H-tone is not always H-tone: A register tone account of Macuiltianguis Zapotec

Main Claim Macuiltianguis Zapotec exhibits two different classes of morphological H-tones that are realized in different positions and differ in whether they create new contour tones on long vowels or not. This asymmetric behaviour follows in a standard autosegmental account assuming that tone is represented as a structured complex of register and tone features.

Data The Otomanguean language Macuiltianguis Zapotec (=MZ, Broadwell and Zhang, 1999; Broadwell et al., 2011; Foreman, 2006) has the three level tones high (=H, á), mid (=M, a), and low (=L, à). There is at least one prefix (/gu–/ POTENTIAL) that causes an additional H on the following TBU (1). And in the formation of the 1.SG, an additional H is realized on the verb base: on a vowel followed by /ʔ/ (2-a), on the leftmost L-toned TBU if there is no such vowel (2-b), and on the rightmost M-toned TBU if there is no L-toned TBU (1-c).

(1) *Potential* *(Broadwell et al., 2011, 4+6)*

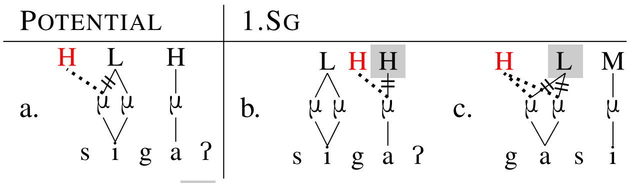
	UNDERLYING	SURFACE
a.	gú-sìːgáʔ-nà-nà	gú-sîːgáʔ-nà-nà
	POT- push-3SGS-3SGO	'S/he will push it'
b.	gú-di-bìtthà-nà-nà	gú-dí-bìtthà-nà-nà
	POT-CAU-wet-3SGS-3SGO	'S/he will wet it'
c.	gú-tùːbí-nà-nà	gú-tûːbí-nà-nà
	POT- roll-1SGS-3SGO	'I will roll it'

(2) *1.Singular* *(Broadwell et al., 2011, 6+7)*

	BASE		1.SG
a.	tsìːgaʔ	'get dirty'	tsìːgáʔ
	sìːgáʔ	'push'	sìːgáʔ
	xuʔní	'wrinkle'	xúʔní
b.	decchù	'fold'	decchú
	bìtthà	'wet'	bítthà
	gàːsi	'be scared'	gáːsi
c.	xatta	'iron'	xattá
	neːsi	'submerge'	neːsí

This complex interaction of different factors governing the position of the morphological tone is highly interesting in its own respect, but the MZ data in fact reveals another striking property: the two morphological H-tones in (1) and (2) behave differently with respect to where they are realized and how many base-TBU's they overwrite. The potential H-tone (2) is always realized on the TBU adjacent to the triggering prefix and results in a falling contour on long L-toned vowels (e.g. /sîːgáʔ/ in (1-a)). The 1.SG H-tone (1) is realized non-locally according to the three preferences listed above and overwrites a long vowel to a completely H-toned one (e.g. /gáːsi/ in (2-b)). Under the autosegmental view that the morphological H-tones are floating affix-tones, this asymmetric behaviour is mysterious. Why can one H only associate under strict locality and only to a single TBU (cf. (3a)) whereas the other non-locally searches for a preferred docking site (cf. (3b)) and overwrites the tone on both moras of a long vowel (cf. (3c))? The (non-local) placement of the 1.SG H-tone is taken as an argument for process-based morphology in Broadwell et al. (2011). In contrast, I present a standard autosegmental account for the morphological H-tones in MZ.

(3)



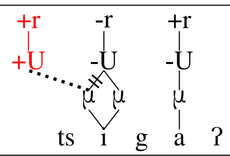
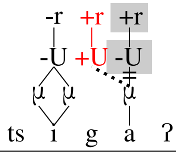
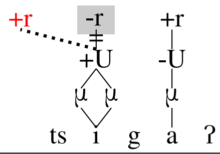
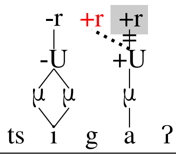
(H=affix tone, L =tone not associated anymore)

Analysis The asymmetric behaviour of morphological H-tones follows under the assumption that the tones in MZ are represented as complex structures of register and tone (Yip, 1980; Pulleyblank, 1986) in a dominance relation (cf. (4), Yip, 1989; Snider, 1990; Hyman, 1992).

(4) *Representation of tone*

L	M	H
-r	-r	+r
|	|	|
-U	+U	+U

The TBU in MZ is taken to be the mora (=μ) and only one tone specification can associate to a TBU: apparent contour tones are hence only possible on long vowels. The floating morphological H-tones are taken to have different complexity: they are either specified for the register feature [+Upper] and the tone feature [+raised] or only for [+raised]. Both underlying representations result in the same surface interpretation but are predicted to have quite different effects on neighbouring TBU's. A fully specified tonal structure [+Upper – +raised] is predicted to associate to a TBU and overwrites the original tone of this TBU. A contour tone for bimoraic long vowels is predicted (cf. I-a). Although there are preferences in MZ to realize a high tone on vowels followed by a /ʔ/ and to preferably overwrite L-tones rather than M-tones, this fully specified H-tone is unable to reach any of these preferred positions if it needs to cross intervening tones on its way. This follows under the standard assumption that the affixed tone is linearly ordered to all base tones and any reordering violates LIN$_{\text{UPPER}}$ (cf. suboptimal I-b). An underspecified floating [+raised], on the other hand, is able to cross intervening tones on its way to a preferred position since the position of this smaller autosegmental structure is preserved by a lower-ranked faithfulness constraint LIN$_{\text{RAISED}}$ (cf. optimal II-b). That realization of this underspecified affix H-tone on a long vowel does not result in a contour tone follows straightforwardly: the two moras of a long vowel are associated to a single register feature [±Upper] and association of the floating [+raised] to this one feature changes the tone specification for both TBU's (as in II-a). Association of [+raised] to an underlying L- or M-tone always results in a change of the underlying [–Upper] to [+Upper] since there is no *[–Upper – +raised] tone in MZ. This violates IDENT$_{\text{L}}$ and IDENT$_{\text{M}}$ penalizing a change of underlying L- and M-tones (cf. II-a and II-b). The preference for realizing a H-tone before a glottal stop results from high-ranked *C.G./L and *C.G./M and is hence a standard case of consonant-tone interaction (Lee, 2008; Tang, 2008) and the preference for overwriting an L-tone rather than an M-tone from the ranking of IDENT$_{\text{M}}$ above IDENT$_{\text{L}}$. That the 1.SG H-tone overwrites the leftmost L but the rightmost M is finally an effect of a standard positional faithfulness constraint preserving an initial M-tone.

	LIN$_{+U}$	MAXAL(μ-U)	*C.G./L	*C.G./M	ID$_{M}$	LIN$_{+R}$	ID$_{L}$
I. ☞ a. 		*		*			
b. 	*!	*				*	
II. a. 				*!			*
☞ b. 					*	*	

Further implication: This register-tone account for the H-tone asymmetries in MZ is based on the insight that more complex autosegmental structures might have different effects than a less complex subset structure. Such an account can be generalized to other instances where autosegments with identical surface effects differ with respect to, for example, their landing site. Another such example are the tone-demanding suffixes in Bora (Thiesen, 1996; Thiesen and Weber, 2012) that demand a specific tone on the final or penultimate TBU of their base.