

Studying verbal art in linguistics: Meter and mimetic words in Dr. Seuss

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What is verbal art?

- For the present context:
 - Use of linguistic material for aesthetic purposes, broadly construed.

Some examples of verbal art

- Poetry
- Song
- Chant (cheers, jump-rope chants)
- Wordplay (puns, made-up words)
- Narratives (not my department)

- Here, I'll cover poetry and word play

Every human society has poetry

- Not necessarily books of sonnets — the poetry of a culture is often:
 - **unwritten** — communicated as folklore
 - **sung or chanted**
- No folklorist or ethnomusicologist has ever returned from the field empty-handed.

Examples of traditional, sung folk verse

- Traditional Appalachian folksong (Cecil Sharp's fieldwork, 1916-1918)
- The songs of the Hausa (Russell Schuh of UCLA)
- In neither culture would you ever think of reciting a “poem” — you find a suitable tune, and you sing it.



Jean Ritchie



Fauziyya Sarki Abubakar

Chanting

- Here is a little girl doing a form of jump-rope on YouTube:¹



¹ <https://www.youtube.com/watch?v=9zx4QhJ07FU>

Are you one of the folk?

- I remember this chant, from overhearing it as a child.
- Experiment: chant along with me if you know it.
- We will transcribe it rhythmically later on.
- Chant is especially relevant for Seuss, since the normal delivery style for his poetry is quasi-chanted.

The importance of verbal art to people and to linguistics

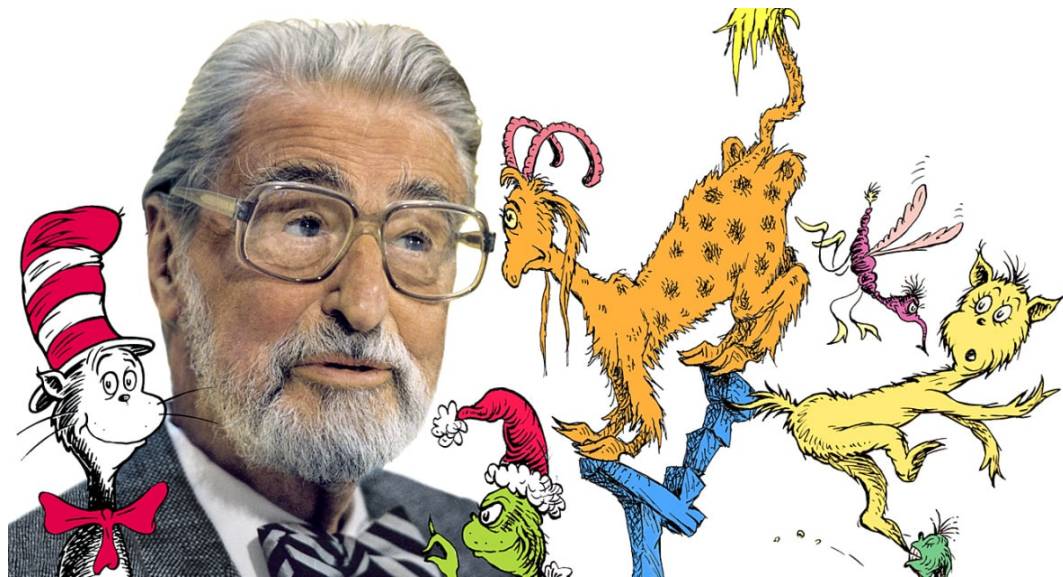
- Traditional societies, unlike ours, reveal the huge importance of verbal art to humankind:
 - For adults in such societies, much of everyday life is carried out while singing (Sharp, Schuh, etc.).
 - A very substantial fraction of the language input from which children learn their native language is verbal art.
- So it is unsurprising that a fair fraction of linguists devote some of their research time to this topic.

What verbal art ought we to study?

- Literary canons?
- Folk traditions?
- The two actually may be very similar — at least in their linguistic bases.
- My only requirement is that some audience has found some type of verbal art absorbing.
 - Then we ask: *what is it* that makes it absorbing?

Dr. Seuss

- Theodore Seuss Geisel (1904-1991), a celebrated American author of children's books.
- Only a few scholars have treated his work as verbal art.
- But unquestionably, people — not least, me! — find his work to be absorbing, so let's give it a try.



The two topics I will address

- Seuss's meter, with a detour through Racine
- Seuss's made-up words

PART I: METER

What is meter?

- A system that involves:
 - conventionalized rhythmic patterns (“meters”)
 - a set of rules for making the rhythm evident, using with phonological material in a language.
- The usual “phonological material” is:
 - syllables
 - stresses
 - grouping of words into phrases

A common practice in studying meter

- Set up a rhythmic “measuring stick” — representing the meter.
- It measures out lines to see if they would count as acceptable lines of poetry.

A standard formalism for meters

- Here, we use the **metrical grid**.
- Invented in the 1980's by a linguist (Ray Jackendoff) and a composer (Fred Lerdahl).
- Rows are evenly-spaced moments in time.
- Columns are “beat strength”.
- Here is a grid suitable for the jump-rope chant we heard:

X				X				X				X			
X		X		X		X		X		X		X		X	
X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X

Scansion

- When we line up the syllables of poetry with a grid, we are **scanning** the poetry.
- Here, underlining marks a stressed syllable.

