

## Group: Spooking Season

**Q1 (1 pt.):** How many 3-letter words are possible?

**Answer:**  $w = 26^3$

**Q2 (1 pt.):** Were you able to use the 3-letter word generating code to create a valid word, and if so how many tries did it take?

14 tries. I got the word "tap".

**Q3 (1 pt.):** How many 4-letter words are possible? Express your answer in terms of  $w$

$W = 26^4$

**Q4 (2 pts.):** Consider the reading as a whole and decide on one or more of your favorite moments in the story. Briefly describe why your group found them interesting, and if possible describe any connection to combinatorics or probability theory. Be sure to mention if there are any connections to your work or field of research.

David's favorite part: When the character mentions that the library has all the possible combinations of letters and words, therefore the library has all the possible books that there are and will have; and in different languages. If we take a book at random, perhaps the book has what we think is text without coherent content, but perhaps it is because we do not yet understand that language.

"Man, the imperfect librarian, may be the product of chance or of malevolent demiurgi; the universe, with its elegant endowment of shelves, of enigmatical volumes, of inexhaustible stairways for the traveler and latrines for the seated librarian, can only be the work of a god."

Kato: The quote above reminds me of an essay by William James called "the will to believe". I enjoy the idea that humans are incapable of objective truth/knowledge. There is an infinite amount of truths, which would be impossible to experience as a being with a finite life span. I find it applicable to research in the sense that as scientists we are barreling forward into understanding the world around us, and similar to a line moving nearer and nearer to an asymptote on a graph, we will never truly get to the objective truths of the universe.

Jackie: I enjoyed the quote below because it appears to give you a way to quantify the library as a whole and the information it holds. However, the essay makes it clear that the library is both infinite and finite at the same time. This reminds me of the video we watched on all the ways possible to shuffle a deck of cards. While we know that it is  $52! = 8.06581752 \times 10^{67}$ , the number is not fully comprehensible in our brains.

"There are five shelves for each of the hexagon's walls; each shelf contains thirty-five books of uniform format; each book is of four hundred and ten pages; each page, of forty lines, each line, of some eighty letters which are black in color. There are also letters on the spine of each book; these letters do not indicate or prefigure what the pages will say."

<https://maskofreason.files.wordpress.com/2011/02/the-library-of-babel-by-jorge-luis-borges.pdf>

Elyse's favorite passage:

"At that time it was also hoped that a clarification of humanity's basic mysteries -- the origin of the Library and of time -- might be found. It is verisimilar that these grave mysteries could be explained in words: if the language of philosophers is not sufficient, the multiform Library will have produced the unprecedented language required, with its vocabularies and grammars. For four centuries now men have exhausted the hexagons ... There are official searchers, inquisitors. I have seen them in the performance of their function: they always arrive extremely tired from their journeys; they speak of a broken stairway which almost killed them; they talk with the librarian of galleries and stairs; sometimes they pick up the nearest volume and leaf through it, looking for infamous words. Obviously, no one expects to discover anything"

I like this passage because it talks about the fact that humans are so ambitious, we always seem to think everything is discoverable, knowable. But the truth is that there is so much that we can never ever know. It's impossible to understand and know infinity, or at least, "a very large universe" as described by the library. By the end of the passage, they make it clear that now, no one expects to discover anything, which is a huge shift. I don't know that we've really got to the point where we've given up discovering things.