

How do we know if a spelling is a good fit for a word?

Established knowledge

- 1. The English writing system is not simply concerned with mapping phonemes onto letters. **To a large extent** it tries to offer the reader a constant spelling for a morpheme, in spite of the varying pronunciation of the morpheme in different contexts.
Carney (1994: 18)
- 2. **The spelling of compounds and derived forms tends to be morphemic**; the established graphemic form of the base is retained **as much as possible**, regardless of the phonemic alternations involved.
Venezky (1970: 120)
 - Compound words: <blackboard>, <blackcurrant>, <hothead>
 - Affixed derivations: <origin, original, originality>,
 - Inflections <jump, jumped, jumping>, <video, videoed, videoing>
 - But what about <hop, hopped, hopping> / <hope, hoped, hoping>
 - Or <profane, profanity> / <serene, serenity> etc.

Problems:

- To what extent is English spelling morphemic?
- My argument is that there are systematic ways in which morphemic and phonemic spelling interact.
- Implications.
 - We can understand how polymorphemic spellings are formed
 - We can better understand how spelling pronunciation works
 - We can remodel the reading / decoding process.

Some recent progress:

3. [E]ven though the English inflectional system is rather rudimentary, the writing system still makes morphological information visible. A case at hand is the affix *-ed* which is kept constant independent of the respective word's phonological form. The stem, on the other hand, is subject to graphemic alternation (e.g. (to) swim – swimming). **From this it follows that stem constancy in English is much less powerful than affix constancy** and also less powerful than the same principle in languages like German or Dutch.

Berg, Buchman, Dybiec & Fuhrhop, (2014: 284)

- Problem:
 - This argument explains why <profane> + <ity> → <profanity> not *<profanety> (etymology notwithstanding).
 - But it does not explain why *<profaneity> is avoided.

4. Consonant doubling is most regular at morpheme boundaries. **It can be described in graphemic terms alone**, i.e. without reference to phonology.

Berg (2016: 453)

Italicised forms follow the usual consonant-letter doubling patterns
Polymorphemic forms in bold are counterarguments to this:

1. /VC#/ ≡ <VC#>			5. /VC/ ≡ <VC ₁ C ₁ >		
bob	<i>bobbed</i>	<i>bobbing</i>	staff	staffed	staffing
spec	<i>specced</i>	<i>speccing</i>	smell	smelled	smelling
bed	<i>bedded</i>	<i>bedding</i>	boss	bossed	bossing
chef	<i>cheffed</i>	<i>cheffing</i>	buzz	buzzed	buzzing
bug	<i>bugged</i>	<i>bugging</i>	6. /VC/ ≡ <VC ₁ C ₂ >		
trek	<i>trekked</i>	<i>trekking</i>	lack	lacked	lacking
gel	<i>gelled</i>	<i>gelling</i>	wash	washed	washing
gum	<i>gummed</i>	<i>gumming</i>	sing	-	singing
ban	<i>banned</i>	<i>banning</i>	froth	frothed	frothing
hop	<i>bopped</i>	<i>hopping</i>	bomb	bombed	bombing
bar	<i>barred</i>	<i>barring</i>	sign	signed	signing
bus	<i>bussed</i>	<i>bussing</i>	7. /VCC/ ≡ <VC ₁ C ₂ >		
vet	<i>vetted</i>	<i>vetting</i>	gird	girded	girding
rev	<i>revved</i>	<i>revving</i>	rank	ranked	ranking
fix	fixed	fixing	zinc	zinc(k[?])ed	zinc(k[?])ing
fez	<i>fezzed</i>	<i>fezzing</i>	sync(h)	sync(h)ed	sync(h)ing
2. Base forms iambs			8. /V:C/ ≡ <VVC>		
refer	<i>referred</i>	<i>referring</i>	weed	weeded	weeding
emit	<i>emitted</i>	<i>emitting</i>	suit	suited	suiting
compel	<i>compelled</i>	<i>compelling</i>	9. /VC/ ≡ <VVC>		
3. Base form spondees			dread	dreaded	dreading
sandbag	<i>sandbagged</i>	<i>sandbagging</i>	book	booked	booking
kidnap	<i>kidnapped</i>	<i>kidnapping</i>	quiz	quizzed	quizzing
hobnob	<i>hobnobbed</i>	<i>hobnobbing</i>	10. /V(:)CC(C)/ ≡ <(V)VCC(C)>		
4. Base form trochees			reach	reached	reached
edit	edited	editing	itch	itched	itching
author	authored	authoring	11. /other/ ≡ <VC#>		
cancel	cancel(l)ed	cancel(l)ing	mic/mike	miked	miking
focus	focus(s)ed	focus(s)ing	motif	motifed	motifing
traffic	trafficked	trafficking	parquet	parquet(t)ed	parquet(t)ing
catalog	catalog(u)ed	catalog(u)ing	ok(ay)	okayed	okaying

2. Modelling English spelling formation

1) Simple morphemic spelling (Identity preservation principle)

Concatenate the spellings of the two input morphemes to create a draft spelling:

2) Phonographic Matching (PhM)

Compare the draft spelling against the known phonological form.

