



Challenges in finding metaphorical connections

Katy Gero and Lydia Chilton

COLUMBIA UNIVERSITY

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Example human written poem for: **anger** is wood



the **anger grew**, like a tree
this **large, immovable object had taken root**
casting shade on even the happiest parts of my life
I could let it **consume me**, or **cut it down**

Poetry requires a conceptual message.

“...**meaningfulness** [in computer generated poetry]
is **not always explicitly considered**
and is often only softly satisfied.” Oliveira (2017)

We are interested in the content of poetry generation.

Computer generated poems:

early dew
the water contains
teaspoons of honey

Computer generated poems:

Can you remember when it started raining!
I had a **stomach** full of **blood and sweat**,
The **pins an arrow** through the barrel **aging**,
Nothing like a pile of **hot** and wet.

Why care about intentional conceptual messages?

1. Helps generate meaning for longer texts.
2. Easier to evaluate than “meaning exists”.
3. Can demonstrate improvement.

**How do we make sure poems have
intentional meaning?**

We introduce a poetry writing task:

Instead of a topic,
let's use a metaphor as the prompt.

anger is wood

We evaluate if the meaning of the poem is
semantically consistent with the metaphor.

Ensures intention.

Randomly generate 10 prompts.

Poetic Themes

loss confusion faith freedom
grace hate jealousy spring
unity love consciousness soul
melancholy calmness death
fear friendship **anger**
gratitude hope joy nature
religion sadness suffering
vanity happiness surrender
compassion envy forgiveness
god grief immortality life
peace remembrance silence
spirituality truth war
bitterness violence

god is a breath

compassion is blood

death is a rose

surrender is a book

anger is wood

peace is a rock

immortality is a room

hate is a mist

grace is a garden

hope is a ship

Concrete Nouns

bed horse bell book ship
wing room mouth storm
town silver stream dust color
side state ear sand grass
wood rose blood girl ring
wine garden brain wave mist
dawn breath spring nation
finger hair rock breast
window snow body ground
stone flame shadow line path
king darkness

Why have people do this task?

1. We don't know how hard this task is.
2. People give strategies and failure points.
3. Show us if and where support is needed.

Experiment on Mechanical Turk

Writing Instructions

Write a four line poem on the theme of **anger is wood**.

This theme is a metaphor. Don't use the exact phrase **anger is wood**, but rather express the idea through your poem.

We are looking for poems that are both meaningful, in that they convey a specific message, and poetic, in that the sound, shape, and imagery of the poem contribute to the expression of the message.

Examples of poetic style include alliteration; strict, slant, and internal rhyme; length of the lines; and strong imagery.

1. Write your four line poem below on **anger is wood**:

Anger is the hardest stuff|

Submit

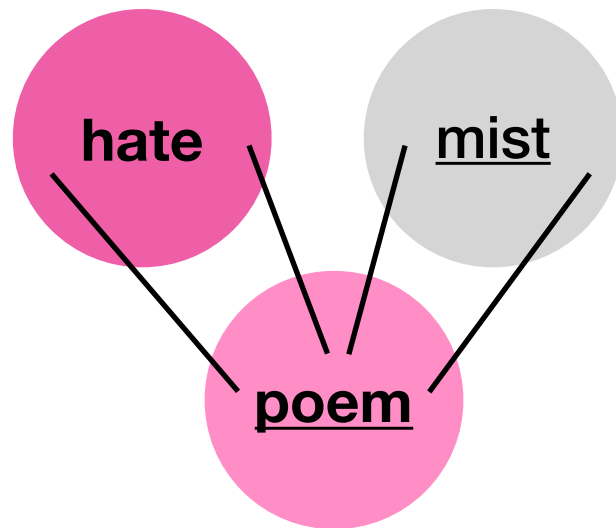
Evaluation of 200 short poems

- 14 were plagiarized and removed from dataset.
- Two evaluators read all poems.

97% agreement on which were successful.

24% were found to be **successful**.