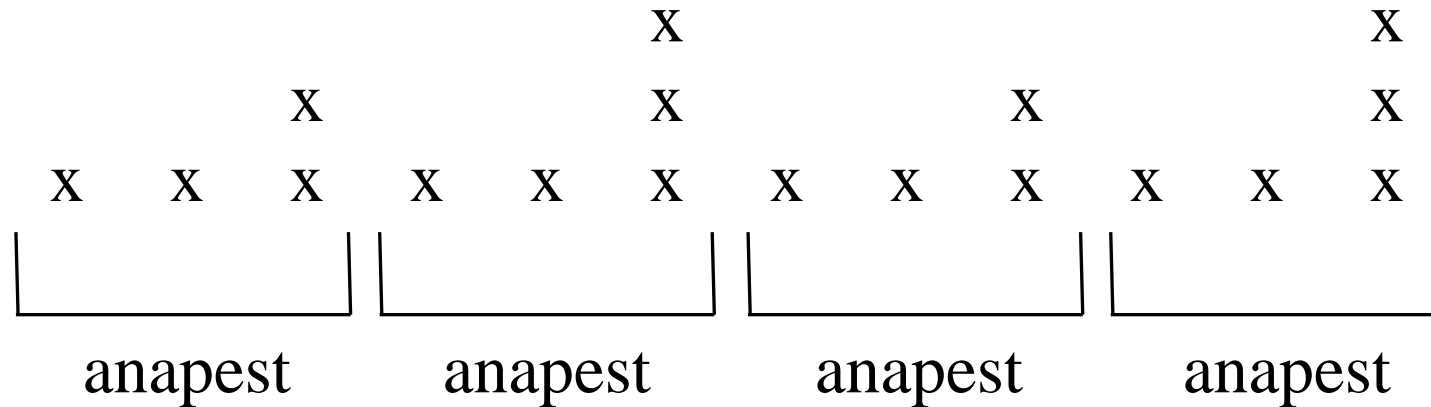
	X			X				X				X			
	X		X		X		X		X		X		X		X
	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X
	<u>Cin-</u>		de-		<u>rel-</u>		a,		<u>dressed</u>		in		<u>yel-</u>		la,
	<u>Went</u>		up-		<u>stairs</u>		to		<u>kiss</u>		her		<u>fel-</u>		la

	X			X				X				X			
	X		X	X		X		X		X		X		X	
	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X
	<u>Made</u>	a	mis-	<u>take,</u>				<u>kissed</u>	a	<u>snake</u>					
	X			X				X				X			
	X		X	X		X		X		X		X		X	
	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X
	<u>How</u>	man-	y	<u>doc-</u>	tors	<u>did</u>	it	<u>take?</u>							

The system of scansion is a topic for linguistic analysis

- Some typical rules in approximate form:
 - Fill the stronger grid positions with **syllables** instead of with **nothing**.
 - Fill the stronger grid positions with **stressed** syllables instead of **stressless** syllables.

Dr. Seuss's principal meter: anapestic tetrameter



- So-called because
 - a three-syllable unit with accent at the end is an **anapest**.
 - Four such units is **tetrameter**.
- Overleaf: scanning the first two lines of *If I Ran The Zoo*



					X						X
		X			X		X			X	
X	X	X	X	X	X	X	X	X	X	X	X
It's	a	<u>pret-</u>	ty	<u>good</u>	<u>zoo,</u>	said	<u>young</u>	<u>Ger-</u>	ald	Mc-	<u>Grew</u>
And	the	<u>fel-</u>	low	who	<u>runs</u>	it	<u>seems</u>	<u>proud</u>	of	it,	<u>too.</u>

Anapestic tetrameter not original with Seuss

- Familiar examples:
 - “The Star-Spangled Banner”
 - “The Night before Christmas”
- Also, occasionally with poets of the English canon, notably Byron and Browning.
 - Not common there, perhaps better suited to light verse.

A hallmark of Seuss's verse

- Strict adherence to syllable count.
- Deviated from only in late works, from his years of decline.
- Often not respected by inept Seuss-parodists.²

“I stay with a line until the meter is right and the rhyme is right, even if it takes five hours.”³

² For an eloquent denunciation of bad Seuss-imitation, see <http://www.philnel.com/2015/07/27/fauxseuss/>.

³ Edward Connery Latham (1996) *Theodor Seuss Geisel: Reminiscences and Tributes*

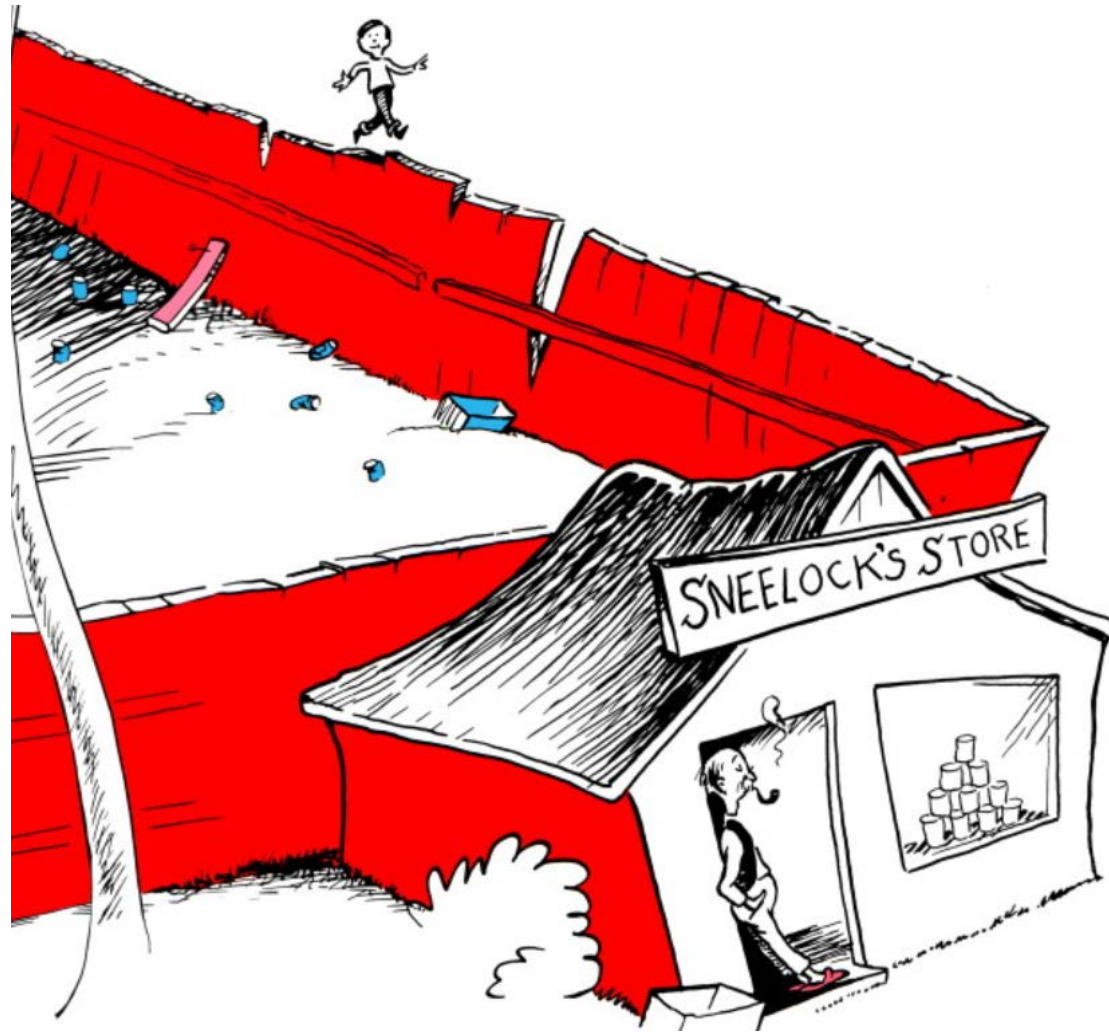
Varying line lengths in anapestic tetrameter

