

Hybrid Opacity in Berbice Dutch Creole

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Highlights

- **Hybrid Opacity:** simultaneous under- and overapplication, e.g. nasal assimilation in Berbice, interacting with consonant deletion: /maNɡ-tɛ/ → [maŋ-tɛ] ‘run-ANT’
- Nature of this interaction depends on framework architecture, may simply be underapplication—but same OT grammar can derive hybrid opacity scenario
- Of non-serial models of opacity, only Turbidity derives proper results, but claims interaction is completely transparent
- Does hybrid opacity exist? Generalized templates and experimental stimuli proposed for further identification

The problem: nasals in /ND/ block assimilation

Berbice: Dutch-based creole, Eastern Ijo substrate. Spoken in Guyana c. 1700-2005 (Kouwenberg 1994)

(1) Non-alternating environments: place contrast neutralized before oral stops

Word-initial	Intervocalic	Word-final	NC
m n	m n	m n	m n ŋ
[mafʊ] ‘leech’	[huma] ‘piranha’	[kam] ‘comb’	[kamba] ‘drum’
[nati] ‘wet’	[kunu] ‘stench’	[alen] ‘alone’	[tondi] ‘grease’
			[juŋɡu] ‘young’

(2) Optional agreement in [nimi]-type verbs

	NV#	N#	Anterior forms	Gloss
a.	[nimi]	[nim]	[nim-tɛ] ~ [nin-tɛ]	‘know’
b.	[pama]	[pam]	[pam-tɛ] ~ [pan-tɛ]	‘tell’
c.	[komu]	[kom]	[kom-tɛ] ~ [kon-tɛ]	‘come’

(3) Agreement blocked in [maŋgi]-type verbs

	NDV#	N#	Anterior form	Gloss
a.	[tambu]	[tam]	[tam-tɛ], *[tan-tɛ]	‘pound’
b.	[fɛndɛ]	[fɛn]	[fɛn-tɛ]	‘find’
c.	[maŋgi]	[maŋ]	[maŋ-tɛ], *[man-tɛ]	‘run’

UR of verbs in (3) analyzed as /ND/-final, e.g. /taNɒ/ or /tamb/:

- Final V largely predictable
- General ban on voiced obstruent codas
- /NT#/ and /NTV#/ verbs
- Other class of non-alternating verbs, e.g. [samba], *[sam] ‘groan’
- cf. Dow (2013) for more

Deletion account preferred over coalescence, ties together behavior of all classes and phonotactic generalizations (NB: coalescence removes overapplication aspect)

Comparing analyses

- Underspecification in rule-ordering: assimilation precedes consonant deletion, e.g. /maNɡ-tɛ/ → |maŋɡ-tɛ| → [maŋ-tɛ]
- OT prefers homorganic inputs in this case (Lexicon Optimization)
- Optimality Theory with Candidate Chains (McCarthy 2007) derives attested results from both inputs, e.g. /maNɡ-tɛ/ OR /maŋɡ-tɛ/ → [maŋ-tɛ], PRECEDENCE(ID[place], MAXC) specifies ID[place] violations should precede but not follow MAXC violations

(4) Homorganic input

/maŋɡ-tɛ/	*VOC	MAXC	PREC	AGREE	ID[place]
a. <maŋɡ-tɛ> ∅	*!				
b. <maŋɡ-tɛ, maŋ-tɛ> MAXC		*	*	*	
c. <maŋɡ-tɛ, maŋ-tɛ, man-tɛ> MAXC, ID[place]		*	**!		*