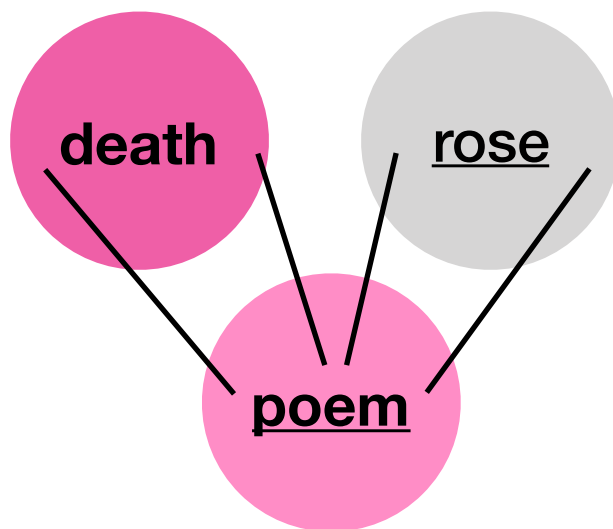
24% of poems were successful.



hate is a mist

He spits at me with fiery tongues,
his fists with betrayal, his eyes with loathing.

The love we knew turned to thick, toxic vapor,
and now we sit in its mist.



death is a rose

Alone I cried, my tears went unseen.
Within I died no shoulder to lean.
God tricked my life and closed the doors,
I wish my **death** to be as soft as a rose.