- Quite a few lines are “missing” the initial syllable, like the opening line of *If I Ran the Circus*:

					X						X
		X			X			X			X
X	X	X	X	X	X	X	X	X	X	X	X
	In	<u>all</u>	the	<u>whole</u>	<u>town</u>	the	most	<u>won-</u>	der-	ful	spot
Is	be-	<u>hind</u>	<u>Snee-</u>	lock's	<u>store</u>	in	the	<u>big</u>	<u>va-</u>	cant	<u>lot</u>

- This is not unheard of in other meters, so not a big surprise.

Illustration for the previous couplet

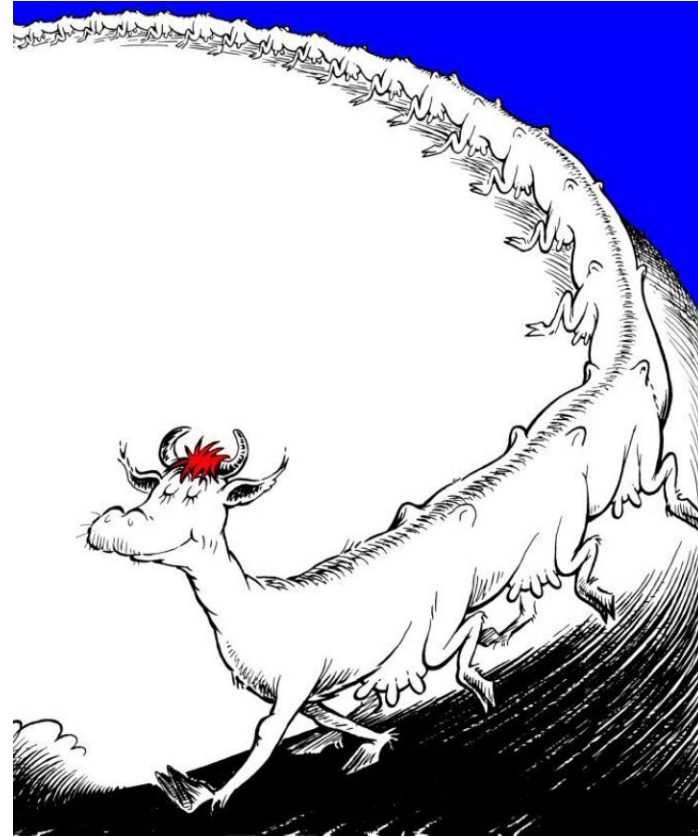
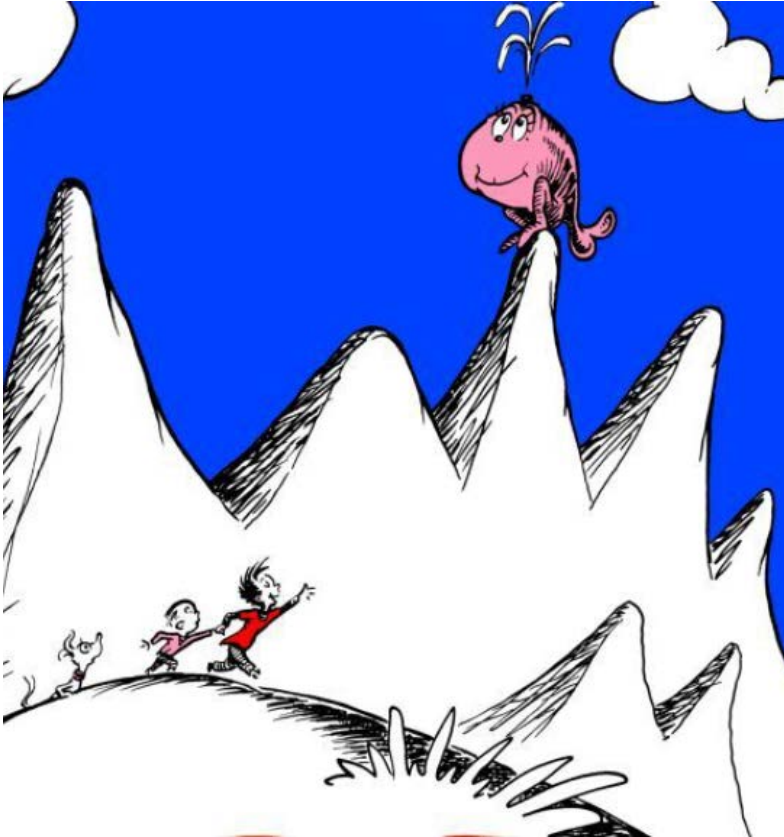


Another source of deviation in the syllable count: the final extrametrical syllable

- This is an extra stressless syllable at the end of the line.
- Line-final extrametrical syllables are very common in English verse.

