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Alan S. Kaye

*Technical Advisor*

Peter T. Daniels

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Chapter 14
Moroccan Arabic Phonology
Jeffrey Heath
University of Michigan

14.1 Introduction
Moroccan Colloquial Arabic (MCA) is one of many dialects (actually, dialect groups) that resulted from Arab military and cultural expansion shortly after the time of Muhammad. Because Arabic was overlain on various foreign languages in the course of this expansion (Persian in Iraq, Aramaic in the Levant, Coptic in Egypt), the respective colloquial vernaculars are quite different—from each other, from the modern colloquials of the Arabian peninsula, and from Classical Arabic (CA) and the modern literary Arabic based on it. Though all of the colloquials are referred to as “Arabic” and are regarded by most Arabs as low-status street-level varieties of a single literary language, they are mutually unintelligible and therefore (from the point of view of linguistic description) distinct languages.

MCA is really a collection of dialects, sharing some important features (in contrast to, say, Egyptian) but with some surprisingly important internal differences in all aspects of lexicon and grammar. The variation is, for the most part, not home grown, but rather a result of the complex settlement history of Morocco. The major components are these: (a) core dialects reflecting early Arabization of Berbers (from around 700 A.D.), (b) an invasion of “Beni Hilal” from Arabia (mid-11th century), and (c) an influx of Muslims and Jews from Spain (around 1492).

When the Arabs overran Berber-speaking North West Africa in the early 8th century, they established military camps, then towns, and progressively Arabized many of the Berbers. This slow Arabization process is still continuing, as the remaining Berber populations (especially those who relocate to urban centers) become bilingual and shift toward Arabic colloquials. In Morocco, unlike most of the rest of the Maghreb, the Berber languages are still doing well in the mountainous areas.

Although MCA is the unquestionably dominant vernacular in Morocco, it has many traces of Berber influence. Since Arabized Berbers must have constituted a large percentage of speakers in the formative first centuries of
MCa, it is no wonder that its pronunciation in particular is quite different from that of eastern Arabic vernaculars such as Egyptian colloquial. Two notable characteristics of MCa are the hardening of interdental fricatives (*A, *Ω, and *θ) to stops (*d, *θ, and *t), and the reduction (to shwa) or complete loss of original CA short vowels. The latter development has had far-reaching consequences for the entire phonology, prosody, and morphology.

The so-called "Beni Hilal," whose precise tribal and geographical origin in the Arabian Peninsula are not entirely clear, were unleashed onto northwestern Africa by an angry Egyptian sultan. They were speakers of a "nomadic"-type dialect (the sedentary/nomadic division of dialects is an old theme in Arabic dialectology). Many of them passed through the Maghreb and kept going—into the Sahara, and beyond to Mauritania and northern Mali. Their descendants are the Moors of these two countries, and of Western Sahara (which Morocco is now attempting to annex), and their Arabic dialect (called Hassaniya) differs sharply from MCa in phonological segments, phonology (e.g. 3-% they are coming vs. MCa 3-% w), morphology (e.g. preservation of feminine plurals), and lexicon. However, some of the Beni Hilal remained in the Maghreb, north of the Sahara. They must have been partly responsible for the strong "nomadic" features of Tunisian Arabic and of some Algerian varieties. In the settled regions of Morocco, the Beni Hilal formed smaller pockets, exacerbating the sedentary/nomadic split, but many "nomadic" features have since been leveled out. Phonological characteristics of the remaining "nomadic" dialects (best represented in the southern oases and the Saharan fringes) include retention of CA interdental fricatives *A, *Ω, and *θ (which become stops elsewhere in MCa); old *q reflected as q, and retention of (originally long) CA vowels in the final stem-syllable of broken plurals and diminutives: b'rad 'tea kettle' has pl. b'rǎd and diminutive sg. bry=q in the far south, versus b'rǎd and b'r=q elsewhere in Morocco.

