Game theory

- → Cricket ✗
- → Hockey ✗
- → coin games
- → number games

- → 2 players game (can be more than that also)
- → Perfect information
- → optimal moves
- → win or lose or draw

- → Simple games
- → Nim game
- → Minimax
- → Grundy numbers
- → Sprague grundy theorem

✗ A lot of questions.

Q Two players Alice & Bob are playing a game. They have a pile of n coins in it. They can pick either 1 or 2 coins in one turn. Alice goes first and they take alternate turns.

→ The player who picks the last coin is the winner.

Find the winner.

Eg: n = 10 Alice

Eg: n = 4 Alice

last coin ⇒ winner

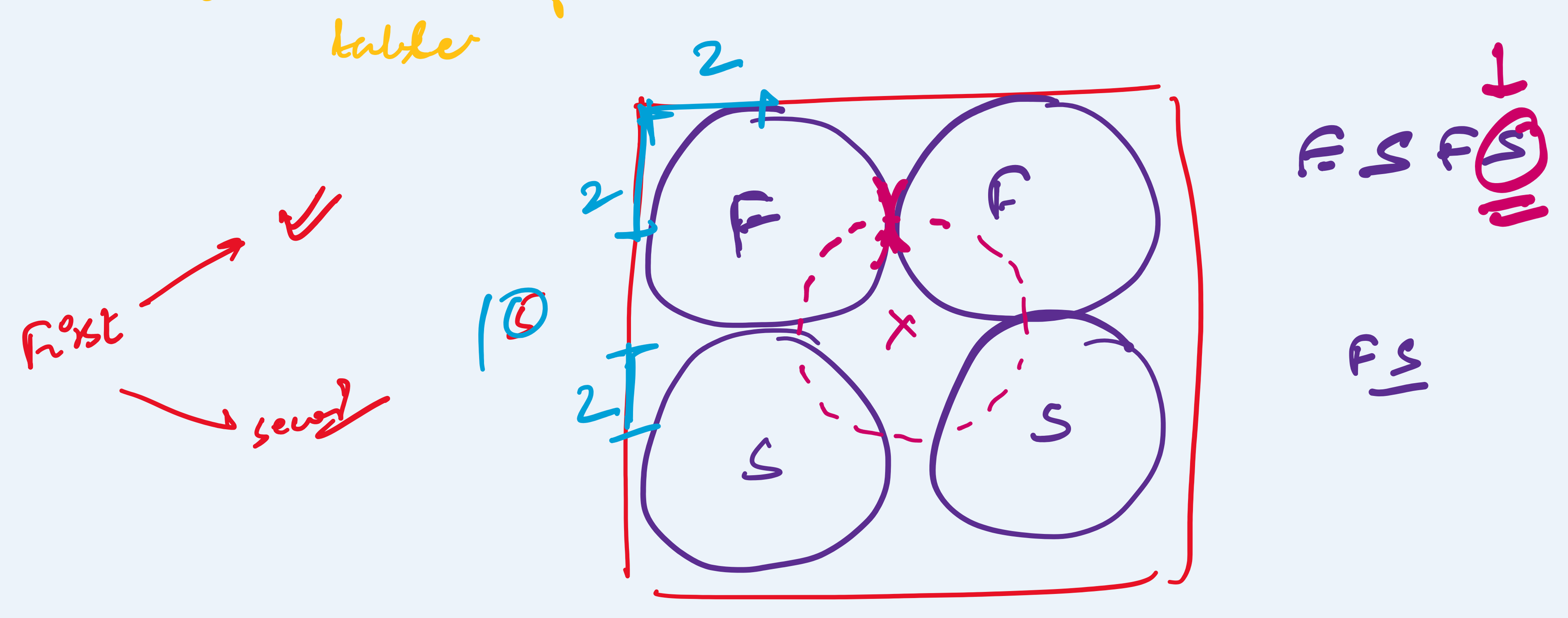
n = 1	[first person]
n = 2	[first person]
n = 3	[second person] Bob
n = 4	[first person]
n = 5	[first person] Bob
n = 6	[second person]