					X						X	
		X			X		X			X		
X	X	X	X	X	X	X	X	X	X	X	X	
Then	just	step	a	step	fur-	ther	past	Wum	is	for	Wum-	bus
	And	there	you'll	find	UM.	And	the	Um	is	for	Um-	bus

Umbus and Wumbus (*On Beyond Zebra*)



A general pattern for the grids used in meter: TWOS AND THREES

- All over the world, poets create verbal art with grid marks spaced:
 - primarily at two's
 - sometimes at threes
 - only seldom if ever at anything else

Our examples so far

- Jump-rope grid is all twos:

```
X           X           X           X
X      X      X      X      X      X      X      X
X  X  X  X  X  X  X  X  X  X  X  X  X  X  X
```

- Anapestic tetrameter is (bottom to top) threes, then twos:

```
           X           X
           X           X
X  X  X  X  X  X  X  X  X  X  X  X
```

Putative counterexamples to the twos-and-threes principle

- These turn out to be *not* counterexamples when you look and analyze more closely.

Some cases — a quick look

- Japanese **haiku** (5+7+5)
 - These have *empty* positions, realized in recitation by brief silences.
 - They are really $8 + 8 + 8!$ (where $8 = 2 \times 2 \times 2$).⁴
- **English iambic pentameter** has been shown to fall into two half-lines, usually the first one with two feet and the other three.
- Bulgarians, amazingly, like to sing in **prime-numbered** counts, like 7.
 - But their 7's are audibly $2 + 2 + 3$.⁵

⁴ See http://archive.sfl.cnrs.fr/sites/sfl/IMG/pdf/1997_Moraic_Tetrameter_in_Japanese_Poetry.pdf

⁵ See <https://www.fusionmagazine.org/against-the-odds-an-exploration-of-bulgarian-rhythms/>

SEUSS AND BIGGS

Questions of metrical form

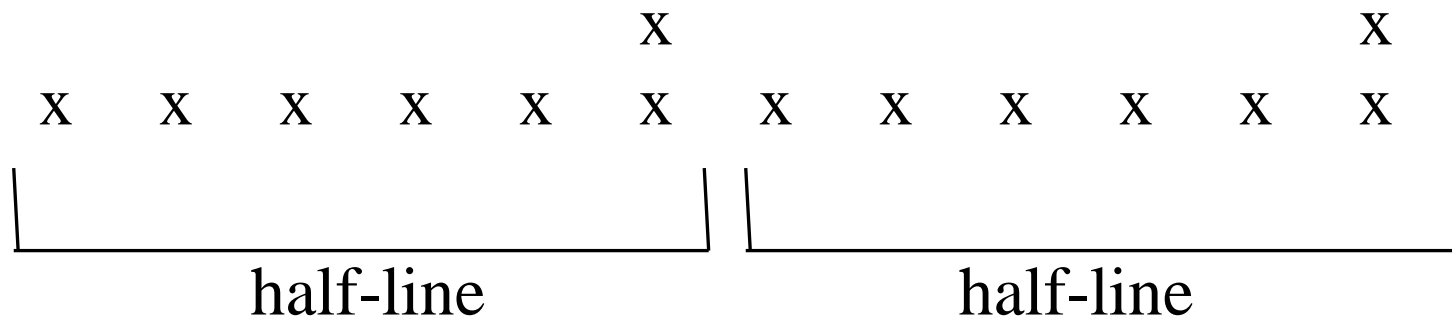
- These occupied Henry Biggs during his scholarly career at UCLA.
- He focused on Romance art verse, particularly French.

Basics of the classical French Alexandrine

- A meter named after a medieval French poem about Alexander the Great
- 12 syllables
- Divided into two parts — half-lines
- Each half-line ends in a stressed syllable.
- The poet always arranges that the boundary between the two half-lines coincides with a break between two words.

A traditional account of the alexandrine

- If we are to believe some sources, that is the *entire story*.
- That is: French has “syllabic” verse, effected with mere syllable-counting, up to six.
- There can be other stresses, but they are haphazard.⁶



- This “primitive six” violates the principle of twos and threes.

⁶ For a quite recent statement of this view, see Reuven Tsur (2017) *Poetic Conventions as Cognitive Fossils*. Oxford: Oxford University Press.

Example from Jean Racine's *Iphigénie en Aulide* (1674)

					X						X
X	X	X	X	X	X	X	X	X	X	X	X
Mais	tout	<u>dort</u> ,	et	l'ar-	<u>mée</u> ,	et	les	<u>vents</u> ,	et	Nep-	<u>tune</u>

‘Yet everything sleeps, the army, and the winds, and Neptune’

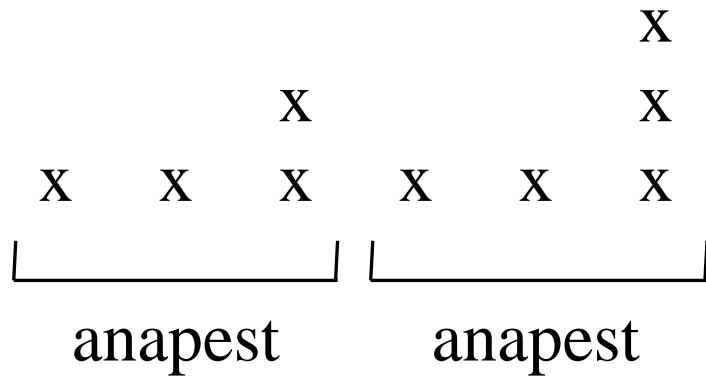
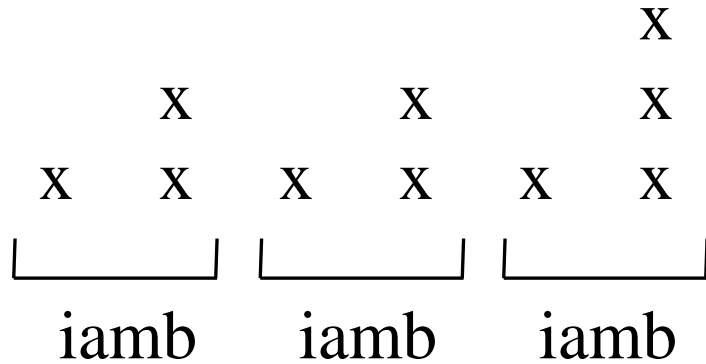