The expulsion of Jews from Spain in 1492 and the various expulsions or outmigrations of Andalusian Arabs around the same time (the last Arab kingdom, Granada, fell in 1492) had important consequences for Arabic dialects in the Maghreb, and especially in Morocco. The Andalusians, more sophisticated economically and culturally than the Moroccans, formed their own neighborhoods and networks in Moroccan cities, and in some (such as Fes) there are still distinctive elite urban dialects with Andalusian features, though dialect leveling is taking an increasing toll on them. The Jews, who came from the Christian as well as the Muslim parts of Spain (they still have family names like Toledo), spoke Judeo-Spanish. Though there have been Jewish communities in Morocco since the beginning of recorded history, the more sophisticated Spanish Jews dominated the major Jewish communities, especially in Rabat, Meknes, Fes, and Safi. In the far north (Tangier, Tetuan) they continued to speak Judeo-Spanish into the early 20th century. Elsewhere they shifted to MCa, specifically the then-current urban dialects of Jews and Muslims, with some Andalusian Arabic influence. When the Jews were then ghettoized in walled-off urban quarters, they became cut off from urban/rural blending among Muslims and still preserve many archaic features that even the old Muslim urban neighborhoods have since given up.

Moroccan Judeo-Arabic (MJA) therefore constitutes a second dialect network, occupying essentially the same geographical space as the more visible Muslim dialects. (Because of recent migrations to Israel and consolidation of remaining Moroccan Jews chiefly in Casablanca, the old Judeo-Arabic dialects are in the process of dying out as vernaculars.)

Phonological features typical of at least the major urban MJA dialects include (a) retention of CA *q as glottalized q or glottal stop q rather than as g; (b) loss or unrounding of short *u with no transfer of rounding to neighboring back consonants; (c) loss of the alveolar/palato-alveolar distinction among sibilants (*s merges with *t, *z with *dz); and (d) spreading of pharyngealization ("emphasis") through lexical stems. However, MJA dialects occur almost throughout Morocco, and those in the far south and far east diverge from these patterns in some respects. The MJA dialect of Tafilalet, a semi-arid region in the south, is notable for its extreme reduction or loss of CA short vowels.

In what follows, unless otherwise specified the "MCa" that we are describing is the speech of Moroccans born after about 1950, living in or near the central urban belt (from Fes to Rabat) but socially mobile and with no especially prominent indicators of local birthplace. The present article, based on Heath (1987), does not pretend to be dialectologically comprehensive. A sketch of the dialectal networks is in Heath (1991); a fuller treatment is in preparation.

14.2. Consonants

The basic consonant system of MCa is as shown in Table 5-1. Found dialectically are 7 and the fricative trio δ, Ω, and θ. Foreign loanwords, especially from French, have introduced j (affricate), v, and p into MCa.
### Table 14.1. Primary Moroccan Colloquial Arabic Consonants

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<th>Bilabial</th>
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All consonants may occur geminated, and gemination is a productive part of derivational ablaut: *y-bkt* 'he weeps', causative *y-bkt-ḥa* 'he makes her (*a*-*a*) weep'. Definite *l*- (cf. CA *la*) before a stem-initial coronal (alveolar or palato-alveolar) loses its own identity to form a geminate cluster: *l-bld* 'the cold', but *l-ṛb* 'the ground' and *l-bbl* 'the mountain'. The preposition *l*- 'in' (CA *l* or *lḥa*) does not assimilate in this fashion: *l-blt* 'to Tangiers'. Note that *z* is treated like any other coronal in the definite assimilation rule, whereas its ancestor (CA *j*) did not assimilate (at *jaḥal* 'the mountain'). In far northern MCA dialects, a geminated *z* is realized as *ʒ*₃, so *ḥ-zḥal* is *ʒ*₃-hal.

### 14.4. Vestiges of short vowels

There are, however, some traces of the old CA short vowels. In the mainstream MCA dialect we are focusing on, old short *i* and *a* are reflected in certain positions as *a*, while short *u* is reflected variously as *sha* or as a short rounded MCA vowel that may be written *ā*. The position most favorable to these non-zero reflexes of old short vowels is before the final consonant (or two-consonant cluster) of a word not containing a full vowel, i.e., positions like **C_CC** and **CC_C**, where **C** represents any consonant. MCA preserves no word-final short vowels, nor are there any clear cases of preservation word-initially.

