

# Sound-meaning relations in prosodic morphology, and the fallacy of underspecification

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MCWOP5

## Akan Reduplication (Schachter and Fromkin 1968, MacCarthy and Prince 1995)

1.

“

/kɛ/	→	[tɕɛ]	divide
/gɛ/	→	[dʒɛ]	receive
/wi/	→	[ɥi]	nibble
/hi/	→	[çi]	border

”

- This analysis rests crucially on the assertion that abstract representations are **underspecified** for palaltality, and that the velars and palatals engage in an **alternation**.
- There is no evidence for the velar or laryngeal origin of the palatals in question, as palatals appear exclusively in underived contexts.
- **Alternation**: *active* context-dependent phonetic changes in a single contrastive value.
- The distributional generalization about velars and palatals plays no functional role in the language: no information about meaning (change, preservation, or loss) rests on their complementary distribution, and so there is no reason for learners to take linguistic note of their relationship.
- By characterizing the palatals as derived from underlying velars, Schachter and Fromkin posit an unmotivated dynamism (in the form of MSRs/RRs), and thus the sound-sound relation between the palatals and velars is being erroneously treated as a sound-meaning relation.

2.	[si–siʔ]	stand	[bu–bu(ʔ)]	bend
	[fi–fiʔ]	vomit	[su–su(ʔ)]	carry on the head
	[si–seʔ]	say	[su–soʔ]	seize
	[si–seʔ]	resemble	[su–sɔʔ]	light

- If the so-called palatalization process were “psychologically real,” we would expect velar-initial roots to palatalize upon reduplication, since they come to be followed by front vowels.

3.      [ki-kaʔ]      bite      \*[tɕi-kaʔ]  
           [hi-hawʔ]      trouble      \*[ɕi-hawʔ]

- What is the difference between a **static complementary distribution** between two sounds, and a **dynamically active alternation** between two sounds?
- In a theory which posits abstract, underspecified underlying representations (e.g. generative phonology), there may be no difference between the two either in terms of their formal properties or in the impact they are predicted to have on the system as a whole (see Kenstowicz and Kisseberth 1977, 1979 for the thorny particulars).
- Generative phonology (with abstract underspecified underlying representations):

A non-alternating pattern: [æ] and [æ̃] in New York monosyllables:

Rule-based phonology (lexical redundancy rule):

/æ/ → [æ̃] / \_\_\_\_ C# (where C= voiced obstruents, voiceless fricatives, and nasals)

Constraint-based phonology:

Input: /æ̃C/ or /æC/	Tensing
a. $\emptyset$ æ̃C#	
b. æC#	*!

Base: æCV	BT identity	Constraint
a. æ̃C#	*!	
b. $\emptyset$ æC#		*

- *English truncates do not engage in alternations that are elsewhere absent from the language. There are no violations of a supposed a-tensing constraint.*
- An alternating pattern: l-darkening in English:  
 Rule-based phonology (morphophonemic rule):  
 /l/ → [ɫ] / \_\_\_\_ (C)]<sub>σ</sub>

16. Constraint-based phonology:

Input: /l/ or /l/	Constraint
a. $\emptyset$ [ɫ](C)] <sub>σ</sub>	
b. [l](C)] <sub>σ</sub>	*!

