

## CHAMP Activity — October 14, 2013

### POETRY SYMMETRY

1. What is symmetry?
2. Listen to some poetry. Do you hear anything symmetric?

#### Bob Marley: Get Up, Stand Up

*It's not all that glitters is **gold**;  
'Alf the story has never been **told**:  
So now you see the **light**.  
Stand up for your **rights**.*

Each pair of lines rhymes: A=“old” sound and B=“ight” sound, which leads to an AABB rhyme pattern. One thing to notice is that the rhyming scheme would STILL be the same if we swapped the first two lines.

*'Alf the story has never been **told**:  
It's not all that glitters is **gold**;  
So now you see the **light**.  
Stand up for your **rights**.*

In the chorus:

*Get up, stand up: stand up for your **rights**!  
Get up, stand up: don't give up the **fight**!  
Get up, stand up: stand up for your **rights**!  
Get up, stand up: don't give up the **fight**!*

All lines rhyme: A= “ight” sound leads to AAAA rhyme pattern.

#### Kanye West: Can't Tell Me Nothin'

*I feel the pressure, under more **scrutiny**  
And what I do, act more **stupidly**  
Bought more jewelry, more **Louis V**  
My Momma couldn't get **through to me**  
The drama, people **suing me**  
I'm on TV talking like it's just **you and me***

Take A = “ee” sound, then we have the AAAAAA rhyme pattern again here. Notice he also says the last three syllables in the same fast way each time: “scrutiny” or “through to me.” We can swap any line with any other line, and the rhyme pattern is still the same:

*My Momma couldn't get **through to me**  
The drama, people **suing me**  
I feel the pressure, under more **scrutiny**  
And what I do, act more **stupidly**  
I'm on TV talking like it's just **you and me**  
Bought more jewelry, more **Louis V***

### Leadbelly: House of the Rising Sun

*There is a house in New Orleans  
They call the rising **sun**  
And it's been the ruin of many a poor boy  
And me oh god I'm **one**.*

*I'm going to tell my baby sister  
Please don't do like I have **done**  
Please shun that house in New Orleans  
They call the Rising **sun**.*

This has a rhyme on every other line. All of the other lines don't rhyme. Thus, if we assign A="un" sound, then the rhyme pattern is xAxAxAxA, where x=non-rhyming words.

### Ice Cube: It Was a Good Day

*Just wakin up in the mornin gotta thank **God**  
I don't know but today seems kinda **odd**  
No barkin from the dog, no **smog**  
And mamma cooked a breakfast with no **hog***

What kind of rhyme scheme is this?

### Jimi Hendrix: All Along the Watchtower

*There must be some kind of way out of here,  
Said the joker to the **thief**,  
There's too much confusion,  
I can't get no **relief**.*

*Businessman they drink my **wine**,  
Plowmen dig my **earth**  
No one will level on the **line**,  
nobody of it is **worth***

A="one" sound; B = "urth" sound : second verse is ABAB rhyme

There are several ways we could move these lines around and still keep the same rhyme pattern:

One famous song with an ABAB rhyming scheme is *Amazing Grace*

### Amazing grace

*Amazing grace! How sweet the **sound**  
that saved a wretch like **me!**  
I once was lost, but now am **found**;  
was blind, but now I **see**.*

Here's another one by Willie Mae Thorton (not Elvis!):

**Big Mama Thorton: Hound Dog**

*You ain't nothing but a hound **dog**  
Been snoopin' 'round the **door**  
You ain't nothing but a hound **dog**  
Been snoopin' 'round my **door**  
You can wag your tail  
But I ain't gonna feed you no **more***

We can assign A=dog and B="or" sound and C=tail, then we can say this is a ABABCB rhyme pattern.

One thing about this rhyming scheme is that two pairs of lines rhyme because they're exactly the same. This is called an "identical rhyme."

