is a reflection. This move has led to increased use of experimental techniques to test hypotheses concerning the nature of speakers' internalized grammars, such as artificial language learning experiments designed to determine whether typologically common structural patterns are more easily learned than rare or unattested patterns (e.g., Moreton 2008). Furthermore, theoretical linguists have come to recognize the degree of variation typically found within languages and even within speakers, which has led to greater reliance on corpus studies, as opposed to elicitation of judgments from one or two native speakers. Whereas in early generative accounts, intra-speaker variation was often seen as resulting from performance errors or from co-existent dialects, formal models now frequently incorporate gradience into the grammar (e.g. Boersma and Hayes 2001); these models are probabilistic, predicting that individual speakers may produce variable outputs. Here too Arabic data have played a significant role in shaping theory, as one of the earliest arguments for incorporating gradience into

grammatical models came from Arabic, specifically the well-known tendency for the consonants in an Arabic root to be distinct in their place of articulation. Frisch, Pierrehumbert, and Broe (2004) argued that this restriction represents a statistical tendency rather than a categorical requirement, and demonstrated that the strength of the restriction varies according to the overall similarity and proximity of the consonants. Thus, Arabic data has been influential in causing many researchers to incorporate statistical regularities into models of language.

2. Current Trends in Arabic Linguistics

Arabic has always been of interest to linguists, for two reasons: Arabic phonology, morphology, and syntax present various structural features that are relatively unusual, and most Arabic-speaking communities are diglossic, with some distance between the written and spoken varieties, raising interesting questions for psycholinguistic and sociolinguistic research. Recent years have seen an increasing body of research in Arabic linguistics that focuses not only on formal analyses of Arabic grammatical structure but also research spanning the fields of neurolinguistics, psycholinguistics, sociolinguistics, experimental phonetics, and computational linguistics, with research methodologies include behavioral studies of normal and disordered performance, neuroimaging, and modelling. The papers in this volume reflect these various perspectives and emphases.

The volume consists of three sections, the first section devoted to phonetics and phonology, the second to syntax, and the third to language acquisition and language contact. We will discuss the papers in the context of research within their subfields in Arabic linguistics as well as the context of the broad trends in general linguistics.

Phonetics and Phonology

Arabic phonology presents a number of features that have stimulated considerable study in the field of Arabic linguistics. Arabic's unusually large consonant inventory includes a large number of gutturals, which have raised interesting issues for the theory of distinctive features (McCarthy 1991). Arabic systems also contain a relatively rare contrast (pharyngealization, or emphasis), and emphatic consonants participate in harmony, where the targets, triggers, direction, and domain of the harmony process may differ across different varieties (see, e.g. Watson 1999). Arabic varieties also display a rich inventory of syllable types; for example, the

North African dialects have long been recognized as different in their syllable structure from most other varieties, with consonants appearing to serve as syllable nuclei--a structure that is typologically rare. This has been a topic of continuing interest; recently, Shaw, Gafos, Hoole, and Zeroual (2009) employed Magnetic Articulometry techniques to investigate articulatory timing patterns in Moroccan Arabic, shedding light on the ways in which this language organizes its phonological structure. As mentioned earlier, stress in Arabic dialects has also been well studied, and cross-dialectal variation has been a fruitful source of data for models of the typology of metrical structure.

It is safe to say that most if not all recent work on the phonetics and phonology of Arabic has addressed the question of where Arabic fits into larger theories of cross-language variation. All four papers in this section situate the phenomena they describe within the context of theories of language typology and linguistic universals. The range of phenomena discussed is broad, from the realization of voicing through sentence-level intonation. Three papers deal with production while the fourth focuses on parsing.