17. *Counterfactual:*

Base: l	BT identity	Constraint
a. [ɫ]	*!	
b. $\emptyset$ [l]		*

- *English truncates engage in alternations that are elsewhere present in the language. There are no violations of a so-called “BT identity” constraint.*
- Given that both the **static condition** (such as the distribution of New York [æ] and [æ̥]) and the **dynamic condition** (such as English l-darkening) are expressed in the same formal terms, the generative theory predicts that the two patterns are always linguistically and psychologically indistinct. As English truncation shows, this is an incorrect prediction.
- **X is in static complementary distribution with Y:**
  - The relationship between **X** and **Y** may be irrelevant to the learner, because they do not engage in a dynamic relationship; their complementary distribution serves no functional purpose (either meaning-changing or meaning-preserving), and therefore it can be (and obviously is) ignored.
  - Therefore, operations are not subject to fully inactive constraints on distribution, as English truncation shows ([ˈhæ.ɪ]~[ˈhæ.ɪ]).
- **X dynamically alternates with Y:**
  - The learner is aware of the dynamic relationship between **X** and **Y**, and their ultimate functional equivalence (i.e., that the alternation does not yield a change in meaning).
  - Therefore, all operations display alternation, as English truncation shows ([ˈfɪləp]~[ˈfɪ]).
- The issue here is not merely definitional (“static complementary distribution,” “morphophonemic alternation,” etc.). Especially, it is whether the linguistic and psychological distinction between static and active (morpho)phonemic patterning is appreciated by researchers who use these terms.
- Schachter and Fromkin predict that the velar-palatal relationship is dynamic, and hence jumps to the perceptual foreground, the reduplication pattern strongly suggests that their relationship is instead relegated to the perceptual background, just as is expected once underspecification no longer muddies the analytical waters.
- From a phonetic vantage point, the patterning of velars and palatals might warrant recognition by the linguist. However, the functional relationship between them is lexically inert, playing no dynamic role in the system. It is therefore hardly surprising that reduplicants do not engage in an alternation that is elsewhere absent from the language.
- McCarthy and Prince (1995): “...[I]t is a fact of Akan that the sequence [ki] is *never* observed (except in reduplicated forms...[and in the cases parenthetically noted above – D.S.]). Any analysis...is obliged to capture this generalization, despite the lack of alternations” (p.341, fn.69; emphasis in original). The authors capture this generalization with correspondence-theoretic machinery in combination with segment sequencing constraints.

- By assuming *underspecified underlying representations*, McCarthy and Prince, like Schachter and Fromkin, are confusing sound-sound relations with sound-meaning relations.

#### **Madurese Reduplication** (Stevens 1968, McCarthy and Prince 1995)

#### 4. Nasalization and Reduplication in Madurese

“

/neat/	→	[jāt-nějāt]	intentions
/moa/	→	[wã-mõwã]	faces
/maen-an/	→	[ẽn-mã(?)ẽn-ãn] <sup>i</sup>	toys
/ŋ-soon/	→	[ɔ̃n-nɔ̃ʔɔ̃n]	request (verb)
cf. /soon/	→	[ɔ̃n-sɔ̃ʔɔ̃n]	request (noun)

”

- Allophonic relation exists between these oral and nasal vocoids: [ɔ̃n-nɔ̃ʔɔ̃n]~[ɔ̃n-sɔ̃ʔɔ̃n]
- But since there are no substitutions *in this context* involving a change, maintenance, or obliteration of meaning, there is no reason for learners to establish a functional link between it and anything else. The vowel copies from the base, and, as it is functionally unassociated with any other vowel in the system, quite simply, that is the end of the story.
- McCarthy and Prince: the presence of nasality in Madurese reduplicants “...follows, very simply, from the high rank of B-R identity. Because it dominates the anti-nasal constraint \*V<sub>nas</sub>, identity of base and reduplicant infringes on the perfection of complementary distribution, so the system is allophonic except in this special circumstance.”
- McCarthy and Prince are treating a static, non-alternating relationship (the relationship between *lexical* oral and nasal vowels) as formally and functionally indistinct from an actual, dynamic, alternation (the relationship between oral and nasal vowels in an alternating context like the root in [ɔ̃n-nɔ̃ʔɔ̃n]~[ɔ̃n-sɔ̃ʔɔ̃n]). Consequently, for McCarthy and Prince, the presence of nasality in reduplicants is a surprise, and is thus supposed evidence for existence of some mental “correspondence” grammatical component. But once again, when viewed in a functional rather than a formal light, no problem exists to ponder, either for linguists or for learners.