Here's an old poem by Percy Bysshe Shelley (1818) that also has an ABAB rhyme scheme throughout:

**Percy Bysshe Shelly: Ozymandias**

*I met a traveller from an antique **land**  
Who said: Two vast and trunkless legs of **stone**  
Stand in the desert. Near them, on the **sand**,  
Half sunk, a shattered visage lies, whose **frown**,  
And wrinkled lip, and sneer of cold **command**,  
Tell that its sculptor well those passions **read**  
Which yet survive, stamped on these lifeless **things**,  
The hand that mocked them and the heart that **fed**:  
And on the pedestal these words **appear**:  
"My name is Ozymandias, king of **kings**:  
Look on my works, ye Mighty, and **despair!**"  
Nothing beside remains. Round the **decay**  
Of that colossal wreck, boundless and **bare**  
The lone and level sands stretch far **away**.*

3. In groups write a short four line AAAA poem. Also, try writing an ABAB poem. Finally, try a ABBA poem.

4. Why do you think that songs and poems rhyme so often? Are there other ways a song can have a repeated pattern than rhyming?

5. Palindromes – What is a palindrome?

bob

radar

Cain, a maniac

On a clover, if alive, erupts a vast, pure evil; a fire volcano

No, Mel Gibson is a casino's big lemon.

**What's going on here?**

6. Here is a palindromic poem, where the lines eventually will be read in the reverse order.

<http://www.youtube.com/watch?v=42E2fAWM6rA>

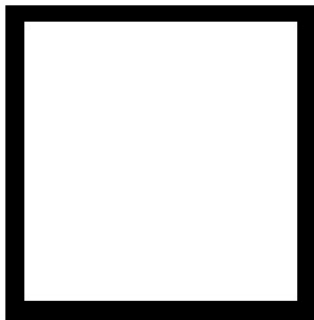
7. Mathematical Symmetry

Can you name some mathematical objects that are symmetric?

**Perfect triangle, square, the function  $x^2$ , the function  $x$ , the function  $\cos x$ , the function  $x^2 + x^4 + x^6$**

Let's look specifically at a square, how many ways is it symmetric?

How many ways you can move a square and have it still look the same? (Hint: Rotating and flipping)



There are fewer ways that a non-square rectangle is symmetric

Draw the lines through which this rectangle has mirror images (Be careful, there should be fewer here than in the square)



What are all the ways you can move a rectangle and have it look the same?

How about for a trapezoid?

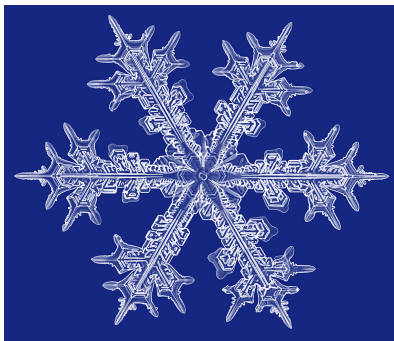


## 8. Symmetry in Nature

What **kind** of symmetry does this snowflake have?

