

Poemage:

Visualizing the Sonic Topology of a Poem

Nina McCurdy, Julie Lein, Katharine Coles, Mirah Meyer

Poemage v 0.1

Set View

SONIC RHYMES

Identical Rhyme/Rhyme Riche ●●●●●●●●

Perfect Masculine ●●●●●●●● AET

Perfect Feminine

Perfect Dactylic

Semirhyme ●●●●●●●●

Syllabic Rhyme ●●●●●●●●

Consonant Slant Rhyme ●●●●●●●● K

Vowel Slant Rhyme ●●●●●●●●

Pararhyme ●●●●●●●●

Syllabic 2 Rhyme ●●●●●●●●

Alliteration ●●●●●●●● SW

Assonance ●●●●●●●●

Consonance ●●●●●●●● SH
CH SK

clear beautiful mess

Poem View

Machinations Calcite

Clark Coolidge

acetone imprinted
 oblique swatch on the skin car barn oil wall
 ocarina & mumps
 much wet green
 I'd leave sole key to this game to my friend, sheep water cat

actor impressed
 weaving candle turn on computer cigarette, paper wall
 tarheels & balance
 a lot of yellow stick neck
 He'll have to hurry & carry away, to my blue friend hustling bringing
 his moon & car

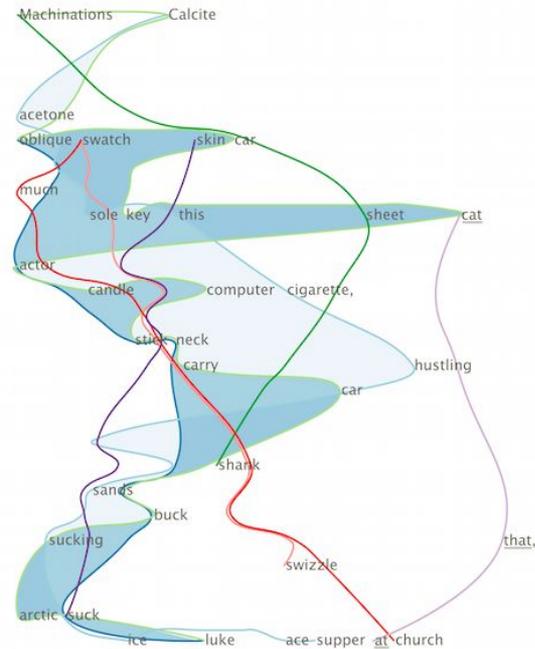
agate inked
 merry melodies drool on shank of wet lead star tool
 crayon & sands
 length of granite buck - drill
 It's sucking up the strand, his crystal flag, & the eels tube for that,
 their parade swizzle fun

arctic suck
 splinter dry - ice spazz duke - ing ace supper at church
 hard pinks & sponge breath
 many forarms drift
 Roller window going up on I repeat my offer food list in iron flakes

hover word show uncertainty custom set

Modes: 1 2 3 shuffle nodes

Path View



show words show context fill intersecting paths

1 CONTEXT SLIDER

Domain

Data Abstraction

Visualization System

Design Process

Domain

Data Abstraction

Visualization System

Design Process

Distant Reading

- Bag of Words
- Sentiment Analysis
- Word Cloud
- Ngram

Close Reading

- Literary Criticism
- Rhetorical Analysis
- Poetry Exegesis

Value of computation to close reading is still an open question

Unproven Computational Value

You don't know what you're looking for and why you're looking for it, how then do you proceed?"

-Stanley Fish

Is it possible to visualize poetry with a level of complexity that would allow for new and interesting observations?