#### **New York truncation** (Labov, Kiparsky, Benua 1995)

5.	Harry	[ˈhæ.ɹi]	Har-	[ˈhæ.ɹ]
	Larry	[ˈlæ.ɹi]	Lar-	[ˈlæ.ɹ]

Sarah [ˈsæ.ɪə] Sar- [ˈsæ.ɪ]

- Benua invokes output-output correspondence constraints (McCarthy and Prince 1995), asserting that an allophonic [æ]~[æ̘] alternation is blocked upon truncation.
- Benua's analysis is theoretically specious and descriptively inadequate:
  - New York has no [æ]~[æ̘] alternations.
  - [æ] and [æ̘] are contrastive in New York (e.g. Mary [mæ̘.ɪ]–Marry [mæ.ɪ]).
  - Active alternations readily alternate upon truncation (e.g. Philip [ˈfɪləp]–Phil [ˈfɪl] (\*[ˈfɪl])).
  - Acknowledging the linguistic and psychological distinction between active and static phonological patterning readily accounts for the truncation data.
- New York English æ-Tensing: preceding all tautosyllabic obstruents except voiceless stops, and preceding tautosyllabic anterior nasals.

æ → æ̘ / \_\_ C]σ (where C= voiced obstruents, voiceless fricatives, anterior nasals)

New York Alternations (sic):

a. manage	[ˈmænədʒ]	b. man	[ˈmæ̘n]
Janice	[ˈtʃænis]	plan	[ˈplæ̘n]
cafeteria	[ˈkʰæfətʰi.ɹi.ə]	laugh	[ˈlæ̘f]
cannibal	[ˈkʰænəbəl]	mandible	[ˈmæ̘ndəbəl]
planet	[ˈplæni?	plan it	[ˈplæ̘ni?

æ-TENSING: \*æC]σ where | C | > | [-cont, -vc] |

\*TENSE-low "no tense low vowels"

IDENT-IO[tense]

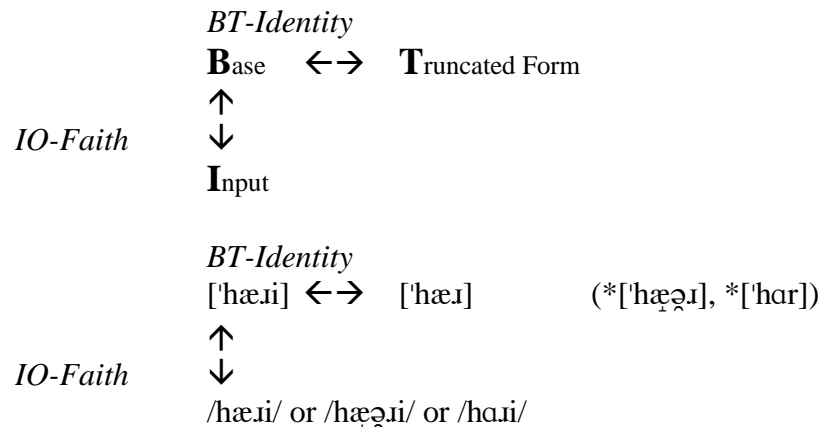
6. æ-TENSING >> \*TENSE-low, IDENT-IO[tense]

Input: /plæn/ <sub>x</sub> or /plæ̘n/ <sub>y</sub>	æ-TENSING	*TENSE-low	IDENT-IO[tense]
a. [ˈplæn]	*!		* <sub>y</sub>
b. ☞ [ˈplæ̘n]		*	* <sub>x</sub>

- Truncated words are exceptional; truncated names have [æ], not [æ̘], in spite of the fact that these vowels are in the tensing environment.
- New York non-alternations:
 

Janice	[ˈtʃænis]	Jan-	[ˈtʃæn]
cafeteria	[ˈkʰæfətʰi.ɹi.ə]	caf-	[ˈkʰæf]
Massachusetts	[ˈmæsətʃʰusɪts]	Mass-	[ˈmæs]

7. Truncation:



- “Since Optimality Theory's output constraints cannot require the lax allophone to be present in the input string, either allophone may be present in the underlying form. OT relies on constraint ranking to force the appropriate segment to appear in the optimal output. The lax [æ] in the base name *Pamela* is therefore reliably present only in the output form of this word. Because the truncated version is always faithful to this allophone, BT-Identity constraints must compare the two surface strings.”

