# Glides, hiatuses and universal effects on [h] loss in Palestinian Arabic

This talk aims to explain the varying degrees of [h]-loss in the enclitic pronominal markers of Palestinian Arabic (PA). This loss can be related to the phonological environment, and specifically to stress and vowel quality.

We begin by showing that the more northern the variety, the more environments allow for [h]-loss. The facts are illustrated with the 3FSG clitic in (1). After a C-final base (1a), in Jerusalem (Jr), this enclitic has a stable [h]; but in the three more northern varieties [h] does not occur. This is true whether the following vowel is unstressed (in the POS, at the absolute right edge) or stressed (due to the addition of the NEG clitic [-ʃ]). That said, note that in the POS stress is shifted to the syllable preceding the clitic, as if that syllable were closed (PA stresses the last CVC or CVV syllable, otherwise the first of three light syllables) – this indicates that the /h/ is somehow still present underlyingly even in the northern varieties. After a stem ending in a front vowel (1b), neither Jr nor Ks fail to realize the /h/; but Tarʃiħa (Tš), a locality to the north of Ks, replaces the /h/ with a glide [j]. Still, this occurs iff the following vowel is unstressed. Further to the north, in Fassutˤa (Fs), a back glide [w] replaces the [h] after high back vowels, too; again, this occurs iff the following vowel is unstressed (1c). Finally, all dialects realize /h/ faithfully after the low [a], regardless of whether the next vowel is stressed or not.

(1)		a. 'he wrote it.F' base: kátab		b. 'he builds it.F' base: jíbni		c. 'they saw it.F' base: ʃá:fu		d. 'he threw it.F' base: ráma	
		POS (_v)	NEG (_v́)	POS (_v)	NEG (_v́)	POS (_v)	NEG (_v́)	POS (_v)	NEG (_v́)
South → North	Jr	katábha	katabhá:ʃ	jibní:ha	jibnihá:ʃ	ʃafu:ha	ʃafuhá:ʃ	ramá:ha	ramahá:ʃ
	Ks	katába	katabá:ʃ	jibní:ha	jibnihá:ʃ	ʃafu:ha	ʃafuhá:ʃ	ramá:ha	ramahá:ʃ
	Tš	katába	katabá:ʃ	jibní:ja	jibnihá:ʃ	ʃafu:ha	ʃafuhá:ʃ	ramá:ha	ramahá:ʃ
	Fs	katába	katabá:ʃ	jibní:ja	jibnihá:ʃ	ʃafu:wa	ʃafuhá:ʃ	ramá:ha	ramahá:ʃ

We argue that the patterns of [h]-loss follow universal markedness tendencies. To account for the post-consonantal pattern, we assume a constraint *[h]. This constraint is motivated for instance by languages in which [h] is undergoing – or has undergone – lenition in all or almost all positions, such as Romance, Modern Hebrew (Bolozky 1978) or Farsi (e.g. Rashidi & Shokrollahi 2010). However, deleting the [h] in a post consonantal position is not without problems; in the terms of Strict CV (Lowenstamm 1996, Scheer 2004), and as illustrated in (2), it involves leaving a skeletal sequence VC unassociated. The difference between Jr and the three other dialects can be modeled assuming that the language rejects such empty sequences or not respectively.[1]
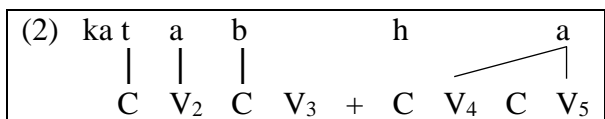
Moving on to post-vocalic cases, we account for the retention of [h] using the well-known constraint *hiatus, which is undominated in Palestinian Arabic. The replacement (in the relevant dialects) of /h/ by a glide that is homorganic with the previous vowel is a clear example of glide formation through spreading, illustrated in (3). Such spreading allows for the satisfaction of *[h] without violation of *Hiatus. This immediately explains the uniform behavior of dialects in (1d): since there is no glide that is homorganic with the low vowel, /h/ must always be faithfully realized after [a].
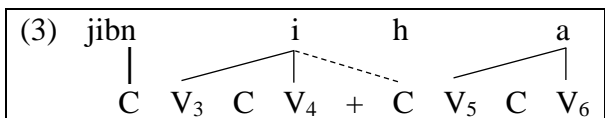
Two other questions are raised for the intervocalic envoronmnt. First, why is glide-formation not allowed in any dialect before a stressed vowel? And second, what distinguishes the dialects

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[1] Final vowels are phonologically long, though they are realized short (McCarthy 2005).

such that Jr/Ks disallow glide-formation, Tš allows only the formation of [j], but Fs permits both [j] and [w]?

Again we rely on universal considerations. To express the effect of stress, we assume a constraint *[hV$_{unstressed}$], which disallows [h] before unstressed vowels. This constraint is also motivated cross-linguistically, for instance by Germanic languages, which only exhibit non-initial [h] before stressed vowels (e.g. English *vehicle* [víəkl] vs. *vehicular* [vəhíkjələɹ]). We show that this constraint allows for glide formation only before unstressed vowel (as illustrated in (4)).

As for the different levels of tolerance to glide formation, we rely on the following implicational universal, adapted from Maddieson (1984): "If a language exhibits a back high glide [w], it also exhibits a front high glide [y]." We express this universal by assuming two constraints: *GLIDE and *[w]. Since there is no constraint *[j], no language can rule out [j] without ruling out [w] too, whereas the opposite *is* possible. We then show that the more northern the dialect, the higher *[hV$_{unstressed}$] is situated. The ranking *HIATUS >> *[w]>> *GLIDE >> **[hV$_{unstressed}$]** yields Jr, Ks; *HIATUS >> *[w] >> **[hV$_{unstressed}$]** >>*GLIDE yields Tš; and *HIATUS >>**[hV$_{unstressed}$]** >> *[w] >> *GLIDE corresponds to Fs. A dialect with only [w]-formation, unattested, cannot be derived. The tableau in (4) illustrates the intermediary case, that of Tš, as well as the hierarchy assumed between the other constraints.[2]

(4)	/jibni:-ha:/	*HIATUS	*[w]	*[hV$_{[-STRESS]}$]	*GLIDE	*[h]
	i. [jibní:ha]			*!		*
☞	ii. [jibní:ja]				*	
	iii. [jibní:a]	*!				
	/ʃa:fu:-ha:/	*HIATUS		*[hV$_{[-STRESS]}$]		
☞	i. [ʃafú:ha]			*		*
	ii. [ʃafúwa]		*!		*	
	iii. [ʃafúa]	*!				

To be sure, [h]-loss is restricted to these clitics; PA does exhibit [h] in all possible positions elsewhere in the system. Again, we argue that universal considerations of higher faithfulness to root segments (McCarthy & Prince 1995) protect Radical /h/ from deletion.

We conclude that all aspects of [h]-loss in Palestinian Arabic can be accounted for based on universal markedness considerations.

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[2] Note that the *[h]V$_{[unstressed]}$ is irrelevant for post-consonantal, pre-tonic cases (/katabha:ʃ/ in 1a). There, [h]-deletion is not protected by hiatus avoidance and thus the lower *[h] rules a candidate with [h] in Ks,Tš and Fs.