Visualization Space: Sonic Patterns

Sonic Turbulence: Locations of increased intensity, intersection, activity

Conceptual metaphor of “flow” of sound moving through poem

Domain

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Rhyme Sets

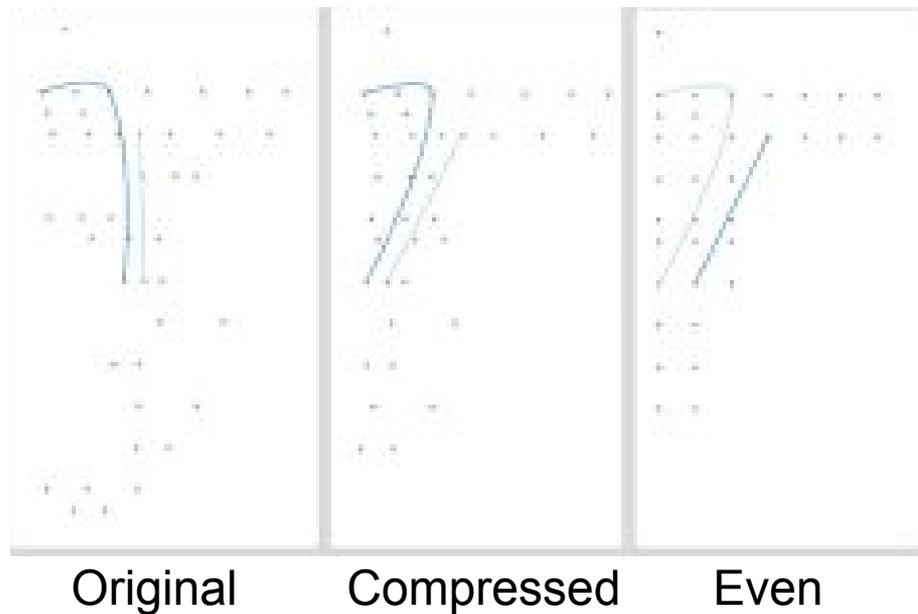
- **RhymeDesign:** System to automatically sonify a poem
- Developed formalism for detecting sonic devices
- Ordered based on location in poemspace
- Each word can belong to none, one, or many rhyme sets
- User-defined, custom, or system-defined

Rhyme Sets

| Rhyme type | Description | Example |
|--------------------------|--|-------------------------|
| Identical rhyme | match in all sounds. Includes repeated words and homographs | pair/pair; pare/pair |
| Perfect rhyme: | matching stressed vowels sound and all preceding sounds | |
| Perfect masculine rhyme | stress on the final syllable | rhyme/sublime |
| Perfect feminine rhyme | stress on the second to last syllable | picky/tricky |
| Perfect dactylic rhyme | stress on the third to last syllable | gravity/depravity |
| Semirhyme | perfect rhyme with additional syllable on one word | end/defending |
| Syllabic rhyme | perfect rhyme between stressed and unstressed syllables | wing/caring |
| Consonant slant rhyme | matching trailing consonants of stressed syllables | and/bent |
| Vowel slant rhyme | matching vowel sounds of stressed syllables | eyes/light |
| Pararhyme | matching leading and trailing consonants of stressed syllables | tell/tail/tall |
| Syllabic 2 rhyme | rhyme between initial stressed syllables | restless/westward |
| Alliteration | matching leading consonant sounds of stressed syllables | languid/lazy/line/along |
| Assonance | matching vowel sound (independent of stress) | blue/estuaries |
| Consonance | matching leading and/or trailing consonant sound (independent of stress) | shell/chiffon |
| Forced rhyme | perfect rhyme with imperfect match in final consonant sounds | shot/top/sock |
| Eye rhyme | spelling indicates perfect rhyme but sounds do not match | cough/bough |
| Character clusters | matching substring involving 1-4 characters | restless/westward |
| Mixed character clusters | mixed substring involving 2-4 characters | inlets/itself |
| Anagram | words formed out of the same set of characters | nights/things |
| Phonetic alliteration | leading consonants of stressed syllable match in mouth placement | pen/boy |
| Phonetic assonance | vowels of stressed syllables match in mouth placement | edible/anchor |