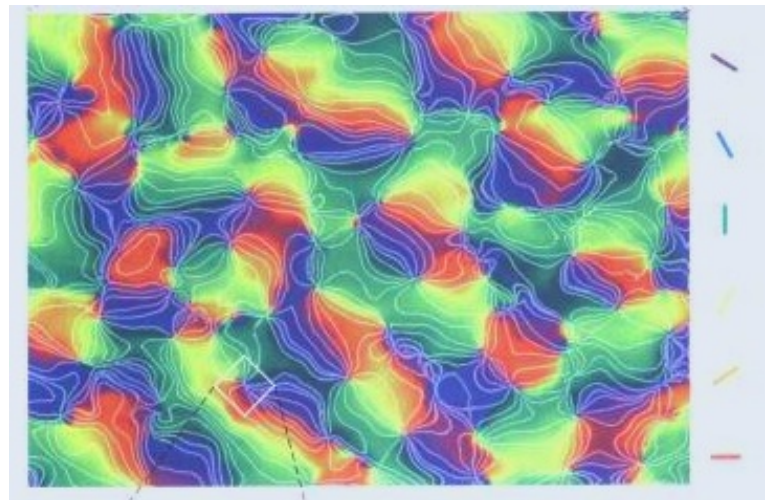
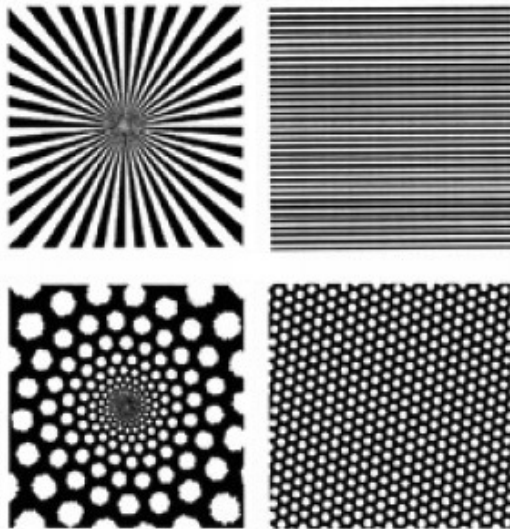
This squid is symmetrically shaped. Why?

Is there a way in which this fish is symmetric?



## 9. Symmetry in the brain

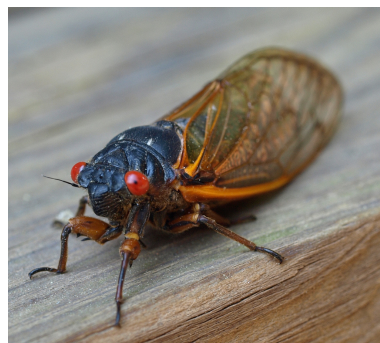
Geometric visual hallucinations: When people are exposed to flickering light or hallucinogens, they have a tendency to visually hallucinate geometric patterns:



People see these because the visual part of their brain becomes very active. Activity organizes into patterns that the brain “prefers”

So, certain visual parts of the brain prefer patterns.

It turns out this may extend to parts of the brain that process sounds that you hear. This is one theory for why people, and other animals, remember and are attracted to repetitive songs and verses.



10. Now, let's talk about the kind of symmetry that certain rhyming patterns have.

Let's start with a four line verse where all lines rhyme:

**Bob Dylan : Subterranean Homesick Blues**

*The phone's tapped anyway  
Maggie says that many say  
They must bust in early May  
Orders from the DA*

This has the rhyming pattern AAAA where A="a" sound . Therefore, this rhyming pattern is symmetric to all permutations of the list {1, 2, 3, 4}. We can reorder each line however we like. and all lines will still rhyme with a AAAA rhyme pattern:

*Orders from the DA  
Maggie says that many say  
The phone's tapped anyway  
They must bust in early May*

On the other hand, if we consider:

*Amazing grace! How sweet the sound  
that saved a wretch like me!  
I once was lost, but now am found;  
was blind, but now I see.*

This has the rhyming pattern ABAB where A="ound" sound and B="ee" sound. Changing the 3rd and fourth lines creates a new rhyming pattern:

*Amazing grace! How sweet the sound  
that saved a wretch like me!  
I once was lost, but now am found;  
was blind, but now I see.*

So now the verse is ABBA instead of ABAB. But, if we exchange the first and third lines in the original verse:

*I once was lost, but now am found;  
that saved a wretch like me!  
Amazing grace! How sweet the sound  
was blind, but now I see.*

we still have our ABAB rhyme pattern

11. Write a class poem song, based on a chosen rhyming scheme (AABBCC... or ABAB)
12. We can come up with any type of rhyming symmetry we like though. Now, choose your own rhyme scheme and write a poem that has it, in groups. Try to make them so that if you switch some of the lines that rhyme together, the poem still makes sense.