A research question Biggs addressed

- Should we take at face value the claims that Alexandrines are written in “primitive sixes”?
- Might the Alexandrine grid actually *respect* the principle of twos and threes, but in a subtle way?
- The alternative hypothesis:⁷
 - The six syllable unit can be parsed *freely* into smaller units
 - either three disyllabic **iamb**s
 - or two trisyllabic **anapest**s

⁷ Originally suggested by Maurice Grammont (1937). *Le Vers Français*. Paris: Librairie Delagrave.

The two proposed types of French half-line, shown abstractly as grids



Freely combining the two half-lines, to get four kinds of Alexandrine line

- Iambs + Iambs

					X						X
	X		X		X		X		X		X
X	X	X	X	X	X	X	X	X	X	X	X
Com-	<u>blé</u>	de	<u>tant</u>	d'hon-	<u>neurs</u> ,	par	quel	se-	<u>cret</u>	ou-	<u>trage</u>

‘Heaped with such honors, by what secret pain’

- Iambs + Anapests

					X						X
	X		X		X			X			X
X	X	X	X	X	X	X	X	X	X	X	X
Les	<u>vents</u>	nous	au-	raient-	<u>ils</u>	e-	xau-	<u>cés</u>	cet-	te	<u>nuit</u> ?

‘Perhaps the winds tonight have granted our wish?’

- Anapests + Iambs

					X						X
		X			X		X		X		X
X	X	X	X	X	X	X	X	X	X	X	X
C’est	vous-	<u>mê-</u>	me,	sei-	<u>gneur</u> !	Quel	im-	por-	<u>tant</u>	be-	<u>soin</u>

‘It is you, my lord! What urgent need’

- Anapests + Anapests

					X						X
		X			X			X			X
X	X	X	X	X	X	X	X	X	X	X	X
Mais	tout	<u>dort</u> ,	et	l'ar-	<u>mée</u> ,	et	les	<u>vents</u> ,	et	Nep-	<u>tune</u>

‘Yet everything sleeps, the army, and the winds, and Neptune’

Biggs's methods

- Establish a systematic and reproducible method for locating stress in French.
- Statistical testing of hypotheses
- Use of a **prose baseline**
 - Random six-syllable sequences from the prose that a poet wrote
 - This controls for factors that result merely from the ordinary rhythm of the French language.

Bigg's result

- The “blended theory”, with threes and twos, outperforms the “primitive-six” theory, vindicating a general principle of meter.

The tie-in to Seuss

- One of Racine's variants is Seuss's meter:

					X					X	
		X			X		X			X	
X	X	X	X	X	X	X	X	X	X	X	X
Mais	tout	<u>dort</u> ,	et	l'ar-	<u>mée</u> ,	et	les	<u>vents</u> ,	et	Nep-	<u>tune</u>
It's	a	pret-	ty	good	zoo,	said	young	Ger-	ald	Mc-	Grew

- In terms of silliness/sobriety, the two could hardly differ more.
- But both obey general principles of metrical form.

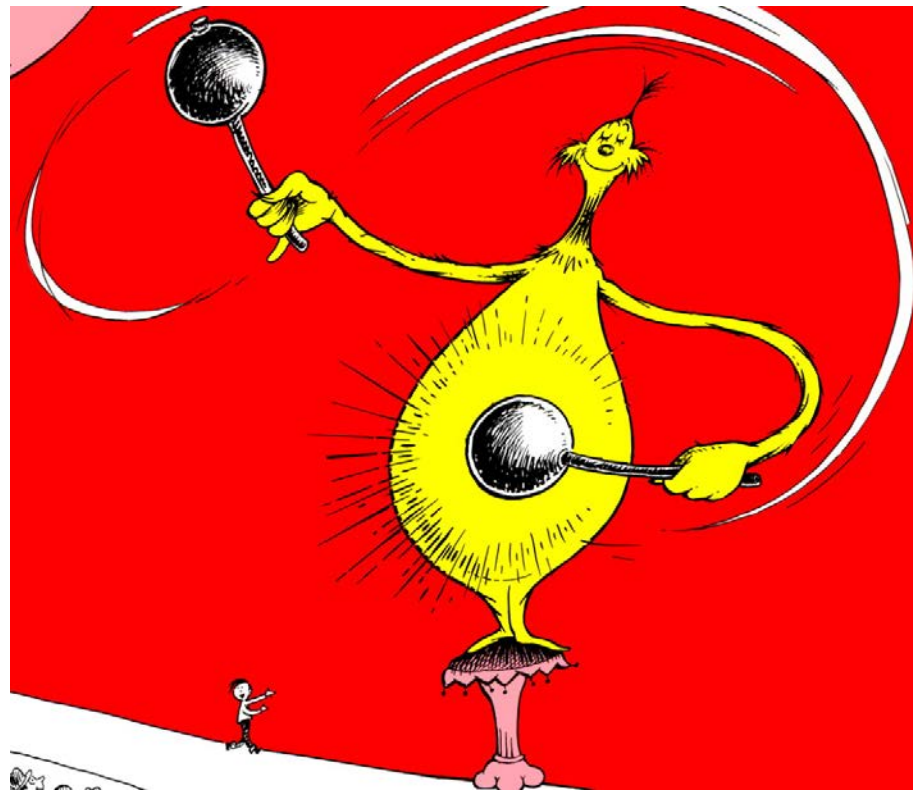
PART II: WORD PLAY

Dr. Seuss's coinages

- These are names of pretend animals, objects, etc.
- They are meant to be funny, also to facilitate rhyming.

