

# Odds and Evens in Algorithm Design

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Odds and evens are fundamentally different:

- odd and even numbered streets in Manhattan carry traffic in opposite ways;
- odd and even indices around a dinner table may seat opposite genders;
- primality testing is trivial for evens and less so for odds;
- some things are even and others are quite odd;

In this talk, I will focus on an algorithm design principle: divide and conquer based on odd and even indices, or more generally, on various modulo residue classes.

The famous Fast Fourier Transform algorithm falls into this category. I will show other examples: multiple pattern matching, sorting suffixes, string embeddings and a faster Fourier transform algorithm.

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[muthu@cs.rutgers.edu](mailto:muthu@cs.rutgers.edu). The painting is by Pieter Bruegel from circa 1560.

*FUN with Algorithms*