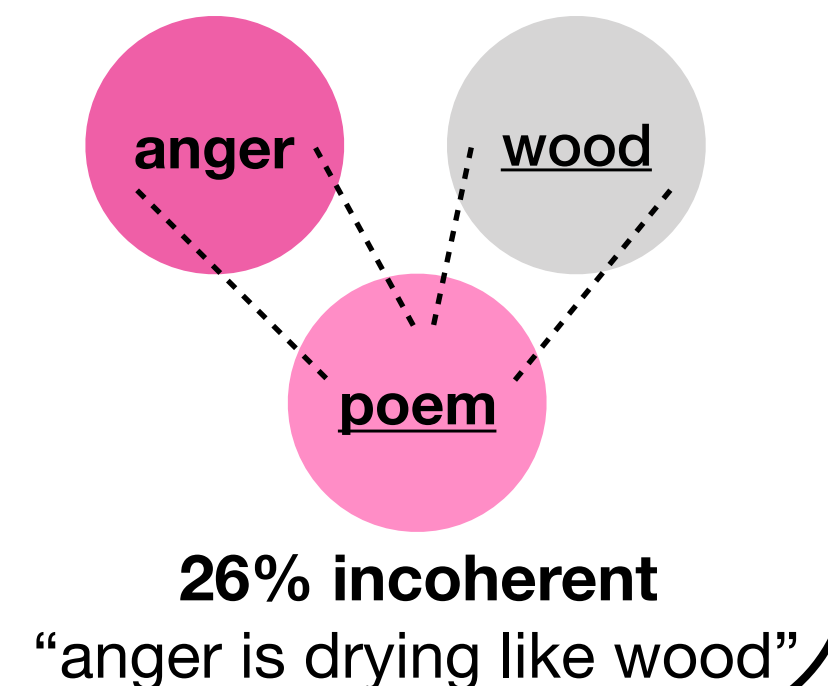
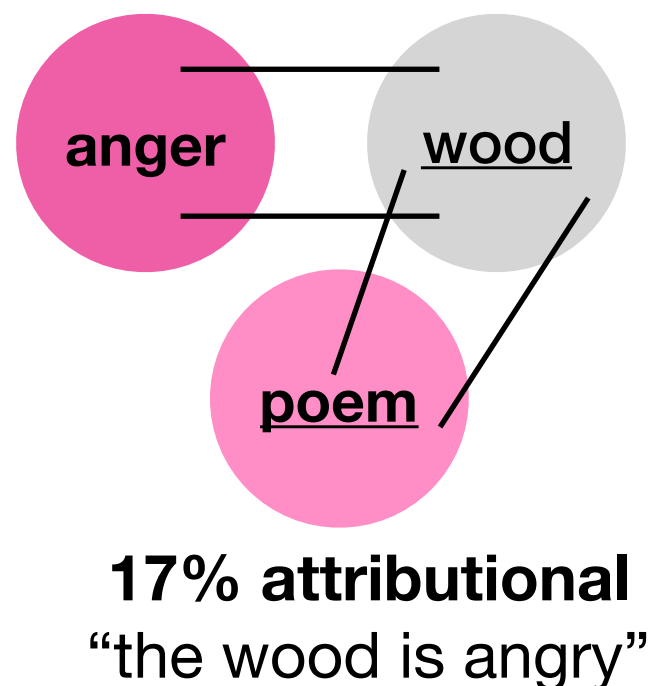
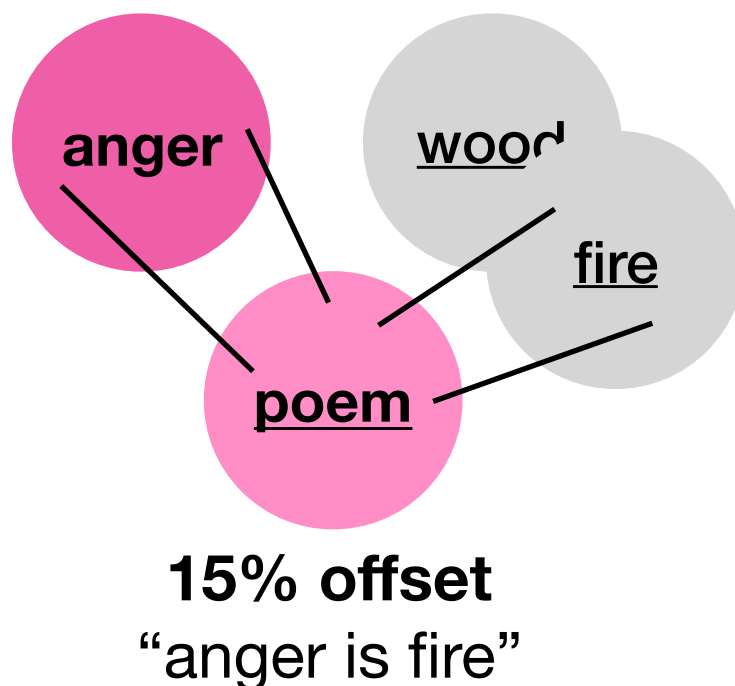
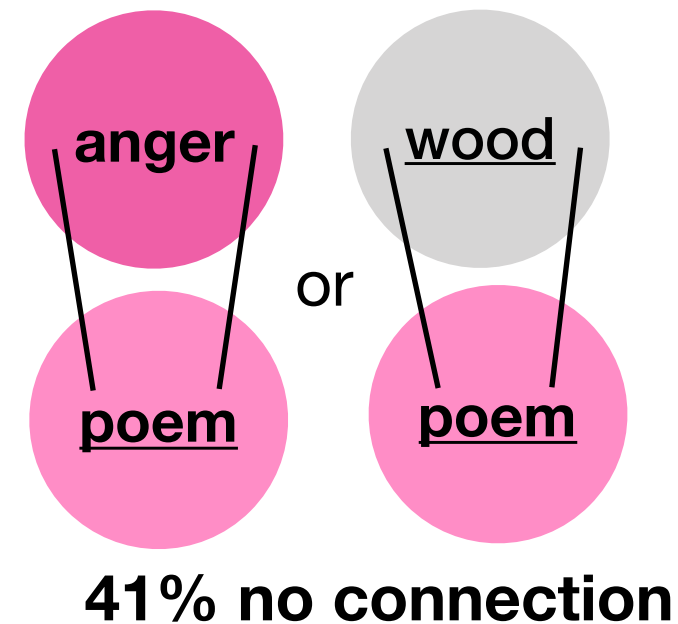
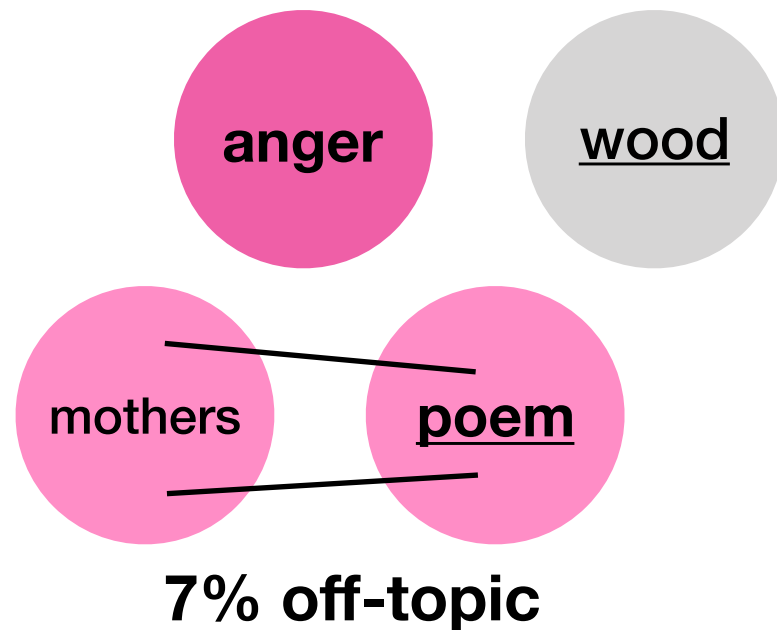
Evaluation of unsuccessful poems.