Poemspace

2D space of the poem as printed on page



Sonic Topology

Distribution of rhyme sets across the poem

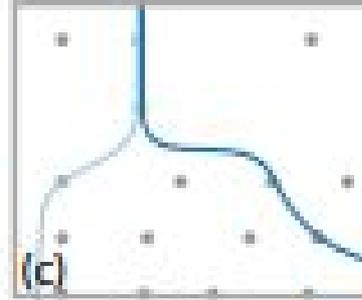
Intersect



Merge



Diverge



Emerge



Overlapping

Domain

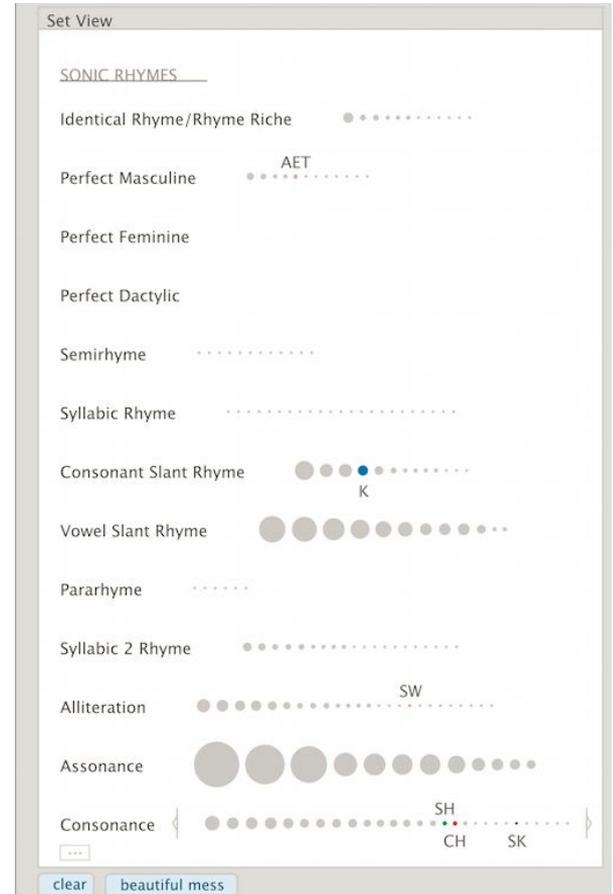
Data Abstraction

Visualization System

Design Process

Set View

- Circles represents individual rhyme sets
- Radius encodes # of words
- Collapse and expand
- Set description on hover



Poem View

- View poetic devices in original form
- Annotation-style enclosure
- Select word will identify all associated sets
- Build custom set

Poem View

~~W~~achinations Calcite
Clark Coolidge

acetone imprinted
~~o~~blique ~~s~~watch on the ~~s~~kin ~~c~~ar barn oil wall
ocarina & mumps
~~m~~uch wet green
I'd leave ~~s~~ole ~~k~~ey to ~~t~~his game to my friend, ~~s~~hee water ~~c~~at

~~a~~ctor impressed
weaving ~~c~~andle turn on ~~c~~omputer ~~c~~igarette, paper wall
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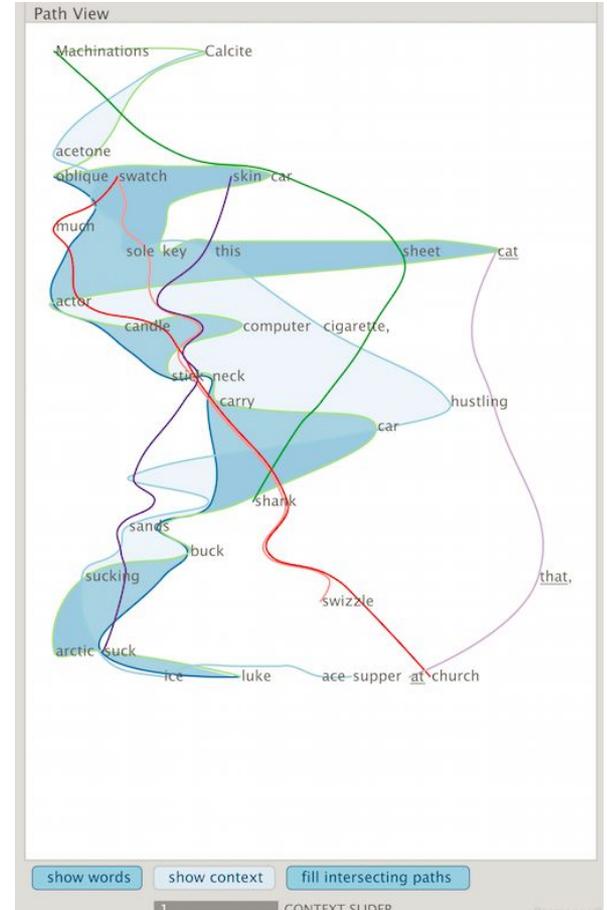
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hover word show uncertainty custom set