The Snumm (*If I Ran the Circus*)

From a country called Frumm comes this drum-tummied Snumm
Who can drum any tune that you might care to hum.
(Doesn't hurt him a bit cause his drum-tummy's numb.)



Studying the coinages

- I judge that the coinages have a phonologically characteristic “feel”.
- I have tried to explore this intuition with phonological analysis.

A bit on modern phonological analysis

- We often seek particular phonological **traits** that we can use to explain patterns:⁸
 - What is a **legal word** (in some language)
 - Why sounds **change into other sounds** (in particular contexts)
 - Why words can be **grouped into classes** (e.g., in English, nouns are phonologically different from verbs).
- We use **probability** as a way of being rigorous when we talk about exception-ful patterns.

⁸ Traits are normally called *constraints* by phonologists; computational linguists call them *features*.

The method applied here

- Work at finding traits that characterize the Seussian coinages.
- Using a standard probabilistic method, make a system that assigns this probability:
 - Likelihood that *a given word will be a Seussian coinage*
- This is readily done on a spreadsheet.

My spreadsheet

- First 435 rows: **all the Seussian coinages**, as collected in a book by Edward Connery Lathem.⁹
 - Phonetically transcribed by me.
- Next 18,000 rows: a standard *phonetic dictionary of English*, created at Carnegie-Mellon University.
- Columns:
 - values for my suggested **traits** for all of these words
 - columns used to calculate probability

⁹ Edward Connery Lathem (2000) *Who's Who & What's What in the Books of Dr. Seuss*. Hanover: Dartmouth College.

Some of the traits I am proposing, and their probabilistic effect

- “Effect on odds”: having this trait makes a word x more likely to be Seussian.

Trait	Effect on Odds
General preference: <i>not</i> Seussian	0.008
Seussian if starts with [shl]	136.6
Seussian if starts with [z]	19.4
Seussian if contains [pf]	73.1
Seussian if contains [ts]	37.3
Seussian if contains [ʌ] (“uh”)	5.6
etc.	

How well does the system perform?

- It cannot reliably distinguish Seuss coinages from normal words, in the general case.
- But it makes useful distinctions:
 - Average “probability is Seuss” for Seussian words:
16.5%
 - Average “probability is Seuss” for normal words:
2.1%

Here are some “very Seussian” (by my analysis) words in the data

Word	P(Seuss)	Relevant Traits
<i>Snumm</i>	.637	starts with [sn], has “uh” (+ 1 more)
<i>Schlottz</i>	.532	starts with [shl], has [ts].
<i>Zizzer-Zazzier-Zuzz</i>	.999	has six [z]’s

Here are real English words that are
accidentally-Seussian

quartz, waltz, zoom, snub

Here are samples of the many normal
English words that are not Seussian at all

*piracy, pageant, percentage, calamitous, convalescent,
claustrophobic, orchard*

Can we improve the system?

- Here some Seuss words not flagged by any trait yet posited, so the model predicts them to be totally non-Seussian:

preep, nink, Squitsch, tidder, tweetle

- Even among these one might try to guess further useful Seussian traits ...

Why these traits?

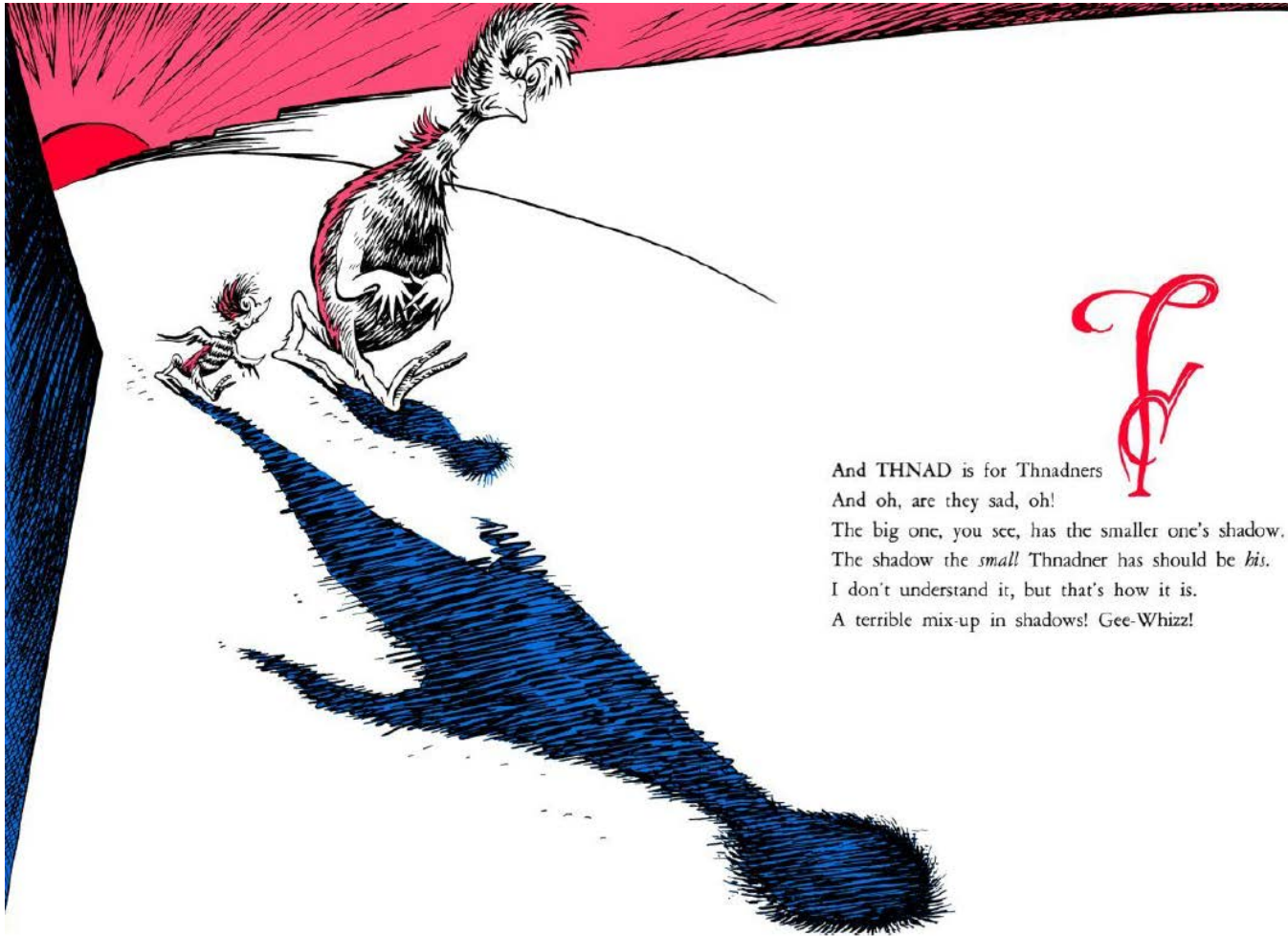
- Where does Dr. Seuss's system come from?
- Here are the principles that I think he used:
 - Phonologically-impossible words
 - Pseudo-German words
 - Phonesthemics

