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

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Celebrating the inauguration of the Theresa A. and Henry P. Biggs Centennial Term Chair in Linguistics

October 20, 2019
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

- 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  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
|    |    |    |    |    |    |    |
Cin-de-rel-a, dressed in yel-la,
Went up-stairs to kiss her fel-la
```
Made a mistake, kissed a snake

How many doctors did it take?
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

\[
\begin{array}{cccccccc}
\times & & & & & \times & & \\
\times & & \times & & \times & & \times & \\
\times & \times & \times & \times & \times & \times & \times & \times \\
\hline
\text{anapest} & \text{anapest} & \text{anapest} & \text{anapest} & \text{anapest}
\end{array}
\]

- So-called because
  - a three-syllable unit with accent at the end is an \textbf{anapest}.
  - Four such units is \textbf{tetrameter}.
- Overleaf: scanning the first two lines of \textit{If I Ran The Zoo}
It's a pretty good zoo, said young Gerald McGrew
And the fellow who runs it seems proud of it, too.
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/.
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 all the whole town the most wonder-ful spot

  x x x x x x x x x x x x
  | | | | | | | | | | |
Is be-hind Snee-lock’s store in the most won-der-ful spot

  x
  x

  x
```

- 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
|
Then just step a step further past Wum is for Um-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:
  
  \[
  \begin{array}{ccccccc}
  x & x & x & x & x & x & x \\
  x & x & x & x & x & x & x & x \\
  x & x & x & x & x & x & x & x & x & x & x & x & x & x & x & x \\
  \end{array}
  \]

- Anapestic tetrameter is (bottom to top) threes, then twos:
  
  \[
  \begin{array}{cccccccccccccccccc}
  x & x & x & x & x & x & x & x & x & x & x & x & x & x & x & x & x \\
  x & x & x & x & x & x & x & x & x & x & x & x & x & x & x & x & x \\
  \end{array}
  \]
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 × 2 × 2).  

- **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.  

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5 See [https://www.fusionmagazine.org/against-the-odds-an-exploration-of-bulgarian-rhythms/](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

\[
\begin{array}{cccccccccc}
\text{x} & \text{x} & \text{x} & \text{x} & \text{x} & \text{x} & \text{x} & \text{x} & \text{x} & \text{x} \\
\text{x} & \text{x} & \text{x} & \text{x} & \text{x} & \text{x} & \text{x} & \text{x} & \text{x} & \text{x} \\
\hline \\
\text{half-line} & \text{half-line} \\
\end{array}
\]

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

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

Mais tout dort, et l’armée, et Neptune

‘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 iambs
  ▶ or two trisyllabic anapests

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

\[
x
x \quad x \\
x \quad x \quad x \\
x \quad x \quad x \quad x \quad x \quad x \quad x
\]

\[
\text{iamb} \quad \text{iamb} \quad \text{iamb}
\]

\[
x
x \quad x \\
x \quad x \\
x \quad x \quad x \quad x \quad x \quad x \quad x
\]

\[
\text{anapest} \quad \text{anapest}
\]
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
 | | | | | | | | | | | |
```

Comblé de tant d’honneurs, par quel secret outrage

‘Heaped with such honors, by what secret pain’
• Iambs + Anapests

Les vents nous auraient-ils exaucés cette nuit?

‘Perhaps the winds tonight have granted our wish?’

• Anapests + Iambs

C’est vous-même, seigneur! Quel important besoin

‘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
|   |   |   |   |   |   |   |   |   |   |   |   |   |
Mais tout   dort,   et   l’armée,   et   les vents,   et   Neptune
```

‘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 dort, et l’armée, et les vents, et Neptune

It’s a pretty good zoo, said young Gerald McGrew

- 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.


- Columns:
  - values for my suggested traits for all of these words
  - columns used to calculate probability

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.

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

<table>
<thead>
<tr>
<th>Word</th>
<th>P(Seuss)</th>
<th>Relevant Traits</th>
</tr>
</thead>
<tbody>
<tr>
<td><em>Snumm</em></td>
<td>.637</td>
<td>starts with [sn], has “uh” (+ 1 more)</td>
</tr>
<tr>
<td><em>Schlottz</em></td>
<td>.532</td>
<td>starts with [shl], has [ts].</td>
</tr>
<tr>
<td><em>Zizzer-Zazzer-Zuzz</em></td>
<td>.999</td>
<td>has six [z]’s</td>
</tr>
</tbody>
</table>
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:

    \[ s + \text{Nasal-sound} + \text{Vowel} + \text{Nasal-sound} \]
Thnaders (On Beyond Zebra)

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

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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]: Klopfer, 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.\(^{10}\)

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\(^{10}\) A new standard is set in the recent work of Shih at 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, sniffle, 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, Snarp, 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