8. **BT-Identity** >> æ-TENSING >> \*TENSE-low >> IO-Faith

- ['hæ.ɪ] truncates to ['hæ.ɪ], and not ['hæ̥̌.ɪ] (or ['har]) due to an output-output constraint of the form IDENT–BT [tense], which, due to its outranking æ-TENSING, blocks the supposed tensing that would otherwise surface in such a closed syllable. Benua concludes that the truncate must be a correspondent of the output, since the status of the input can contain either [æ] or [æ̥̌].

9.

Base: ['hæ.ɪ]	IDENT-BT	æ-TENSING, etc.
a. ☞ ['hæ.ɪ]		*
b. ['hæ̥̌.ɪ], ['har]	*!	

10. New York English possess **no cases** of [æ]~[æ̥̌] alternation, allophonic or otherwise. (Note that Benua does not provide even one example of a true alternation in her supposed examples of the pattern (cf. 4)). Actually, it possesses [æ]~[æ̥̌] minimal pairs involving morphologically derived forms.

Harry ['hæ.ɹɪ]	truncates to	Har- ['hæ.ɹ]
↑contrasts with↓		↑contrasts with↓
hairy ['hæ.ɹɪ]	the V does not alternate with	hair ['hæ.ɹ]

Larry ['læ.ɹɪ]	truncates to	Lar- ['læ.ɹ]
		↑contrasts with↓
	the V does not alternate with	lair ['læ.ɹ]

Janice ['tʃænɪs]	truncates to	Jan- ['tʃæn]
↑contrasts with↓		↑contrasts with↓
Janny ['tʃæ.ɹɪ]	the V does not alternate with	Jan (full name) ['tʃæ.ɹɪ]

Cabbott ['kʰæbət]	truncates to	Cab- ['kʰæb]
↑contrasts with↓		↑contrasts with↓
cabbie ['kʰæ.ɹɪ]	the V does not alternate with	cab ['kʰæ.ɹ]

ban ['pæ.ɹɪ]	does not alternate with	banner (one who bans) ['pæ.ɹɪ]
		↑contrasts with↓
		banner (pennant) ['pæn.ɹ]

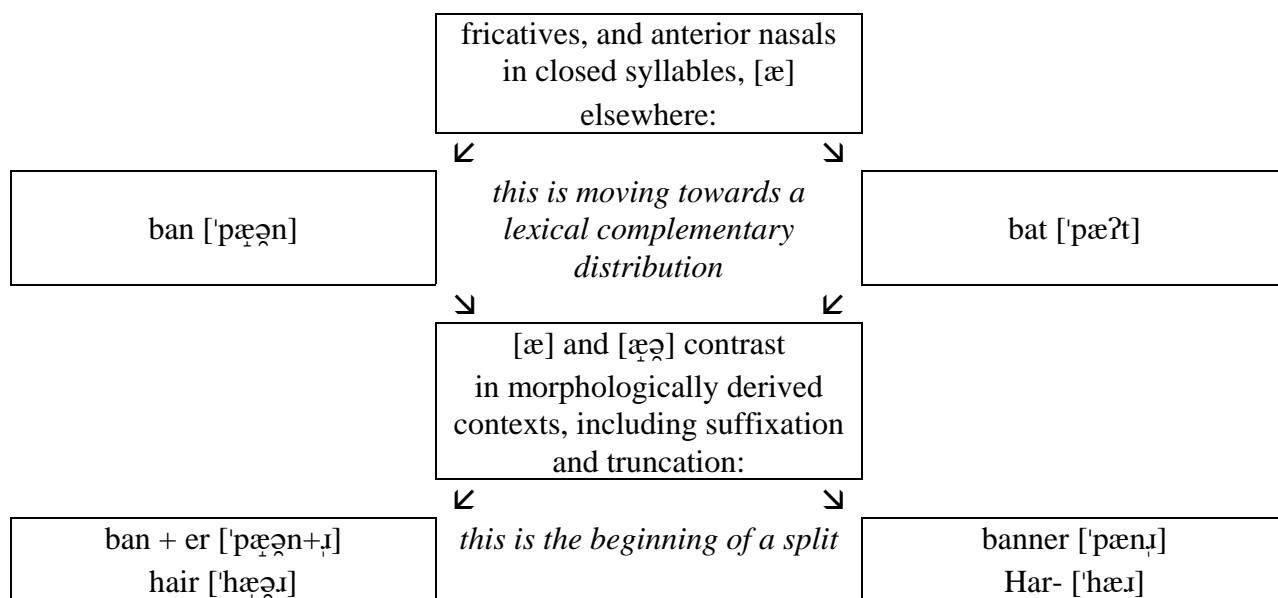
Marilyn ['mæ.ɹələn]	truncates to	Mar- ['mæ.ɹ]
↑contrasts with↓		↑contrasts with↓
Mary ['mæ.ɹɪ] merry ['mæ.ɹɪ] marry ['mæ.ɹɪ] Murray ['mʌ.ɹɪ] Maury ['mɔ.ɹɪ] Morry ['mɔ.ɹɪ] Mari ['mɑ.ɹɪ] myrrhy ['mɪ.ɹɪ]	truncates to	Mar- ['mæ.ɹɪ]