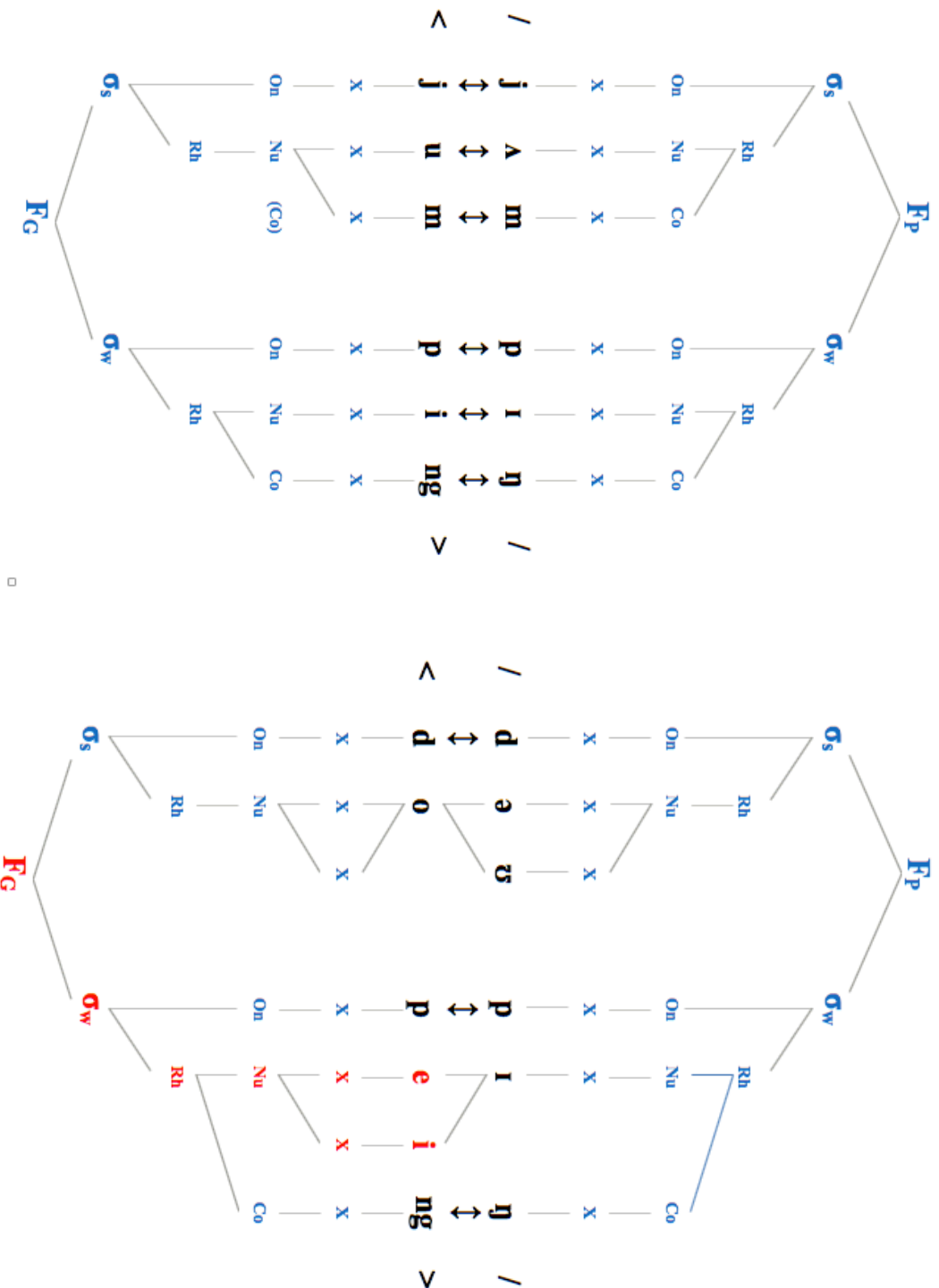
- 3) If the spelling-to-sound correspondences do not provide a good phonographic match, then amend if possible.
- 4) Compare the amended spelling against the known phonological form.
- 5) Choose the better spelling.