Depending on sub-dialectal details, MCA short *a* and perhaps even *a* can be re-analysed as something other than ordinary short vowels. In the mainstream dialect, *a* has a distribution like that of *sha*, except that *a* always seems to be in the vicinity of a velar or uvular consonant, hence *skār* 'shut up', *ṣāra* 'bread', and *ghlā* 'I said'. This association of *a* with particular consonants is an innovation in MCA. There are two other interesting facts about MCA *a*. First, paradigmatic alternations between rounded and unrounded short vowels have generally been leveled out; the CA verb 'to shut up' had perfective *ṣakar*- vs. imperfective *-skar*- which would normally have produced an MCA opposition *ṣakar* 'shut', *ṣār* 'shut'; but in fact *ṣār* has generalized to the perfective: *skār* 'he shut up', *skār* 'I shut up'. Second, in positions where MCA *sha* undergoes syncope, as in *samn* 'smell!' (m. sg.) but *sān* 'smell!' (f. sg.), short *a* typically leaves labialization behind as a trace: *dāqq* 'knock!' (m. sg.) but *dāq* 'or *dāq*! 'knock!' (f. sg.). What these facts seem to point to is the increasingly close association of rounding with the back (velar or uvular) consonant rather than with the (at best faint) short vowel. In other
words, a form like [skd] might well have been re-analysed by Moroccans as /kæd/, with a phonemic *A* that accounts for the rounding. Under this (re-)analysis, we can think of the vowel as an underlying shwa.

If there is only one short vowel, *a*, versus three full vowels, *i a u*, it is obvious that a length opposition in the usual sense no longer exists—especially in view of the very limited set of positions where shwa can occur. At this point, one is tempted to ask whether even this restricted shwa can be “analysed out” of the system. If, for example, it occurs only in the positions *C C C* and *CC C*, we could consider the possibility that shwa is inserted by rule rather than being part of a lexical representation. This is probably going too far, since the very fact that *C C C* and *CC C* are distinct stem shapes shows that no simple shwa-insertion rule is possible. However, it may well be that this is the long-range developmental trend. In mainstream MCA, *C C C* and *CC C* no longer contrast when the third *C* is a sonorant (or when the second *C* is a fricative). In some dialects of the Tafillaat area in the south, the distinction is additionally lost when the second *C* is any sonorant, and in the same dialects we are starting to get sporadic “crossovers” even with obstruents (*ktb* instead of *ktb* or *ktb*): in such dialects, *a* has virtually disappeared as a structurally significant phoneme, leaving *i a u* as the only vowels in the system.

### 14.5. Pharyngealization (“emphasis”)

Kayes article on Arabic (this volume) summarizes the debate about the phonological representation of “emphatic” consonants (or vowels, or syllables, or words). That the various dialects themselves tend toward different interpretations of this problem can be shown by a comparison between mainstream MCA and the Saharan dialects of the extreme south (and especially of Western Sahara, Mauritania, and Mali).

In the Saharan dialects, the “spreading” of pharyngealization is very narrow. Typically a pharyngealized *C* affects the neighboring vowel and nothing else: in *y-dgd* ‘the clean’, the first vowel is backed under the influence of the pharyngealized *s*, but the second vowel is unaffected, hence *[y-šgd]*. In mainstream MCA, on the other hand, spreading is more substantial, especially to the “right”: *[th-rt-*] (‘she requested it’) has a clearly backed allophone of *a*. In addition, in Saharan dialects the phonetic effect of pharyngealization on an adjoining high vowel *i u* is an evanescent velarization, marked strongly in the actual transition between the vowel and the pharyngealized *C* and then fading out, whereas MCA *i u* are pronounced as steady-state mid vowels [e o] next to pharyngealized *C*.

Related to this is the fact that mainstream MCA tends to avoid combinations, in the same stem, of a basic pharyngealized alveolar *t d s z r* with an unpHaryngealized alveolar *t d s z r*—alveolars in the same stem are either all pharyngealized or all plain. Thus CA *sadhr* ‘chest of body’ becomes *sadhr* in some Moroccan dialects, *sadhr* in others, but mixtures like *sadhr rare* (except in artificially re-classified pronunciations). By contrast (leaving aside *f* for the moment), Saharan Arabic seems to prefer having just one pharyngealized alveolar in a stem, and there are cases where a consonant has lost its original pharyngealization in proximity to a neighboring pharyngealized or uvular *C*. Thus original CA *sayūr* ‘small’, which becomes mainstream MCA *syūr* with pharyngealization extending to the roctic, produces *syūr* in Saharan Arabic, the uvular fricative having prevented secondary pharyngealization of the roctic and having actually depharyngealized the sibilant.