#### 11. Generalizations:

- [æ] and [æ.ɹ] **never alternate** with each other.
- [æ] and [æ.ɹ] are in **static complementary distribution** in underived closed syllables (due to a sound change; see especially Labov 1994).
- [æ] and [æ.ɹ] are **contrastive** in morphologically derived forms, including suffixation and truncation.

#### 12. Simplified account of the emerging split:

[æ] moves toward [æ.ɹ] before  
voiced obstruents, voiceless



13. Since there is no [æ]~[æ̘] alternation in New York English, truncates possess the same vowel quality as their base. Not surprisingly, *truncates do not engage in an alternation that is elsewhere absent from the language*.
14. Since the two vowels do not engage in a phonologically dynamic relationship with one another, there is no reason for a speaker to regard the two as alternants of each other.
15. Non-identity upon truncation is the obvious and well-attested result when the relevant phonological relationship is dynamic. Not surprisingly, *truncates engage in alternations that are elsewhere present in the language*.

	allophonically alternates with	we don't see	because X~Y is phonologically <i>active</i>
Melanie [ˈmɛləni]	Mel- [ˈmɛl]	*[ˈmɛl]	l ~ ɫ
Philip [ˈfɪləp]	Phil- [ˈfɪl]	*[ˈfɪl]	l ~ ɫ
Cabbott [ˈkʰæbət]	Cab- [ˈkʰæb̥]	*[ˈkʰæb]	b ~ b̥
Patricia [pʰəˈtɹɪʃə]	Pat- [ˈpʰæʔ]	*[ˈpʰætʰ] *[ˈpʰətʰ] *[ˈpʰəʔ]	tʰ ~ ʔ æ ~ ə

16. Summary:

- [ˈhæɪ] truncates to [ˈhæɪ] because there is no active alternation process that affects the vowel's phonetic value in the derived environment.
- The complementary distribution of [æ] and [æ̘] is a consequence of the incomplete [æ] - [æ̘] split, not due to any active phonological process.
- The evidence for the static nature of the [æ] - [æ̘] distribution stems *exactly* from the fact that nothing prohibits the introduction of the contrast in morphologically derived contexts.



- ['mɛləni] truncates to ['mɛl], not ['mɛl̩], because the complementary distribution of [ɫ] and [l] is phonologically active.

Benua's analysis is theoretically specious descriptively inadequate:

- New York has no [æ]~[æ̃] alternations.
- [æ]~[æ̃] are contrastive in New York, an emerging split.
- Actual alternations readily alternate upon truncation.
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- Abstract underspecified lexical entries are unmotivated, and obscure the actual straightforwardness of the pattern; assuming full specification encounters no such problems.
- Acknowledging the linguistic and psychological distinction between active and static phonological patterning readily accounts for the truncation data.

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<sup>i</sup> Despite Stevens' transcribing this form with unresolved hiatus, he reports that glottal stops are regularly present following a low vowel in hiatus, yet intervocalic glottals do not copy upon reduplication, being always treated as codas in the base. (Thanks to Amy Holland for bringing this point to my attention.)