Seussian words are often phonologically-illegal in English

- *Thnad, Thnadner*
 - No English word can begin with [thn].
- *Nuh*
 - Final [“uh”] is impossible, except in the semi-word *duh*.
- *Snumm*
 - More subtle: the illegal schema is:

[s + *Nasal-sound* + *Vowel* + *Nasal-sound*]

Thnadners (*On Beyond Zebra*)



And THNAD is for Thnadners
And oh, are they sad, oh!
The big one, you see, has the smaller one's shadow.
The shadow the *small* Thnadner has should be *his*.
I don't understand it, but that's how it is.
A terrible mix-up in shadows! Gee-Whizz!

Pseudo-German traits

- Seuss could speak German.
 - In childhood he conversed in German with his four first-generation-immigrant grandparents.
- He used the German pronunciation [zɔys] in family life, [sus] as a public figure.
- Many of his nonce words are clearly German-sounding.
 - with [pf]: *Klopf, Humpf*
 - with [ts]: *Gitz, Glotz, Zatz*
 - with [shl]: *Schlopp, Schlupp*
- And, these sequences are very rare in English.
- The proposed traits [shl], [pf], and [ts] all work well in predicting Seuss-hood.

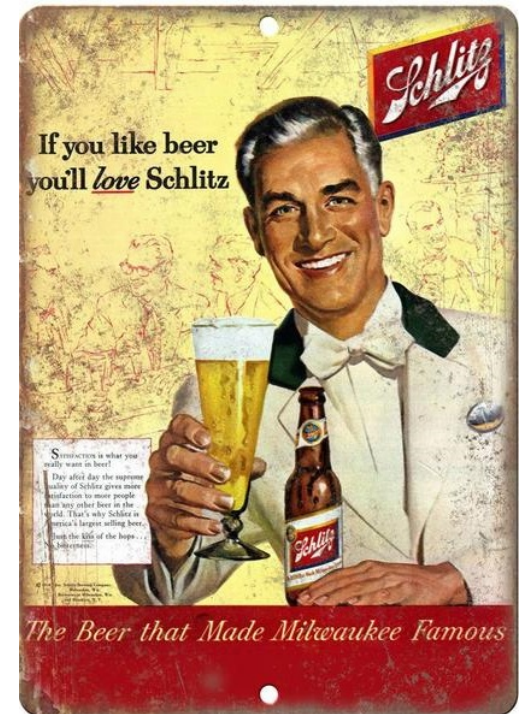
Do Americans know about German-hood in the sound of words?

- Presumably, from the presence of patently-German loanwords in our own language use
- Probably, similar words from Yiddish help out.

[pf]: *dummkopf, Mein Kampf, Schwarzkopf*

[ts]: *Schlitz, on the fritz, spritz, ersatz, glitz, waltz*

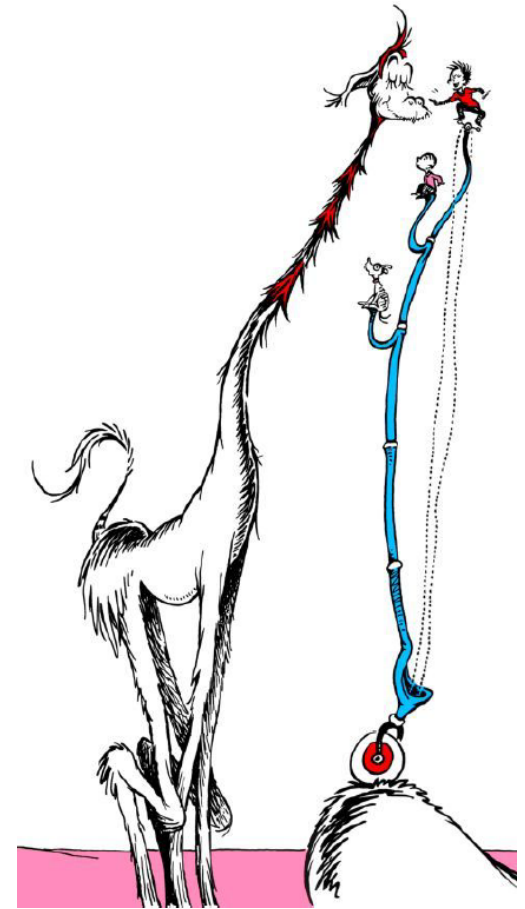
[shl]: *Schlitz, schlag, shlep, schlock*



Zatz (*On Beyond Zebra*)

And ZATZ is the letter I use to spell Zatz-it
Whose nose is so high that 'most nobody pats it
And patting his lonely old nose is the least
That a fellow could do for this fine friendly beast

So, to get there and do it, I built an invention:
The Three-Seater Zatz-it Nose-Patting Extension.