(5) Archiphonemic (or heterorganic) input

/maNɡ-tɛ/	*VOC	MAXC	PREC	AGREE	ID[place]
a. <maNɡ-tɛ> ∅	*!			*	
b. <maNɡ-tɛ, maN-tɛ> MAXC		*	*!	*	
c. <maNɡ-tɛ, maN-tɛ, man-tɛ> MAXC, ID[place]		*	*!*		*
d. <maNɡ-tɛ, maŋɡ-tɛ> ID[place]	*!				*
e. <maNɡ-tɛ, maŋɡ-tɛ, maŋ-tɛ> ID[place], MAXC		*		*	*
f. <maNɡ-tɛ, maŋɡ-tɛ, maŋ-tɛ, man-tɛ> ID[place], MAXC, ID[place]		*	*!		**

- Turbidity (Goldrick 2001): covert levels of projected vs. pronounced output representations (underlined = projected, unpronounced)

(6) Turbidity account of hybrid opacity (adapted constraint notation)

- PROJECTAGREE: Nasal + stop sequences must agree, pronounced or not.
- NOPRONOUNCEVOC: Voiced obstruent codas must not be pronounced.
- PRONOUNCE(C): Input consonants must be pronounced (no deletion).

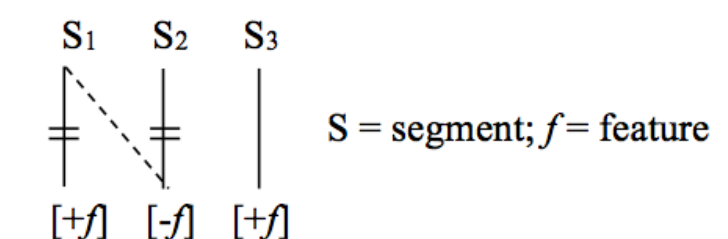
/maNɡ-tɛ/	PROJAGREE	NOPRONVOC	PRON(C)	ID[place]
a. ...Ngt...	*!	*		
b. ...ngt...		*!		*
c. ...Ngt...	*!			
d. ...ngt...				*
e. ...Nt...	*!		*	
f. ...nt...			*!	*

- Other non-serial OT models of opacity (e.g. Comparative Markedness, McCarthy 2002; Local Constraint Conjunction, Smolensky 1995) fail: overapplication impossible

What is hybrid opacity, and must it exist?

- Berbice example as hybrid opacity depends on input /N/: possible (rule-ordering), unmotivated (OT-CC), or transparent (Turbidity)
- Hybrid opacity undocumented elsewhere—further identification and experimentation will better clarify

(7) Deletion template



(8) Hypothetical example:

- Regressive [voice] assimilation in consonant clusters: /al-ta/ → [a]-ta], /at-ba/ → [ad-ba]
 - Reduction of complex codas, such that C₁C₂ clusters to C₁: /ald/ → [al], /ald-ba/ → [al-ba]
- Deletion has 2 effects on assimilation, vs. other “dual interactions,” e.g. FED COUNTERFEEDING in Tundra Nenets (Kavitskaya & Staroverov 2010)
 - Apocope feeds debuccalization
 - Debuccalization counterfeeds apocope
 - Each process has one effect on the other

(9) Experimental testing may provide more conclusive evidence

Cluster simplification: C → ∅/ C_{C, #}, precedes:
Nasal place assimilation

/lata/	→ [lata]	/nap/	→ [nap]	/sam/	→ [sam]
/lata-g/	→ [lata-g]	/nap-g/	→ [nap]	/sam-g/	→ [saŋ]
/lata-te/	→ [lata-te]	/nap-te/	→ [nap-te]	/sam-te/	→ [san-te]

- Inability to acquire a hybrid opacity scenario may lend more credence to non-serial models of opacity (e.g. Turbidity)

Summary and conclusions

- Hybrid opacity’s existence debatable: overapplication aspect must be motivated (ideally by alternations)
- Identification of clearer cases would prompt revisions to theory and taxonomy of opacity (e.g. differences from other dual interactions)
- If hybrid opacity must not exist, either...
 - blocking mechanisms must be introduced to serial models of opacity (preventing overgeneration), or
 - alternative, non-serial models of opacity may be preferred