Because MCA spreads pharyngealization at least throughout stems to a much greater extent than Saharan (or most other Arabic vernaculars), the argument that “emphasis” is a lexical feature of stems rather than of individual consonants has more weight in MCA than elsewhere. It is even possible to experiment with radical re-interpretations—e.g. to take vocalic distinctions as primary, leading perhaps to an analysis in terms of two “vowel harmony” sets of full vowels, *i a u* vs. *e a o*. There is no strong evidence that MCA has embraced this re-analysis, but it may be lurking in the shadows.

### 14.6. *r* versus *f*

In CA, there appears to have been just one roctic phoneme *r*; though it probably already had some allophonic variation depending on vocaU and consonantal environment. In the Magrebi and Saharan (Hassaniya) dialects, a distinction between *r* and *f* has now become phonemic. We can easily see how this opposition arose by considering *khbir* ‘bigger’ (comparative of *khbir* ‘big’) and *khbr* ‘(to) grow, become big’. The immediate (pre-MCA) etyma probably had the forms *khbr ‘bigger’ and *khbr* ‘(to) grow’, respectively. The *a*-vocalism favored a “dark” allophone of *r*; while *i*-vocalism favored a “light” allophone. When the old short vowels merged (and were then swallowed up by the roctic, which has become syllabic in these forms), the originally allophonic distinction became phonemic.

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Although MCA has a few examples like khabah, apparently involving forms of the “same” root, such alternations are rare and it is attractive to interpret the forms as lexically distinct. Since there are only a few (about six) remaining morphological comparatives like khr, they are probably best regarded as lexicalized (some, like haur ‘better’ from mays ‘good’, are suppletive). In fact, the tendency has been to level out tahr alternations, generalizing one or the other within the paradigms and derivatives of each stem. This leveling has gone farther in Morocco than elsewhere in northwestern African Arabic.

In Saharan (and Tunisian) Arabic, despite some paradigm leveling there are still many telltale alternations. In particular, active participles (classical *CasCC) typically depharyngealize in M, C, or C, position if no other pharyngealized C is present: mrag ‘he went away’, particle mna (‘maanig’, in mainstream MCA, by contrast, verbs with /m/ generalize it to participles; khab ‘he drank’, kat (‘tooth’, which shows the regular reflex of this same *tau (here a specialized nominal usage, meaning ‘moustache’ in CA) when not subject to analogical influence from the verb ‘to drink’. (See also § 148.)

14.7. Derivational ablaut

Like other forms of Arabic, MCA has a system of stem-derivation whose most obvious effect is changes in vowels: ktab ‘book’, pl. ktaba, diminutive sg. ktiyab, verb ktab ‘to write’, active participle katab ‘having written’ (or agentive: ‘writer’), passive participle m-ktab ‘written’, etc. The early Arab grammarians, and many present-day linguists, interpret such data to mean that lexical roots are consonantal skeletons like k-t-h, which are interspersed with grammatically significant vowel patterns to produce actual stem shapes. In the currently most popular model, both the consonantal skeleton and the grammatical vowel sequence are linked (separately) to a third component—a “template” of consonantal and vocalic positions, such as CVCC or m-CVCC. In this model, a form like katab ‘having written’ would involve a template approximately of the shape CVCC, a root skeleton k-t-h, and a vocalic pattern a- (or a- if the shwa is recognized as part of the root). Such models require a complex set of rules for linking the root consonants and grammatical vowels to C and V positions of the template.

This model radically distinguishes the morphology of Arabic from the transparently layered morphology of other languages, where an “inner” stem X is the basis for a suffixally derived stem [X]-S, which in turn is the source for other prefixally and/or suffixally derived stems P-[X]-S, etc. In an oversized English derivative like antioxidants, vitamin, it is generally possible to identify a core stem (establish) and an ordered (bracketed) set of derivational affixes. A root/pattern analysis of MCA or other forms of Arabic would have the power to shortcut this layering, whereby each surface stem form could be directly referred to an abstract consonantal root, not to an intervening prior stem shape.