- Used Grounded Theory to develop categories.
- Placed unsuccessful poems into categories.

75% agreement on categorization.

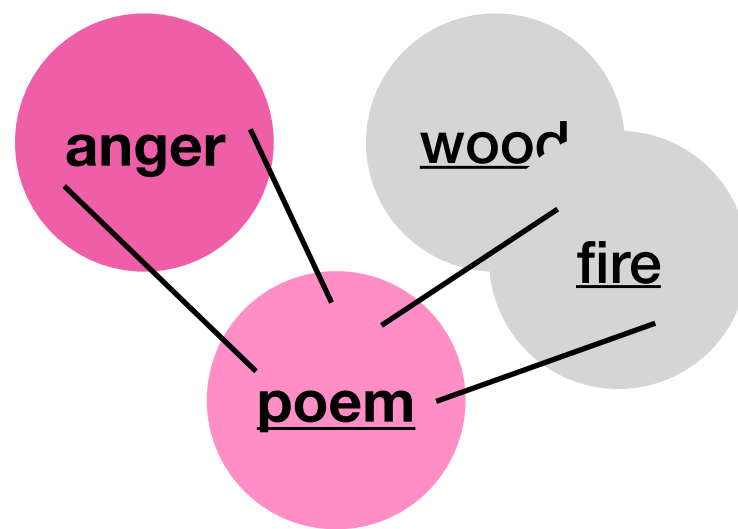
5 different **categories**.

Categories of unsuccessful poems:

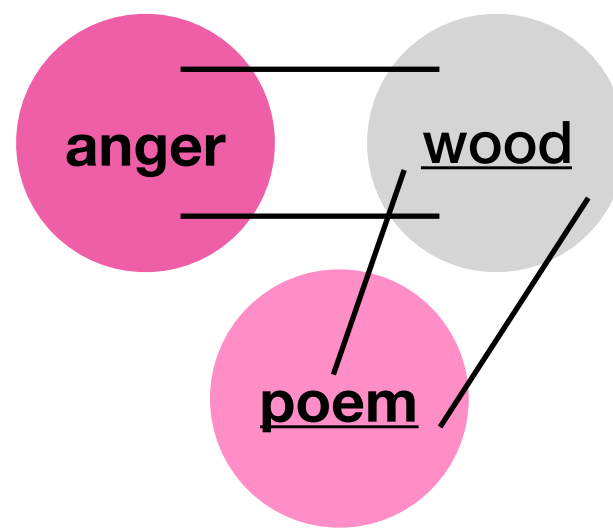


Reasons for ‘other’ connections:

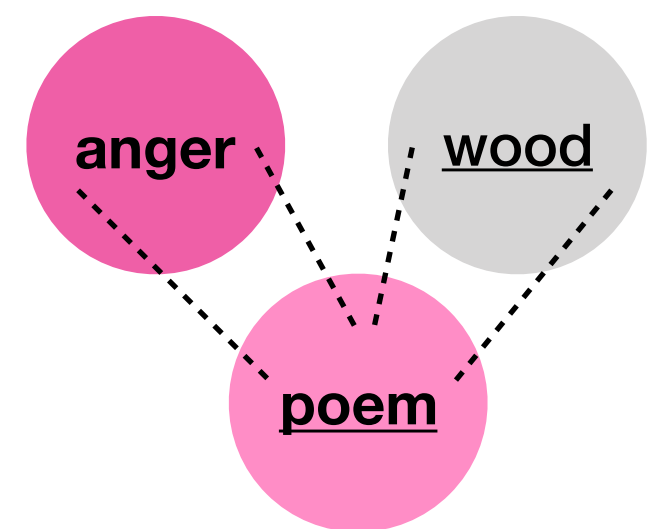
People want to relate the two words, but when difficult they back-off to related prompts.



15% offset
“anger is fire”



17% attributional
“the wood is angry”



26% incoherent
“anger is drying like wood”

What to work on next

1. Continue to use this prompt to address intentional meaning in poetry.
2. Support people doing this task:
 - Generate suggestions
 - Give feedback with detection

Dataset is available online:

`github.com/kgero/metaphorical-connections`

Summary

- To ensure **meaningfulness in poetry**, we introduce a poetry writing task that uses a metaphorical prompt.
- We ran a study in which **people wrote poems** on 10 randomly generated prompts.
- We show **high agreement in evaluation**.
- We propose **computational methods to support people in task**.

Questions?