

99 Bottles of Beer

"99 Bottles of Beer" is an anonymous folk song dating to the mid-20th century. It is a traditional reverse counting song in both the United States and Canada. It is popular to sing on long trips, as it has a very repetitive format which is easy to memorize and can take a long time to sing. In particular, the song is often sung by children on long bus trips, such as class field trips, or on Scout and/or Girl Guide outings.

1 Lyrics

The song's lyrics are as follows:^{[1][2]}

99 bottles of beer on the wall, 99 bottles of beer.

Take one down, pass it around, 98 bottles of beer on the wall...

Alternate line:

If one of those bottles should happen to fall,
98 bottles of beer on the wall...

The same verse is repeated, each time with one bottle fewer, until there are none left. Variations on the last verse following the last bottle going down include lines such as:

No more bottles of beer on the wall, no more bottles of beer.
Go to the store and buy some more, 99 bottles of beer on the wall...

Or:

No more bottles of beer on the wall, no more bottles of beer.
We've taken them down and passed them around; now we're drunk and passed out!

Another alternate line reads:

If that one bottle should happen to fall,
what a waste of alcohol!

2 Andy Kaufman routine

The boring and time-consuming nature of the "99 Bottles of Beer" song means that probably only a small minority of renditions are done to the final verse. The American comedian Andy Kaufman exploited this fact in the routine early in his career when he would actually sing all 100 verses.^[3] As was common in many of his sketches, Kaufman was deliberately provoking his audience in this routine once they realized that he actually intended to sing all of the verses. Catcalls, booing, and sullen silence were common responses. Toward the end of the sketch, Kaufman would feign recognition that the audience was not enjoying the material, and he would leave the stage with only 5 or 6 "bottles" to go. At that time, the audience would begin calling for him to return to finish the verses.

3 Mathematically inspired variants

Donald Byrd has collected dozens of variants inspired by mathematical concepts and written by himself and others.^[4] (A subset of his collection has been published.^[5]) Byrd argues that the collection has pedagogic as well as amusement value. Among his variants are:

- "Infinity bottles of beer on the wall". If one bottle is taken down, there are still infinite bottles of beer on the wall (thus creating an unending sequence much like "The Song That Never Ends").
- "Aleph-null bottles of beer on the wall". Aleph-null is the size of the set of all natural numbers, and is the smallest infinity and the only countable one; therefore, even if an infinite aleph-null of bottles fall, the same amount remains.
- "Aleph-one/two/three/etc. bottles of beer on the wall". Aleph-one, two, three, etc. are uncountable infinite sets, which are larger than countable ones; therefore, if only a countable infinity of bottles fall, an uncountable number remains.

Other versions in Byrd's collection involve concepts including geometric progressions, differentials, Euler's identity, complex numbers, summation notation, the Cantor set, the Fibonacci sequence, and the continuum hypothesis, among others.

On a *Malcolm in the Middle* episode,^[6] on the way to a mathematics competition, Malcolm's classmates, the Krelboynes, sing a variation of this song, stating "the square root of (number of) bottles of beer". Malcolm states to the camera that they are only at the nineties.

4 References in computer science

The computer scientist Donald Knuth proved that the song has a complexity of $O(\log N)$ in his in-joke-article "The Complexity of Songs".

Numerous computer programs exist to output the lyrics to the song. This is analogous to "Hello, World!" programs, with the addition of loops. As with "Hello World!", this can be a practice exercise for those studying computer programming, and a demonstration of different programming paradigms dealing with looping constructs and syntactic differences between programming languages within a paradigm.

5 See also

- Drinking song
- Ten Green Bottles, a similar song which is popular in the United Kingdom

6 References

- [1] Nyberg, Tim (2006). *99 Bottles of Beer on the Wall: The Complete Lyrics*. Andrews McMeel Publishing. p. 112. ISBN 978-0-7407-6074-7.
- [2] Baird, Kevin C. (2007). *Ruby by example: concepts and code*. No Starch Press. p. 25. ISBN 978-1-59327-148-0.
- [3] http://jacksonville.com/tu-online/stories/122399/enc_S1223_Pa.html Andy Kaufman's 99 Bottles. Retrieved 15 Sep 2012.
- [4] Byrd, Donald (2013-10-08). "Infinite Bottles of Beer: Mathematical Concepts with Epsilon Pain, Or: A Cantorial Approach to Cantorian Arithmetic and Other Mathematical Melodies" (PDF). Indiana University, School of Informatics. Archived (PDF) from the original on 1 April 2011. Retrieved 2014-01-14.
- [5] Donald Byrd (2010). "Infinite Bottles of Beer: A cantorial approach to Cantorian arithmetic and other mathematical melodies". *Math Horizons*: 16–17.
- [6] <http://www.imdb.com/title/tt0640283/synopsis>

7 External links

- 99-bottles-of-beer.net

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8.1 Text

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