In practice, phonologists working on Arabic with the rootpattern model have had to incorporate some prior stem-shape information in their rules. In particular, the shape of singular nouns is obviously relevant to the shapes of diminutives and plurals, and at least the CV-template shapes of the singular have been allowed to play a role in generating these derivatives. However, all of the derivational patterns with well-defined template shapes appear to be asymmetrical, in the sense that one stem is clearly derived from another—the participles are derived from the corresponding verbs, just as the diminutive or the plural is from the singular noun. It is therefore possible in principle to trace each derived form back, directly or via intervening derivations, to a single source stem—usually a singular noun or adjective, or a simple verb.

These underrived nouns, adjectives, and verbs tend to have unpredictable (and therefore, arguably, lexical) templatic shapes and vowel qualities, in contrast to the many derivatives with their rigidly prescribed vowels and template shapes. It seems reasonable, therefore, to analyse the underrived stems as ordinary strings of consonants and vowels, just as in other languages, without the dissection into consonantal “roots,” vocalic “templates,” and CV “templates.” In MCA, we would represent simple stems as *tahre ‘bread’ (or *xibal, cf. § 144), ktab ‘book’, and ktab ‘to write’. Although suggestive similarities in sound and meaning, the last two are not relatable by any productive derivational rule (CCAC as a nominal shape is uncommon and has no specific grammatical value) and so are both treated as underrived; in some ancient form of pre-Arabic they may have been derivationally related. (Jewish MCA dialects typically replace *kat, which has scriptural associations, with mapha, leaving the verb ktab unaffected.)

Many stems, however, are clearly derived by productive stem-formation processes that we refer to collectively as “derivational ablaut.” In MCA, each derived stem is produced by the interaction between an input stem (either underrived, or due to a prior derivation) and a template. Since the vowel
qualities and the CV shapes are tightly fused, we may analyze the derivational templates as consisting of pre-specified vowels and blank consonantal positions (represented by "C"). For example, the active and passive participles (for verbs like kdb with exactly three segments, excluding "short vowels" like shwa) are CaCC and m-CCaC, respectively, and they combine with kdb (to) write to produce kdbh (having written) and m-kdbh (written).

Derivational ablaut, like affixal derivation in other languages, can be layered, though the layering is less transparent in MCA. From dxta (to enter) we first create a causative/factive dxta(to) insert, put in'. This in turn becomes the input to affixal derivatives like participle (active or passive) m-dxta and to further ablaut derivation, e.g., verbal noun t-dxta or t-dxta 'insertion' (compare verbal noun dxta 'entrance' from the underven verb).

Within what we may call the "stem/ablaut" model, in contrast to the root/pattern model, we (a) simplify the phonological representation of underven stems, and (b) recognize layering (derivational sequencing). In both respects, the stem/ablaut model treats MCA as not very different from other (affixing) languages. But the root/pattern model, the stem/ablaut model does require some fairly intricate phonological subrules.

Consider what happens when an input stem and a derivational template constitute a mismatch—the input stem has too few consonants, for example. While kdb is a good match for CaCC and m-CCaC, stems like m-dxta (an ablaut stem that has been lost), have only one consonant in fact—x, y, or c. The active participles are in fact wakal, kaya, and xan (feminine xan-a). The type wakal is found only with two verbs whose imperfective stems begin with w (in both cases a C-initial stem-initial is not present); these two stems fill the only consonantal position of all their ablaut derivatives with w that may be regarded as secondary. Verbs like kdb with imperfective CuC, CuC, or CuC have active participle CaC. Since we get y in the participle regardless of the input vowel quality /a, i, or u/, it appears that this semivowel is inserted by rule after the initial and final input consonants are transferred to the corresponding positions of the ablaut derivations. Verbs like m-dxta with imperfactive shape CCA, CuC, or CCa all have the shape CaC, which is shown to be really CaCy from feminine CaCy-a. Since other ablaut derivations, including the causative, merge verb-final vowels as /i/, it is possible that this participle reflects a similar neutralization, with the i then being transferred to the final C position of CaC and hence being desyllabified to the semivowel y. These examples suggest that input vowels, not just consonants, play a role in determining the output, and this

is seen more transparently in cases where input stems with /u/ and /i/ have distinct outputs with w and y, respectively: baf(to) see, reciprocal t-awf, versus bi(to) sell', reciprocal t-bay'.

As these few examples suggest, even when one has chosen a basic morphological model (such as the stem/ablaut model here advocated), there are a great many phonological subtleties to work out.