Two papers, by Kabrah and by Abu-Mansour, are set in the framework of Optimality Theory, in which a grammar is assumed to consist of a universal set of constraints which together define the optimal realization of a lexical representation. Constraints are of two types: structural constraints, which penalize cross-linguistically marked structures such as word-final voiced obstruents, and faithfulness constraints, which penalize the loss of lexically marked features (such as voicing). These constraints may conflict, in which case the ranking of the constraints is crucial: in languages such as German and Russian, the structural constraint penalizing final voiced obstruents outranks the constraint that requires voicing contrasts to be maintained, while in English faithfulness constraints outrank this structural constraint. The link to typology in this framework is clear: the set of structural constraints is part of the grammar of every language, but a constraint may be rendered inactive by its ranking below antithetical constraints. In this framework, typology and acquisition are closely linked (Gordon 2007)--because the constraint set is universal, grammars differ only in the ranking of their constraints, and the task of the language learner is to master the constraint rankings appropriate to her language. The set of possible phonological grammars is predicted to equal the set of all possible constraint rankings.

Restrictions on the position of voicing contrasts have served as the focus of a number of

studies in this framework. Lombardi (1999) proposed that the patterns found in attested languages could be described in terms of a small set of constraints whose rankings varied across languages. These constraints include one requiring adjacent obstruent to agree in voicing, ruling out clusters such as /kz/ and /gs/, and one requiring that obstruents in onset position maintain their voicing. Kabrah finds evidence from both elicited data and corpus data that in Cairene Arabic, both constraints are active, causing the realization of underlying /kz/ and /gs/ as [gz] and [ks], respectively. Thus, the fact that voicing contrasts in obstruents are neutralized in pre-obstruent position but maintained elsewhere is accounted for by two constraints encoding universal tendencies. Kabrah provides a careful formal analysis of the data within the context of Lombardi's theory of cross-linguistic voicing typology, providing additional support for constraints that impose more stringent faithfulness requirements on segments in particular positions in the syllable and the word. Beyond this, however, Arabic provides a new type of data: the guttural consonants, which are absent from the languages included in most previous investigations of voicing. Kabrah shows that some of the gutturals pattern with sonorants and others with obstruents, bringing new evidence to bear on the not uncontroversial classification of gutturals, and uncovers interesting differences between the patterning of gutturals in Cairene vs. in other Arabic dialects (Abu-Mansour 1996). Most interestingly, however, she shows that one guttural consonant, the voiceless pharyngeal fricative, patterns in some contexts with obstruents and in others with sonorants. This fact appears to require an explanation in terms of the specific articulation of this segment rather than in terms of phonological features, and suggests that the model relying solely on phonologically-defined constraints may require revision. This example points up the importance of Arabic data in testing theories of typological variation.

Mahasen Abu-Mansour's paper reflects the new interest in interfaces between linguistic modules. This paper focuses on phonology-syntax interactions in Arabic, specifically the role of syntactic structure in conditioning vowel deletion, and presents previously unreported data on the syncope of vowels in Makkan Arabic. Like Kabrah's paper, Abu-Mansour presents an analysis within the framework of Optimality Theory, which in this component sets out a typology of possible mappings between prosodic structure (Nespor and Vogel 1986) and syntactic structure. Recent work on the phonology-syntax interface has presented evidence for a number of phonological processes conditioned by the edges of phonological phrases (e.g., Selkirk 1995, Truckenbrodt 2007) and Optimality-Theoretic analyses of these phenomena describe the phrasal

structure of various languages in terms of a set of constraints demanding the right (or left) edge of a particular syntactic constituent be aligned with the right (or left) edge of a prosodic constituent. The complex patterns of syncope in Makkan appear to involve distinct processes at the word level vs. the phrase level which are triggered by distinct conditioning factors to the left vs. to the right of the targeted vowel. However, Abu-Mansour shows that it is possible to provide a unified analysis of the complex patterns of word-level and phrase-level syncope, as well as the directionality effects of righthand and lefthand contexts, by assuming a set of ranked constraints which including constraints aligning edges of phrases and syntactic maximal projections. Her paper provides further evidence that Makkan Arabic is among the languages that show phrase edge effects, and provides new evidence for a particular model of the phonology-syntax interface.