Phonesthemes

- Seuss like words that contain **phonesthemes**.
 - = phonological sequences felt to be **expressive** in some vague sense
 - This is one of the murkiest topics in phonology and my own discussion will not be any more precise than anyone else's.¹⁰

¹⁰ A new standard is set in the recent work of Shih et al. on Pokémon names; see <https://journals.linguisticsociety.org/proceedings/index.php/PLSA/article/view/4335>

A famous English phonestheme: initial [sn]

- [sn] words that involve the **nose**:

snout, snoot, sniff, snuffle, snort, snot, sneeze, snuff, snore

- By extension, “**looking down the nose**”:

snooty, snide, snob, snub, sneer, snicker, snivel, snigger, snarl, (Severus) Snape

- Nothing to do with the nose, but **nevertheless expressive** (depict vivid actions or things)

snatch, snitch, snoop, snarl, snag, snip, snap, sneak, snickerdoodle, snooze

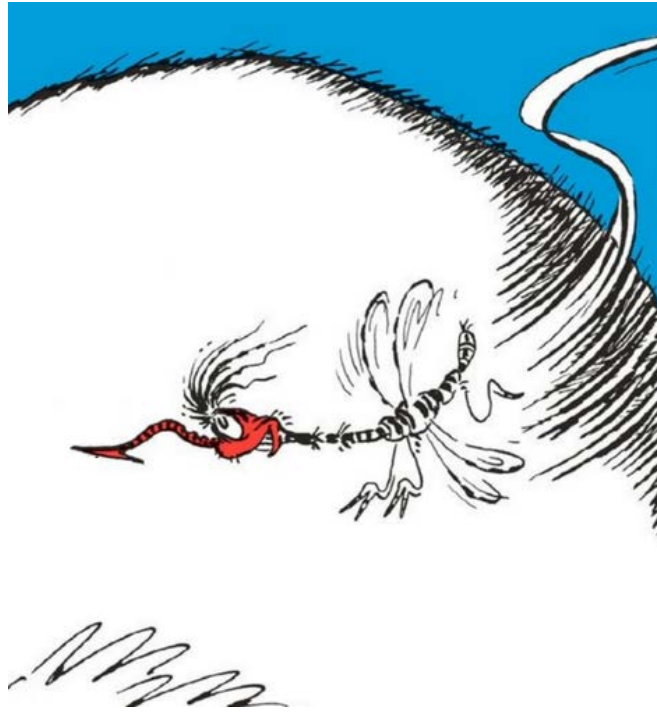
Illustrating “expressiveness”

- Compare:
 - *snatch* with *abruptly grasp*
 - *snooze* with *sleep*
 - *snoop* with *spy*
- To use a phonesthemic word is to say something with style.
- Thus, these should count as phonesthemes even if they lack the core meaning.

For every proposed phonestheme, there are words that don't fit

- Even [sn] has non-fitting, perfectly ordinary words:
 - *snow*
 - *snail*
 - *Snider* (surname)

The [sn] phonestheme in Seuss: exactly one example with the “nose” meaning

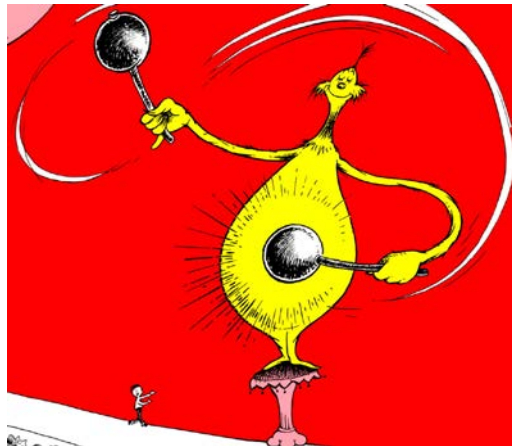


Then we go on to SNEE. And the SNEE is for Sneedle
A terrible kind of ferocious mos-keedle.
Whose hum-dinger stinger is sharp as a needle.

The [sn] phonestheme in Seuss: many words that are expressive but not nasal

Snoor, Snoo, Snooker, Sneepy, Sneelock, Sneeden, Sneetch, Sneetcher, Snee, Snimm, Snick, Sneth, Snegg, snuv, Snumm, Snux, snaff, Sharp, snarggle

- Example: the drum-tummied Snumm's name has nothing to do with his nose.



Initial /z/ (if time)

- Core meaning in English: “rapid and vivid motion”
zip, zing, zigzag, zap, zot, zoom
- Again, many expressive words without the core meaning
zilch, zit, zany, zest, zonk(ed out), zone out, zoot suit
- Again, some words that don't fit at all
zeal, zebra, zenith, zinc, Zion, zone

The [z] phonestheme in Seuss I

- 41 cases in Seuss, a tenth of the corpus
- A few “rapid and vivid motion” coinages, such as:
 - *zang* — sound of feathers sprouting from Gertrude McFuzz’s tail



- Yet many forms *lack* this meaning, but are still expressive, as above.

A use of the [z] phonestheme without the “rapid and vivid motion” meaning

- We’ve seen this with the Zatz-It, earlier.
- The Zans, who helps open cans, is another tall, placid ungulate.



Summary of phonesthesia

- Seuss's phonesthetic usages **occasionally** embody the concrete meaning of the phonestheme.
- However, often, they are merely expressive.
- But that is how the phonesthemes work even in ordinary English.

The Seussian coinages — a final overview

- *There is nothing the reader needs to know to appreciate Seuss's coinages, if she has the relevant language experience.*

The three key cases

- A native English speaker will have intuitions about what is **phonologically legal** — the basis for *Thnadners*.
- A native English speaker has constructed a rudimentary sense of phonological **German-ness** — the (partial) basis for *Zatz*.
- A native English speaker commands the system of English **phonesthemes** — the basis for *Sneedle*.
- This system is founded on good sense — Seuss wanted his work to be understood and appreciated, and used the available resources.

Linguistics and verbal art — a final overview

- Verbal art is structured, in a way tightly bound up with language structure.
- There are patterns to be discovered, and current methods of linguistics can help us discover them.

THANK YOU