		1. Draft morphemic spelling	2. Is this a good match for the phonological form?	3. Can the draft spelling be amended?	4. Is the amended spelling better?	5. Output (actual spelling)
jump	ing	? jumping	Yes →			No change
dread	ing	? dreading	no	no →		No change
edit	ing	? editing	no	yes * <editting>	no	No change
emit	ing	? emiting	no	yes	yes	Change to <emitting>
dope	ing	? dopeing	no	yes	yes	Change to <hoping>
traffic	ing	? trafficing	no	yes	yes	Change to <trafficking>

3. Problems with this analysis

- How do we actually compare a spelling and a phonological form?
- How do we know which is the better spelling?
 - o Our understanding of grapheme – phoneme relations is excellent (cf Carney 1994)
 - o But his linear analysis does not explain stressed / unstressed syllables
 - e.g. <picture>
 - o Enter Evertz (2014) / Evertz & Primus (2013) with ‘The graphematic foot’ & ‘graphematic hierarchy’.

Solution 1. A visual model



The figure shows the word *jumping* with its phonological representation above (based on Giegerich 1992) and its graphematic structure below (based on Evertz 2014). At most points, there is one-to-one mapping across segmental, syllabic and foot-levels, with the exception of <ŋg>. Also, the reader must know the morphological structure in order to recognize that <ping> represents an unstressed syllable. Compare <Beijing>.

By contrast, the draft spelling ?<dopeing> is too graphematically heavy to represent an unstressed syllable. Compare the stress pattern of *protein* or the non-canonical spelling <foreign>.

Solution 2 OT Model: predicting phonological stress from the spelling

<dopeed>	Non head RGS	Tro- chee	Mini Mality	WHP	Align gfoot right	Align gfoot left	Parse σ
a. \leftarrow (do)(peed)							
b. (do.peed)				*!			
c. do(peed)						*!	*
d. do.peed				*!			

Table 5.10 Full OT-analysis for the foot-structure of <dopeed>

a. is like *protein* / *proceed* (n) | b. *certain* | c. *agreed* / *proceed* (v) | d: impossible

<doped>	Non Head RGS	Tro- chee	Mini Mality	WHP	Align gfoot right	Align gfoot left	Parse σ
a. (do)(ped)	*!						
b. \leftarrow (do.ped)							
c. do(ped)	*!					*!	*
d. do.ped					*!	*	*

Table 5.11 Full OT-analysis for the foot-structure of <doped>

/dʌpɪd/	Complex IdP	Head Match	G Well Form	Un-Bin	Gem-Ca non	Max	Dep	Gem
a. (do)(peed)		*!					*	
b. \leftarrow (do.ped)							*	
c. (doapt)	*!							

Table 5.15

Full OT-analysis for the spelling of {dope+ed}

To fully understand the mappings from spelling to sound you must first determine the stress pattern *suggested* by the spelling: <doped> suggests a different stress pattern to <dopeed>. Once stress has been assigned, then the problem is reduced to one of mappings from spelling to sound within individual syllables (stressed or unstressed). This is something that is well understood (again, see Carney 1994). However, {ing} forms are easily understood by looking at the visual model, so I have exampned {ed} to determine which is less bad, ?<doped> or ?<dopeed>.

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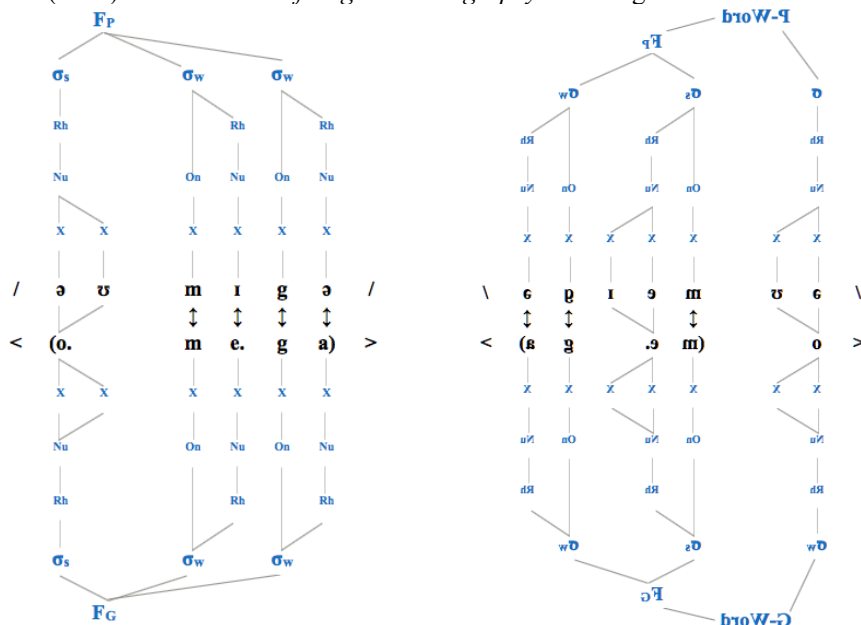
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For example <omega> might be read as a dactyl: <(o.me.ga)> or with penultimate stress <o.(me.ga)>. The variable spellings