The paper by Dina El Zarka, a study of intonation in Cairene Arabic, also focuses on interface issues, in this case the relationship between the fine phonetic details of intonational melodies and the larger considerations of discourse. El Zarka also addresses the question of the implications of the Arabic data for theories of the typology of intonation. A longstanding debate in the study of intonation concerns the extent to which languages may differ in their inventory of intonational melodies. The ‘universalist’ view (e.g., Bolinger 1989) holds that pitch contours are related to emotion, with certain contours signaling similar messages across languages—high or rising pitch, for example, universally signaling incompleteness or interest. In contrast, the autosegmental-metrical view (e.g., Ladd 1996/2008) holds that while intonational melodies are structurally similar across languages, being composed of a series of tones, languages may vary in their inventory of tonal melodies, the meanings they assign to these melodies, and the ways in which the melodies are associated with segmental structures. Based on careful phonetic investigation of Cairene sentence intonation, El Zarka comes down on the universalist side, arguing that the shape of pitch melodies is iconic, with tonal contours correlated with basic constituents of information structure. In contrast to the formal models of the Kabrah and Abu-Mansour papers, El Zarka explicitly rejects a formal approach, pointing out that autosegmental analyses describing intonational melodies in terms of strings of abstract pitch targets were developed mainly on the basis of English. We should note, however that Hellmuth’s (2007) dissertation, mentioned above, does propose an autosegmental analysis of Egyptian Arabic intonation, pointing up the need for further investigation of intonation in this and other

Arabic dialects.

While the three preceding papers focus mainly on speech production, Rajaa Aquil's paper focuses on speech processing, specifically the question of how Cairene Arabic speakers segment a continuous acoustic signal into discrete words. As she points out, previous studies of processing in Arabic have focused on the role of morphological structure (Boudelaa & Marslen-Wilson, 2000, 2001, 2003, 2004, 2005); hers is the first study of the relationship between prosody and processing in Arabic. A model of the typology of word segmentation has emerged (e.g., Cutler, Demuth, and McQueen 2002) in which listeners are influenced by such factors as the shape of possible words in their language and the position of stressed syllables. Using the word spotting technique, in which listeners are asked to identify actual words within longer strings, Aquil demonstrates an effect for stress as a segmentation unit, consistent with Cairene Arabic's status as a stress-timed language. She shows that while participants may consider several candidate segmentations for a single string, they consider only candidates that are consistent with the native language constraints defining possible syllables, possible feet, and minimal word size. Thus, the native language phonological grammar plays an important role in processing. While this study draws on the extensive knowledge of syllable structure and stress that has emerged from the Arabic linguistics tradition, it also points a new direction for research in this area, as well as adding to the body of research on word segmentation in non-European languages.

Syntax and Semantics

The recent trends in Arabic syntax reflect to a large extent the developments in syntactic theory. With the elimination of the different levels of representation (Chomsky's 1995), namely Deep Structure (D-Structure) and Surface Structure (S-Structure), and the proposal that syntactic derivations proceed to satisfy requirements of sound (Phonetic Form -PF-) and meaning (Logical Form -LF-), there has been an increasing body of research that tries to discover the type of conditions that hold at PF and LF interfaces respectively. The so-called Agreement asymmetry in Arabic is one of the syntactic phenomena that have received much attention, with a split in analysis among those who claim that Agreement in general takes place at PF and those who claim that it takes place at LF.

Subject-verb agreement in Standard Arabic, as is well known, is sensitive to the position of the subject with regard to the verb. The verb inflects for full subject-agreement in SVO sentences as in (1) and partial agreement, in Person and Gender, in VSO sentences as in (2).

