

Difficulty: 2/4 Interest: 2/4

Let a palindromic partition be a partition of a string into palindromes.

(xox)(x)(o) (x)(oxxo) (x)(o)(x)(x)(o) (x)(o)(xx)(o)

Figure 1: An example of four palindromic partitions of the string “xoxxo”.

Question. Given some string, how many palindromic partitions does it have?

Related.

1. What is the least number of parts p such that an arbitrary string of length ℓ over a k -letter alphabet can be partitioned into p or fewer parts?
2. What is the length of the shortest string that cannot be partitioned into fewer than p parts?
3. How many length ℓ strings require the “worst-case” number of parts?
4. Which length ℓ strings have the greatest number of distinct partitions? The least?
5. What is the smallest number of parts that any string with m o’s and an arbitrary number of x’s can be partitioned into?

References.

<https://oeis.org/A298481> the number of ways to partition the binary representation of n into the minimal number of palindromic parts.