

# Introduction to Combinatorial Game Theory

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# Outline

## 1 Few Combinatorial Games

- Basic terminologies and Strategies
- Tic-Tac-Toe
- Hex
- Nim

## 2 Formal Approach to Games

- Definitions
- $\mathbb{G}$  as a Group
- Partial Order Structure

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For any game position  $G$  we denote left options of game by  $\check{G}^l$  and right options of game by  $\check{G}^r$ .

Thus any game position can be written as

$$G = \{\check{G}^l | \check{G}^r\}$$

## Example

hi how are you

my

my

name

is



nothing

nothing

like

like

anything

anything