- 1) ʔan-nisa:ʔ.u tu.ʃa:rik.na ʔar-riʒa:l.a fi ʔal-muḏʔa:harat.i (SVO)
 The-women.Nom participate.IMP.3pf the-men.ACC in the-demonstration.GEN
 ‘The women participate with men in the demonstration’
- 2) tu.ʃa:rik.u ʔan-nisa:ʔ.u ʔar-riʒa:l.a fi ʔal-muḏʔa:harat.i (VSO)
 participate.IMP.3sf the-women.Nom the-men.ACC in the-demonstration.GEN
 ‘The women participate with men in the demonstration’

This agreement asymmetry has been highly debated in the literature, especially in the generative camp, and different proposals have been advanced to explain it; see Fassi Fehri (1982, 1988, 1993), Mohammad (1990, 1999), Benmamoun (1990, 1992, 2000), Eid (1991), Bahloul and Harbert (1993), Aoun, Benmamoun, Sportiche (1994), Shlonsky 1997 and recently Soltan (2007). FassiFehri (1982, 1988) and Mohammad (1990, 1999) argue that partial agreement in VSO sentences is the result of the verb agreeing with a preverbal null expletive, whereas full agreement results from a specifier-head agreement relation with the subject. Fassi Fehri (1993) maintains that full agreement is a result of pronoun incorporation with the verb whereas partial agreement does not (see Benmamoun 2000 for arguments along these lines). Bahloul and Habert (1993), and Bahloul (2006) argue that full agreement results from a specifier-head agreement with the subject whereas partial agreement is obtained as a result of a government relation between the verb and the post-verbal subject (See Soltan 2007 for a similar account using a Probe-Goal analysis (Chomsky 2000, 2005)).

In recent developments, the debate has moved to the interface conditions under which agreement and other syntactic phenomena are obtained. Benmamoun (1996, 2000) maintains that agreement is a PF phenomenon and hence it reflects how Syntax interacts with and is constrained by Phonology requirements. In this volume Fassi Fehri takes a different stance, arguing that different forms of agreement, more specifically subject-verb agreement asymmetries, the “subject pronoun deficiencies”, and morpho-syntactic variation in reciprocal expressions in Standard and Classical Arabic, can be more successfully accounted for under LF conditions or what he calls “a fine-grained semantic syntax”. In McNabb and Kennedy (this volume) PF

conditions or constraints are also used to explain the disparity between the distribution of two types of comparative adjectives in Palestinian Arabic, namely quality adjectives and quantity adjectives. They argue that some structural violations that have been considered purely syntactic (e.g. Left Branch Conditions) are PF violations that can be remedied by PF deletion. They discuss two types of comparatives, namely quantity and quality adjectives which, they argue, have a different distribution in comparative constructions that are headed by *ma* ‘that’ in Palestinian Arabic. They show that this difference in distribution can be explained in configurational terms: The internal structure of the DP prohibits the movement of quality adjectives but not of quantity adjectives. Movement of the quality adjectives within the DP in order to check agreement features (Chomsky 1995, Fassi Fehri 1999) and from the DP to Spec,CP (Ross 1967, Bresnan 1973, Chomsky 1977, *inter alia*) creates structures whose features do not correspond to lexical items in Palestinian, i.e., it incurs a PF violation. By appealing to PF deletion the offending structure is salvaged rendering that comparative structure grammatical (Kennedy & Merchant 2000).

Case is another topic that has received and is still receiving a lot of attention in Arabic syntax. Depending on its syntactic distribution and function, the noun in Standard Arabic can have three possible case forms: nominative, accusative, or genitive. The subject typically has nominative case, the object accusative case, and the complement of a preposition has genitive case as shown in (1) and (2) above. However, when the subject is preceded by the complementizer *ʔinna* or one of her sisters, as in (3), the subject has to have accusative case, as shown by the ungrammaticality of (4):

- 3) *ʔinna ʔan-nisa:ʔ.a tu.ʃa:rik.na ʔar-riʒa:l.a fi ʔal-muḏʔa:harat.i*
 Comp The-women.ACC participate.IMP.3pf the-men.ACC in the-demonstration.GEN
 ‘The women participate with men in the demonstration’
- 4) **ʔinna ʔan-nisa:ʔ.u tu.ʃa:rik.na ʔar-riʒa:l.a fi ʔal-muḏʔa:harat.i*
 Comp The-women.NOM participate.IMP.3pf the-men.ACC in the-demonstration.GEN

The conditions under which case is assigned to the noun have also evolved, reflecting the evolution in syntactic theory. In the generative literature and specifically within the Government of Binding (GB) framework, Aoun (1986) and Fassi Fehri (1993) argue that case is assigned

under government along the lines of what the medieval grammarians initially proposed. Within Minimalism, where government as a syntactic relation was entirely eliminated, case assignment calls for new explanations (Benmamoun 2000). Leung (this volume) argues that structural case is licensed by the mood feature that originates in the complementizer, instead of by the tense feature and argues that the case-assigning capacity that complementizers have supports the recent analysis of Complementizer-Tense agreement relation, couched within the Probe-Goal theory in Minimalism.

