

Joseph Aoun, 21–31. Cambridge, Mass.: Department of Linguistics and Philosophy, Massachusetts Institute of Technology.
 Marçais, Philippe. 1977. *Esquisse grammaticale de l'arabe maghrébin*. Paris: Librairie d'Amérique et d'Orient and Adrien Maisonneuve.

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Vowel Fronting → Vowel Raising

Vowel Harmony

Vowel harmony is a long-distance phonological process. It is defined as the phonetic influence of one vowel on another. For example, the phonetic quality of being a high vowel (i.e. /i/ or /u/) may influence or 'spread to' a local non-high vowel. If vowel height is harmonized in a particular language, then we expect a non-high vowel to surface as a high vowel. The phonetic quality that spreads and the direction it spreads is language-specific. Some languages may exhibit only leftward spreading, while other languages may exhibit only rightward spreading, while still others may exhibit both.

In Arabic, it appears that the Eastern dialects of the pre-Islamic period exhibited some form of vowel harmony (Versteegh 1997). The examples in (1) illustrate the differences in pronunciation between the Eastern and Western dialects. The phonetic quality of /i/ is harmonized in the Eastern dialects but not the Western dialects.

(1) Eastern	Western	
<i>bi'ir</i>	<i>ba'ir</i>	'camel'
<i>minhim</i>	<i>minhum</i>	'from them'

The bulk of the literature on vowel harmony in Arabic, however, analyzes the Palestinian dialect. Palestinian Arabic exhibits 'rounding harmony'. This means that the phonetic quality of being a round vowel (i.e. /u/) is harmonized. The vowel system of Palestinian Arabic is controversial between a three- and a five-vowel system. The traditional generative view adopts the five-vowel system, illustrated in (2a) (Younes 1993), whereas others have adopted the three-vowel system, as in (2b) (Shahin, forthcoming), in accordance with the standard

view of other dialects of Arabic. Because of the nature of rounding harmony in Palestinian Arabic, simply adopting the three vowel system (2b) is sufficient.

(2a)	<i>ī ē</i>	<i>ū ō</i>
		<i>ā</i>
(2b)	<i>ī</i>	<i>ū</i>
		<i>ā</i>

In Palestinian Arabic, if the root vowel has the phonetic quality of being round, then the quality of roundness spreads to other high vowels in the prefix (Kenstowicz 1981; Abu-Salim 1987; Yoshida 1993; Monahan 2002). This is illustrated in (3). Suffixes in Palestinian Arabic are immune to rounding harmony.

(3a)	/yi-drus/	[yúdrus]	'he studies'
(3b)	/ti-ktub/	[túktub]	'she writes'
(3c)	/ti-ktub-i/	[túktubi]	'you [sg. fem.] write'

In (3), the root vowels are round, while the prefix vowels are high unrounded vowels. Therefore, the phonetic quality of roundness spreads to the prefix vowel in a regressive, or right-to-left, manner. Notice that the final vowel in (3c) is a constituent of the suffix and is, therefore, not subject to harmony.

Vowel harmony, however, is not limited to the verbal domain in Palestinian Arabic. It is also observable in the nominal domain, as in (4).

(4a)	/furin/	[fúrun]	'oven'
(4b)	/ʔuris/	[ʔúrus]	'wedding'

An interesting fact of rounding harmony in Palestinian Arabic is that vowels left of the stressed syllable are not vulnerable to harmony, as in (5a) vs. (5b).

(5a)	<i>bitšúf</i>	'she sees'
(5b)	<i>túktub</i>	'she writes'

The next examples of vowel harmony are from dialects of northern Yemen, as presented by Behnstedt (1985). Some lexical forms in the dialects of Yemen are differentiated between *i*-type and *a*-type verbs. This is illustrated in the harmony exhibited in the endings of the examples in (6), all of which are in the 3rd person singular feminine.

- (6) *a*-type ‘to write’ *i*-type ‘to drink’
 a. *katabat* *širibit*
 b. *katabah* *širibih*

The examples in (6a) were recorded from the mideastern regions of the North Yemen dialect, whereas the examples in (6b) were recorded in the southwestern regions of the North Yemen dialect. Notice the difference in the endings between the *a*-type and *i*-type verbs. For example, in (6a), the ending for the *a*-type is *-at*, whereas the ending for the *i*-type is *-it*.

The final examples of vowel harmony discussed here are from the Bedouin dialects of the Northern Sinai littoral (de Jong 2000). The particular dialects presented are Balawiy Arabic, the dialect of Biliy; Rmēliy Arabic, the dialect of Rmēlāt; and Swērkiy Arabic, the dialect of Sawārkah. The initial vowels of the morphological templates of the regular imperfect form in these dialects differ depending upon the root vowel. The morphological templates of the regular imperfect are either $yaC_1C_2aC_3$, $yuC_1C_2uC_3$, or $yiC_1C_2iC_3$. The vowel of the imperfect prefix harmonizes with the root vowel. This is illustrated in (7).