14.9 Loanwords

We observed in § 14.5 that MCA has added /t/ to the set of well-established plain/pharyngealized consonantal oppositions inherited from CA. We pointed out that this opposition originated in allophonic variants due chiefly to vocalic environment (probably favoring plain vs. back vowels favoring /t/), and that the reduction or disappearance of old short vowels led to the phonemicization of the /t/ opposition, as in khs 'bigger' vs. verb khar('to grow').

We pointed out that most such alternations (involving the same stem) have by now been leveled out in MCA, so that the trend is for each stem (and its associated "family" of inflected and derived forms) to generalize either /t/ or /s/. There is, however, one productive derivational ablaut that seems to have resisted this leveling.

The most common plural corresponding to singular nouns of the shape CaC is C-CC (wad 'river', pl. wad-an). There are a number of native MCA nouns with a rhotic as final C, and here we consistently get /t/ in the singular versus plain /n/ in the plural (the latter undoubtedly due historically to the preceding /t/-vowel: far 'mouse', pl. far-an. Only in the case of far 'mouse' hole, burrow 'do we find sub-dialectal variation between pl. far-an and far-an (about evenly distributed), and here the uvalar fricative has apparently been the differential factor. One would conclude from this inspection of inherited forms that the /t/-opposition is quite stable in this singular/plural pattern.

However, loanword data show conclusively that this is not so. There are two twentieth-century loanwords, kar 'intercity bus' and tar 'bar, tavern', which match the pattern of far 'mouse' and lack uvalars, so we would expect plurals *kar-an and *tar-an with plain n. Instead, we get kar-an and bar-an with pharyngealized t. What this reveals is an otherwise hidden pressure on the tar-far pattern to extend /t/ from singular to plural—a pressure that has heretofore been actually reshaped the inherited plurals, but
which has succeeded in affecting new (singular) loanwords with no previously established MCA plural.

This example is typical of the subtlety of "loanword phonology" in a language like MCA with a complex and sometimes murky ablaut system. Not only must each loanword be assimilated to MCA morphology and phonology in its "foot-in-the-door" form; the borrowing is then fed into the productive ablaut processes—which in turn may require deceptively complex analytical "decisions" by MCA speakers (Heath 1989).

While the student of language contact phenomena must deal with many tricky cases like this one, involving productive derivations and fairly ordinary borrowed stems, there is also an occasional poetic jewel that comes along. Most young Moroccans are familiar with an MCA noun *swād-i* meaning "brother" or "pal, buddy," but they have no idea of its origin and it is up to the linguist to unravel it. The ingredients are (a) an ablaut pattern CCA+i forming professional nouns (rabūn "soap" → swād-i "soap seller")—note the nonlexical w filling the otherwise empty second C position; (b) MCA kin terms *ḥa* ‘father’, *mn* ‘mother’, and *xα* (or *xa*) ‘brother’; and (c) Spanish *padre* ‘father’, *madre* ‘mother’ (cf. homono *homano* "brother"). First, the MCA and Spanish terms for "father" and "mother" were playfully blended to form *ppt* *ndri* and *mn* *ndri*, which are still in existence (but rare, and not known to many Moroccans). These can be analyzed phonologically as *pwaṭ*-i and *nwawaṭ*-i, respectively, since initial *pw* and *nw* in ablaut derivatives are pronounced *pp* and *mn*. The resulting forms are consistent in form with, and were probably influenced by, the CCA+i professional noun shape. In comparison with the corresponding MCA kin terms, the pattern can be taken more specifically as CCA+i. Apparently the pharyngealization of the *d* was taken as secondary (i.e., as having spread from the pharyngealized pronunciation of the initial labial clusters), alternatively, there may have been other (unrecorded) variants *ppt* *ndri* and *mn* *ndri* with unpharyngealized *d*; the resulting CCA+i pattern was then extended to "brother" (MCA *xa* or *xa*), giving *swād-i*, which has gone on to have a life of its own even as *ppt* *ndri* and *mn* *ndri* have all but disappeared.

A form like *ki* an "intercity bus" reflects a complex but linguistically normal and entirely unconscious set of structural forces. A form like *swād-i* must have originated as a brilliant linguistic joke, among a group of young men whiling away a muggy August afternoon in a street cafe. Or perhaps it was in a certain tavern in wartime Casablanca...