Optimizing by accident:

A/an allomorphy and glottal stop

Marjorie Pak
Emory University
mgpak@emory.edu

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English *a/an* is a much-cited example of **phonologically optimizing allomorphy**: the allomorphs are distributed in a way that produces better (less-marked) surface forms than we would find otherwise.

1) GENERALIZATION: ***an*** before V, ***a*** elsewhere
   a. **an egg**, **a book** V.CV...
   b. *cf.* ***an book**, %***a egg** *VC.CV, %*V.V

A/an is not an isolated case. Optimizing allomorphy also occurs in Korean, French, Catalan, Arabic, etc… (Mascaró 1996, 2007, among others)

QUESTION FOR DEBATE

Does optimizing allomorphy need to be explained in the synchronic grammar?

e.g., Is *an* selected before vowels *because* this yields better syllables?

Yes. Allomorphy can 'see' and be directly influenced by the output of syllabification and other phonology.

2) E.G.: *A/an* as emergence of the unmarked (TETU) (Mascaró 1996)

{a,an} egg	ONSET	NO-CODA
a.egg	**!	*
☞ a.n egg	*	*

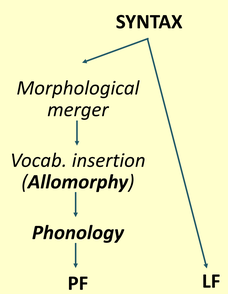
{a,an} book	ONSET	NO-CODA
☞ a.book	*	*
an.book	*	**!

"Insert **an** *iff this yields a better phonological structure."*

(my response)

No. Allomorphy strictly precedes phonology and can't 'see' what its surface effects will be.

3) E.G.: Serialist PF architecture (Embick & Noyer 2001, Embick 2010)



"Insert **an** *iff Det. is followed by a vowel when vocab. insertion applies."*

If *a/an* allomorphy is driven by phonological well-formedness, we should **consistently** see each allomorph producing the preferred structures **on the surface**.

Despite initial appearances, this isn't the case.

An doesn't always provide an onset. (cf. Mascaró 1996)

➢ ***An* shows up in a context where its /n/ *can't* be an onset: before emphatic ʔ.**

4) a. What an ʔidiot. VC.(C)V…
   b. That's an ʔánt, not a flea. VC.(C)V… (Pak 2014)

The /n/ in *an* here must be a coda, since English does not allow Cʔ onsets. But under (2), *an* shouldn't be chosen here; it incurs an extra NO-CODA violation.

Examples like (4) are not anomalous. Adults in CHILDES (MacWhinney 2000) have emphatic ʔ after *an* **25%** of the time (238/961).

Emphatic ʔ cannot be dismissed as 'extragrammatical.' It's debatable whether ʔ is a phoneme, segment, feature, gesture (Borroff 2007). But the *distribution* of emphatic ʔ is clearly grammar-internal: **Any consonant immediately preceding emphatic ʔ must be morpheme-final** (and thus potentially syllable-final).

5) a. an ʔápple, mandarin ʔórange, Ethan ʔÁllen, %unʔáble
   b. *AnnʔapoIis, *annʔoying, *anʔalysis, *CanʔadIan

6) That's /ənʔow/. (= That's an 'O.' ≠ That's a 'no.')

➢ **Also, *an* sometimes surfaces as a syllabic nasal (again, not providing an onset).**
If (2) is correct, why does *an* get selected here instead of *a*?

7) ajvgɔtˀn̩oʃən 'I've got an ocean.' (≠ 'I've got a notion.' [ajvgɔrənoʃən])

An doesn't always repair /əV/ hiatus. (cf. Blumenfeld 2012)

➢ ***An* sometimes gets selected even when there's a /ʔ/ to break the hiatus** (4).

➢ ***An* fails to be selected in a potential hiatus context: before fillers *uh/um*.**

8) I'd like **a** um… a large coffee. (Pak 2014)

The potential hiatus here is resolved by either ʔ or the 'strong-*a*' variant /ej/ (9) – crucially, **not** by *an* (only 1 instance of *an uh/um* in CHILDES, vs. 38 *a uh/um)*.

9) a. I'd like /əʔ, ej/ um…
   b. I'd like **an** (*ej, %*əʔ) umbrella.

If /ʔ/ and /ej/ are available as hiatus-fixers, why don't they get used in (9b)? More generally, **if *a/an* allomorphy really sees whatever's on the surface, why would it distinguish between *an umbrella* and *a um*…?**

Pause-fillers can't be dismissed as extragrammatical, since they *are* visible for Flapping – a classic 'late' phonological rule (Kaisse 1985, Bermúdez-Otero 2004):

10) Bu[r] um… I think tha[r] um….

And unlike *a/an,* Flapping doesn't distinguish ***tha[r] umbrella*** from ***tha[r] um***.

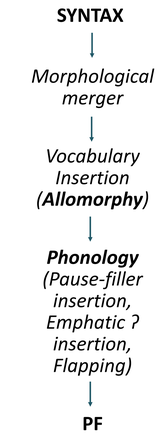
So how do we account for the a/an *facts?*

➢ There are **historical reasons** why *an* (instead of *a*) is selected before vowels:
< Old English *ān* ('one'); *a~an* began alternating in Middle English (Crisma 2012). Alternation probably started as /n/-elision (*an* → *a* / __C) (Venneman 1972); then eventually became reanalyzed as allomorphy with default *a*.

➢ ModEng *a/an* **happens** to yield well-formed syllables much of the time, but this effect doesn't need to be explained in the grammar. My proposal:

11) **Allomorphy rule for English *a/an***
D[-def] → **æn** / __V
→ **e** / elsewhere

➢ **Allomorphy strictly precedes phrasal phonology** (3).
So *a/an* can't see /ʔ/ or *uh/um* because allomorphs are inserted early in PF, before /ʔ/ or *uh/um* are added (Rotenberg 1978, Kaisse 1985).



12) *Derivation of (4b) (and its non-emphatic counterpart)*

a.	*Vocabulary insertion*	**æn**. ánt	**æn**. ant
b.	*Vowel reduction*	**ən**. ánt	**ən**. ant
c.	*Emphatic ʔ insertion*	**ən**. **ʔ**ánt	---
d.	*Resyllabification*	---	**ə.n** ant

13) *Derivation of (8) (I'd like a um…)*

a.	*Vocabulary insertion*	**e** *(nothing follows D[-def] yet)*
b.	*Pause-filler insertion*	**e**. um
c.	*Glide insertion/Resyllab.*	**e.j** um

➢ **But Flapping sees everything because it is a late rule of the phrasal phonology**, following both pause-filler insertion and resyllabification (10).

14) a. *Vocabulary insertion* **that** *(no allomorphy)*
   b. *Pause-filler insertion* **that. um**
   c. *Resyllab./Flapping* **tha.[r] um**

TAKE-HOME

➢ Proposals that attempt to explain the optimizing effects of *a/an* rely on giving allomorphy access to surface phonology.

➢ **But if *a/an* really can see what's on the surface, it should see *everything* on the surface – including emphatic ʔ, *uh/um*, etc.** – just as Flapping does. This prediction is **not** borne out.

➢ Since *a/an* seems at first sight to be a textbook example of optimizing allomorphy, this study raises questions about whether other reported cases are truly surface-optimizing, and in turn, whether optimizing effects should be explained in the grammar.

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