- (7) imperfect ‘to drink’ (*a*-type)
- | | | |
|-----------|-----------------|-----------------|
| | sg. | pl. |
| 3rd masc. | <i>yášrab</i> | <i>yášrabaw</i> |
| 3rd fem. | <i>tášrab</i> | <i>yášraban</i> |
| 2nd masc. | <i>tášrab</i> | <i>tášrabaw</i> |
| 2nd fem. | <i>tášrabay</i> | <i>tášraban</i> |
| 1st c. | <i>ášrab</i> | <i>nášrab</i> |
- imperfect ‘to sit’ (*u*-type)
- | | | |
|-----------|-----------------|-----------------|
| | sg. | pl. |
| 3rd masc. | <i>yúg’ud</i> | <i>yúgu’duw</i> |
| 3rd fem. | <i>túg’ud</i> | <i>yúgu’din</i> |
| 2nd masc. | <i>túg’ud</i> | <i>túgu’duw</i> |
| 2nd fem. | <i>túgu’diy</i> | <i>túgu’din</i> |
| 1st c. | <i>ág’ud</i> | <i>núg’ud</i> |
- imperfect ‘to grab, take hold of’ (*i*-type)
- | | | |
|-----------|-----------------|-----------------|
| | sg. | pl. |
| 3rd masc. | <i>yímsik</i> | <i>yímiskuw</i> |
| 3rd fem. | <i>tímsik</i> | <i>yímiskin</i> |
| 2nd masc. | <i>tímsik</i> | <i>tímiskuw</i> |
| 2nd fem. | <i>tímiskiy</i> | <i>tímiskin</i> |
| 1st c. | <i>ámsik</i> | <i>nímsik</i> |

Closer inspection of the data in (6) reveals that not only are the prefix vowels harmonized but

so are the ending vowels (de Jong 2000). For example, compare the endings of *yášrabaw* ‘drink [3rd pers. pl. masc.]’ and *yúgu’duw* ‘sit [3rd pers. pl. masc.]’. The verb ‘to drink’ is *a*-type, whereas the verb ‘to sit’ is *u*-type. Because the endings are also harmonized, the ending of ‘drink [3rd pers. pl. masc.]’ is *-aw*, while the ending of ‘sit [3rd pers. pl. masc.]’ is *-uw*.

Vowel harmony is not an uncommon process in various dialects of Arabic, and the examples are not limited to those presented here. The Palestinian facts, which are considerably well documented, exhibit both left and rightward spreading of the phonetic quality round. The vowel harmony demonstrated in the Yemen and Bedouin dialects appears to be the influence of all the phonetic qualities of the root vowel, and the spreading seems to be bidirectional. Although a productive phonological process, vowel harmony in Arabic does not appear to bear on semantic interpretation.

BIBLIOGRAPHICAL REFERENCES

- Abu-Salim, Issam. 1987. “Vowel harmony in Palestinian Arabic: A metrical perspective”. *Journal of Linguistics* 23.1–24.
- Behnstedt, Peter. 1985. *Die nordjemenitschen Dialekte*. I. Atlas. Wiesbaden: L. Reichert.
- Jong, Rudolph E. de. 2000. *A grammar of the Bedouin dialects of the Northern Sinai littoral: Bridging the linguistic gap between the eastern and western Arab world*. Leiden: E.J. Brill.
- Kenstowicz, Michael. 1981. “Vowel harmony in Palestinian Arabic: A suprasegmental analysis”. *Linguistics* 19.449–465.
- Monahan, Philip. 2002. “Harmony and metrical structure in Palestinian Arabic”. *Proceedings of the 2002 Texas Linguistics Society*, ed. Augustine Agwuele and Sang-Hoon Park, 182–198. Austin, Tex.: Texas Linguistic Forum.
- Shahin, Kimary. Forthcoming. “Vowel innovation in Arabic: Inductive grounding and pattern symmetry”. *Research in Afroasiatic grammar*, III, ed. Jacqueline Lecarme, Jean Lowenstamm, and Ur Shlonsky. Amsterdam and Philadelphia: J. Benjamins. [Also available from Rutgers Optimality Archive: <http://roa.rutgers.edu>, ROA573-0203.]
- Versteegh, Kees. 1997. *The Arabic language*. New York: Columbia University Press.
- Yoshida, Shohei. 1993. “Licensing of empty nuclei: The case of Palestinian vowel harmony”. *Linguistic Review* 10.127–159.
- Younes, Munther. 1993. “Emphasis spread in two Arabic dialects”. *Perspectives on Arabic linguistics*, V, ed. Clive Holes and Mushira Eid, 119–145. Amsterdam and Philadelphia: J. Benjamins.

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