Bakir (this volume) looks at another property of complementizers, namely their structural status in the clause structure. He revisits Rizzi's (1997) so-called split-C hypothesis, claimed to be universal, and according to which the CP projection is a multi-layer projection consisting of a variety of semantically relevant functional projections that encode semantic and pragmatic properties of the sentence (Rizzi 1997). There are positions in the left periphery that are specifically for certain types of extracted elements, namely: topics, focused elements, wh-elements and others. Bakir argues that data from Iraqi Arabic seem to cast doubts on some of the tenets of this hypothesis. The dislocated elements in Iraqi Arabic show great variation in terms of their syntactic distribution. Some of these elements may surface in other positions than their canonical positions in the left periphery. A'-movement, overt or non-overt, to these canonical positions cannot be always motivated, because of the existence of a second landing site or because of some scope conflict. Given these facts, he argues that the split-C hypothesis will have to abandon its universality. Its adequacy may be limited to only some languages. Less restrictive approaches to the structure of the left periphery will be more adequate in accommodating the facts in languages like Iraqi Arabic that show free order and iterability of the dislocated elements.

Unlike the aforementioned syntax papers, Chatar-Moumni's paper stands out as the only paper to offer a structuralist analysis. In her meticulous analysis of the word *kan* 'be' in Moroccan Arabic (MA), she argues against the characterization of this word as a copula in the context of a nonverbal unit and as an auxiliary in the context of a verbal unit. She argues that the notion of copula, borrowed from the Indo-European languages, is not relevant for *kan* in MA but rather that the notion *connective verb* is the more accurate characterization. She shows that although *kan* is semantically weak, it is syntactically a full verb, "particularly a bivalent verb requiring two essential arguments: a subject and an attribute". Therefore, in the connective

structures, *kan* is the syntactic nucleus (syntactic predicate). She also shows that even though in the context of a verbal unit *kan* exhibits some features of auxiliarity, it is not an auxiliary inasmuch as it doesn't form a "structure of auxiliarity".

Language Acquisition and Language Contact

The fact that most Arabic-speaking communities are diglossic, with the written variety distinct from the colloquial, has stimulated research on the effects of diglossia and language contact on acquisition of both spoken and written Arabic. The papers in this section investigate the effects of contact between different varieties of Arabic, or between Arabic and other languages, on processing, acquisition, production, and loanword adaptation, in the areas of phonetics, phonology, morphology, and syntax. These papers illustrate the range of methodologies that have been brought to bear on the investigation of acquisition in situations where learners are exposed to multiple linguistic systems.

Following on earlier work (Saiegh-Haddad 2003, 2004, 2005, 2007) investigating the effects of diglossia on the processing of Arabic, in this volume Saiegh-Haddad examines how children's processing is affected by the phonological distance between Spoken Arabic and Standard Arabic. She argues, based on results from her previous experimental studies with Arabic-speaking children, that the phonological distance between the spoken and the standard varieties affects phonological processing skills, which consequently affects reading development. This paper illustrates the important connections between the process of acquisition and the context in which language is learned, and provides another piece to the processing puzzle investigated in Aquil's paper in this volume.

In a similar vein, Khamis-Dakwar explores the acquisition of Subject-Verb-Object (SVO) and Verb-Subject-Object (VSO) structures in Palestinian Colloquial Arabic. Her findings suggest that the VSO order is mastered early, and is preferred over SVO by the young age groups, whereas SVO order appears late, even though it is the more frequent order in the adult target language. The explanation she offers is that children acquire head movement before acquiring

phrase movement. They therefore succeed better with VSO sentences than with SVO sentences since the former involve only verb movement, while SVO sentences presumably involve NP movement. With age, having mastered both types of movement, children shift to predominantly using the more grammatically complex SVO structure, which is the preferred and more abundant structure in the dialect. These findings clearly have implications for theories of the connection between acquisition and typology.

