Turbid strict CV

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Main claims By upgrading strict CV (Lowenstamm 1996; Scheer 2004) with Turbidity Theory (TT, Goldrick 2001), a set of empirically and conceptually puzzling issues can be given a straightforward solution. The possibility to formally distinguish between empty V nodes (EV) and V nodes that have some unpronounced melodic content (eV) allows to neatly account for a variety of phenomena that would otherwise be labeled as exceptional, or require complicate phonological rules. This is shown by discussing (i) the interaction of glide mutation and transfer (**GliM**) in Classical Arabic (CA) (Bohas & Lowenstamm 2021, BL), and (ii) the behaviour of word-final consonant cluster (**WFCC**) in Colloquial Egyptian Arabic (CEA) verbs (Fathi 2013, FT).

TT representations TT posits two asymmetric melody-prosody relations: a projection relation (↓) expressing the lexical affiliation of a melodic prime to a prosodic node, and a pronunciation relation (↑) expressing the phonetic interpretation of a melodic prime in a specific prosodic node. Full V has both (d.), eV has only ↓ (c.), EV have no melodic primes (b.), and floaters are melodic primes with no prosodic node (a.):

a.	b.	c.	d.
|A|	V_1	V_2 ↓ |A|	V_3 ↕ |A|

Phonetically, the melodic content of full V is always interpreted, whereas the phonetic interpretation of eV and EV depends on the context: if followed by a proper governor, they can stay silent, otherwise EV is assigned a default melody, while eV has its projected melody interpreted. Floaters are pronounced if associated to some prosodic node (via ↑). Phonologically, assuming a direct relation between representational complexity and lateral strength, where TT relations are included in the calculation of complexity, the lateral strength decreases from full V to eN to EN.

GliM - Background CA triconsonantal roots can surface as biconsonantal due to a process of glide mutation that transforms a glide occurring between *a* and another V into *alif*, which marks the lengthening of *a*. E.g. $\sqrt{\text{XWF}}$ 'fear' → /xawifa/$_{\text{PRF.3M.SG}}$ → *xāfa*. This process interacts with a transfer process, which targets forms with a medial glide and 'moves' the V occurring between C_2 and C_3 to the left of C_2. E.g. $\sqrt{\text{QWL}}$ 'say' → /yaqwulu/$_{\text{IMPRF.3M.SG}}$ → *yaquwlu*. The interaction of these processes can be seen in $\sqrt{\text{XWF}}$. Its IMPRF.3M.SG UR /yaxwafu/ should surface as *yaxawfu* due to transfer, but we observe *yaxāfu*. The puzzle is represented by *ā*. Due to glide mutation, *ā* is expected when a glide is preceded by *a* and followed by another V, but the triggering context occurs neither before - /yaxwafu/ - nor after transfer - *yaxawfu*. BL maintain that "the vowel has been removed from its canonical position, yet its former presence somehow continues to count [and as] the Arab grammarians explicitly talk about vowel movement, the modern theoretical construct that most closely corresponds to [it is] trace theory". BL thus propose the rule in (1) (G = *glide*):

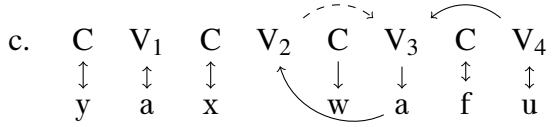
(1) $a\text{G} \rightarrow \bar{a}$ / _ {V, t_a}

Transfer turns /yaxwafu/ into /yaxaw$t_a$fu/, providing the environment for (1), which yields *yaxāfu*.

GliM - Analysis TT eV neatly formalize the concept of phonological *trace*. Because of the lack of the pronunciation relation (↑), eV is not phonetically interpreted. Its projection relation (↓), though, makes it phonologically active. This is shown with derivation of IMPRF.3M.SG of $\sqrt{\text{XWF}}$:

a.	C	V_1	C	V_2	C	V_3	C	V_4
	↕	↕	↕		↕	↕	↕	↕
	y	a	x		w	a	f	u

b.	C	V_1	C	V_2	C	V_3	C	V_4
	↕	↕	↕		↕	↓	↕	↕
	y	a	x		w	a	f	u



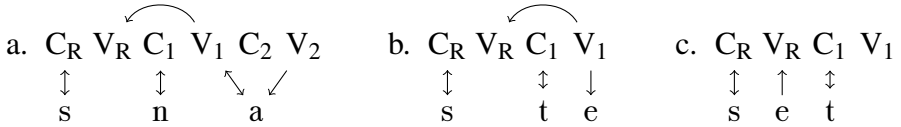
In a. we have the 'regular' IMPRF form /yaxwafu/, where V_2 is properly governed by V_3. This form is the input to transfer, yielding /yaxawfu/ (b.). In the latter, V_3 is an eV: its melody is still part of the phonological string, but is not pronounced where it belongs. The melodic content of V_3 though does get phonetically interpreted, albeit in V_2 (*a*-to-V_2 ↑). Transfer is hence a process that only shifts the pronunciation of the melody of V_3 to V_2, without removing the melody's projection relation. Crucially, the presence of *a* on both sides of the glide (c.) creates the environment for mutation to apply, yielding *yaxāfu*. The deletion of the glide is interpreted as the removal of ↑ (possibly due to the reduced licensing power of the following silent V), and the lengthening of *a* as the spreading of the melody pronounced in V_2 to V_3 (dashed arrow).

WFCC - Background The CEA 3F.SG subject marker shows an interesting contrast with the 1SG marker, as shown by (a chunk of) the PRF paradigm of $\sqrt{\text{LBS}}$ 'put (clothes) on' (FT:34):

1PL	lebesna
1SG	lebest
3F.SG	lebset

The presence of *e* between the root's C_2 and C_3 depends on the context: it surfaces only if followed by a C cluster (1PL, 1SG), i.e. only when followed by EV. If the latter is pronounced, *e* doesn't surface (3F.SG). The same alternation involves the V between the root's C_3 and the marker. If properly governed by full V, it stays silent (1PL), otherwise *e* surfaces (3F.SG). In 1SG, though, the root-final V stays silent despite being followed by a final EV. Traditionally, final EV's ability to properly govern a preceding EV is determined parametrically. If we assume that in CEA this parameter is ON, we can account for 1SG, but not for 3F.SG. If it's OFF, we can account for 3F.SG but not for 1SG. Clearly, a systemic parameter is not the best formal tool to account for this pattern.

WFCC - Analysis The puzzle can be solved if we assume that the 1SG and 3F.SG markers end in different Vs. The one of 3F.SG is an EV, thus cannot govern the root-final EV, which surfaces as *e* (c.). The one of 1SG is an eV, thus can properly govern (b) (a., b. and c. only show the root-final CV and the markers; the *a* of 1SG is phonologically long, as all CEA peripheral V; see FT).



Conclusions As shown, TT provides the tools to explain cases of opacity (GliM). Furthermore, by preserving a direct relation between lateral actorship and representational complexity, it improves on the inconsistent use of the parameters regulating the final EV's lateral actorship. This suggests that the parameter defining the lateral actorship of V could be possibly dispensed with, its effect being due to the phonological make up of V, thus, ultimately, to the Lexicon. Time permitting, we will also show how TT allows for an improved formalization of *yers* and Magic Government.

Selected references Bohas, G. and J. Lowenstamm (2022). The *taṣrīf* in the medieval arabic grammatical tradition. In *The Oxford Handbook of the History of Phonology*. Oxford: Oxford University Press. • Fathi, R. (2013).Vowel length in Egyptian Arabic: a different view. PhD thesis, Université Paris Diderot (Paris7), Paris.