Path View - Routing

- Shortest path preserving spatial location
- Routed to avoid occluding words and ambiguous set membership
- Identify closest whitespace to edge
- Interpolating cubic bezier curve



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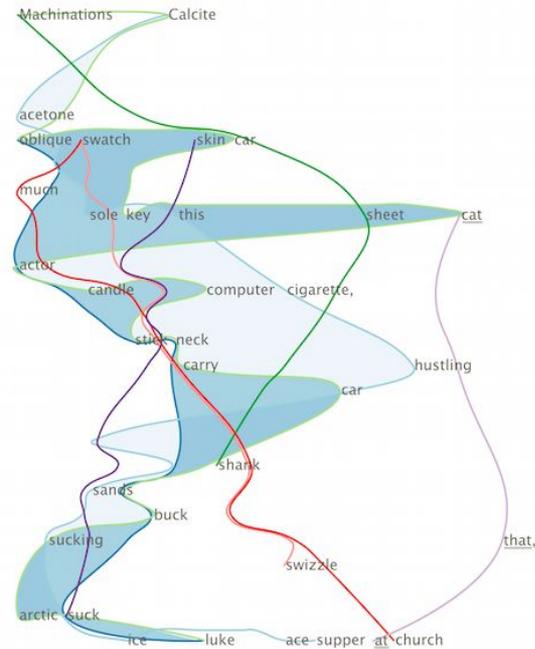
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1 CONTEXT SLIDER

| System | Poemage |
|-----------------|--|
| What: Data | Text in 'poemspace' |
| What: Derived | rhyme sets, sonic topology |
| Why: Tasks | Identify and compare sets and set interactions |
| How: Encode | Connection link marks, ellipse enclosure |
| How: Facet | Linked coloring and highlighting |
| How: Reduce | Collapse/expand filter |
| How: Manipulate | Navigate with scroll |

Validation

- Insight-based evaluation
- Collaborators given tutorial and a week to explore:
 - Close Reading
 - Erasure Poetry
 - Cento Making
 - Disruptive Technology

This Is Just To Say

by William Carlos Williams

I have eaten
the plums
that were in
the icebox
and which
you were probably
saying
for breakfast
Forgive me
they were delicious
so sweet
and so cold



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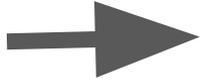
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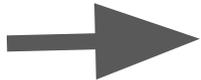
Design Study collaboration

Skeptical Enthusiasm



Broad, open-ended conversation
Observation of practice

Uncertain Computational
Value



Experimentation
Presentation of interesting
features and devices

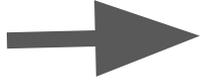
Open Design Space



Focus on untapped interpretive
approach

“Screwmenutics”

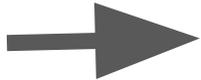
Embrace concepts that
visualization conventions
resist



Ambiguity as fundamental source
of insight

Visual clutter as Chaos reflects
what users seek to understand

Encourage playfulness
and creativity



Pleasure and enjoyment as
productive research outcomes

Encourages exploration and
increased efficacy of tool

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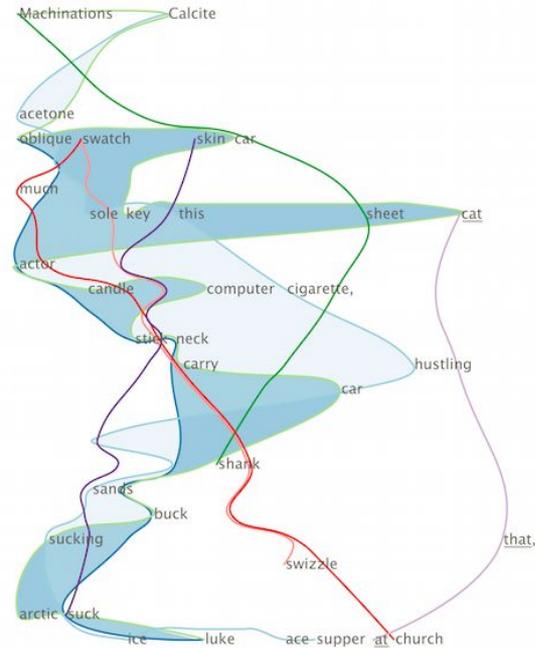
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