Saadah's paper focuses on the simultaneous acquisition of two languages from the standpoint of production. She investigates the question of how bilingual children acquire the fine phonetic details of phonological contrasts in their two linguistic systems, focusing on the acoustics of obstruent voicing in the speech of Arabic/English bilinguals. Both Arabic and English employ a phonological contrast between voiceless and voiced obstruents, but use different acoustic patterns to realize this contrast. Saadah presents evidence that the bilinguals appear to have mastered the phonetic structure of each language. Furthermore, the bilingual children exhibit gender-linked differences in the realization of voicing that mirror those of monolingual adults. This study sheds light on the extent to which bilinguals are able to maintain distinct phonetic/phonological systems in their two languages. Furthermore, the investigation of the phonetics of voicing in the speech of speakers of Palestinian Arabic provides an interesting complement to Kabrah's investigation of the phonology of voicing in Cairene Arabic.

Walter's paper deals with morphology in both loanword phonology and in the acquisition of Arabic by adult second language learners. She investigates the factors that determine how foreign words are assigned to morphological categories--specifically, how words are assigned a morphological gender (in borrowings from Arabic to Romance languages and vice versa) and how words are pluralized in Arabic (as either sound plurals or broken plurals). This study bears on one of the central questions in linguistics today: to what extent speakers, when faced with new forms, rely on the statistics of their existing lexicon vs. on abstract grammatical generalizations. Through careful corpus analysis of words borrowed from Arabic into Spanish and Portuguese and from French into Moroccan Arabic, Walter reveals that borrowers assign gender to foreign words in proportions that reflect the distribution of gender membership in the pre-existing lexicon. She then reports on an experimental study of pluralization patterns used

by English speakers learning Arabic which reveals a similar tendency for these adult second language learners to produce plural types with a frequency roughly corresponding to their frequency in the native lexicon. However, she shows that this pattern contrasts with the behavior of children learning Arabic as their first language, who tend to rely on a morphological default pattern, resulting in over-regularization. The contrast between the behavior of children, who tend to regularize, and adults, who tend to rely on the patterns in their existing lexicon, is consistent with the findings (discussed above) that Arabic-learning children are unusually late in mastering the complex Arabic plural system. The paper concludes with a formal grammar of gender assignment that models the tendency to match lexical statistics by incorporating probabilistic constraint rankings, illustrating the way in which grammatical theory can be used to illuminate the patterns revealed in corpus data and in experimental acquisition data.

Summary

Owens (1987) argues that “Arabic grammatical theory, like any formal theory of grammar, from its origins has been concerned not only with description but also with the explanation of form...” (Owens 1987, 253). The papers in this volume continue the tradition of seeking explanations for structural patterns. While the papers illustrate a range of approaches, from formalist to functionalist, each paper combines rigorous analysis of a set of data with explicit models of some aspect of human language.

3. Note on transcription

One unfortunate aspect of the Arabic linguistics tradition is that no single system for standardizing phonetic representations has emerged. In this volume we follow the notation of the International Phonetic Alphabet (IPA) for transcription, which departs in several respects from various systems of representation that have been used in the literature. In this volume, the palatal glide as in English ‘yes’ is represented as [j] (rather than [y]) and the voiceless alveopalatal fricative as in English ‘ship’ as [ʃ]. Voiceless and voiced alveopalatal affricates (as in ‘chip’ and ‘jet’) are represented as [tʃ] and [dʒ] respectively, and voiceless and voiced velar fricatives as [x] and [ɣ]. The voiceless and voiced pharyngeal fricatives are represented as [ħ]

and [ʕ], respectively, and emphatic (pharyngealized) consonants are represented with a superscript [ʕ].

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