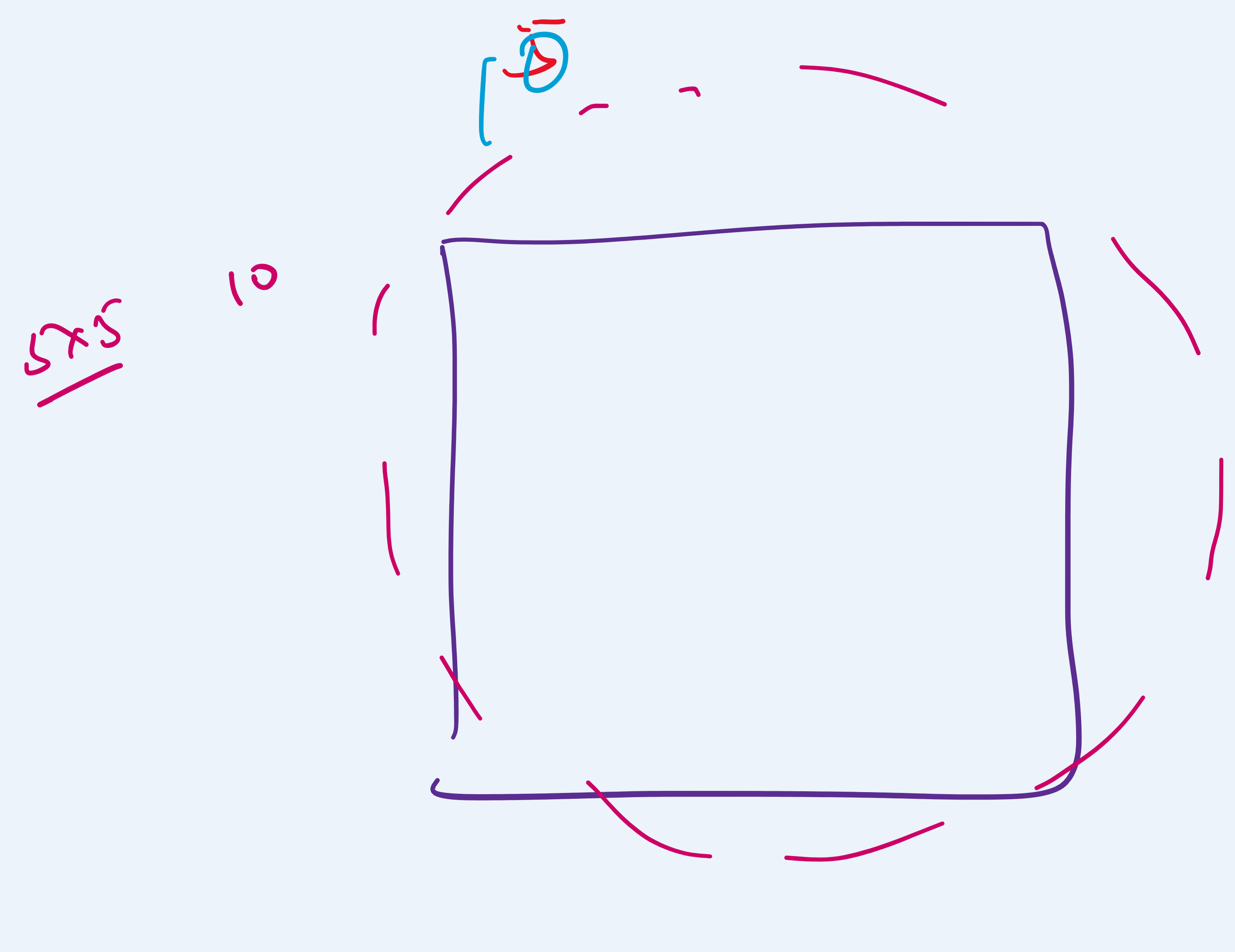
n=5

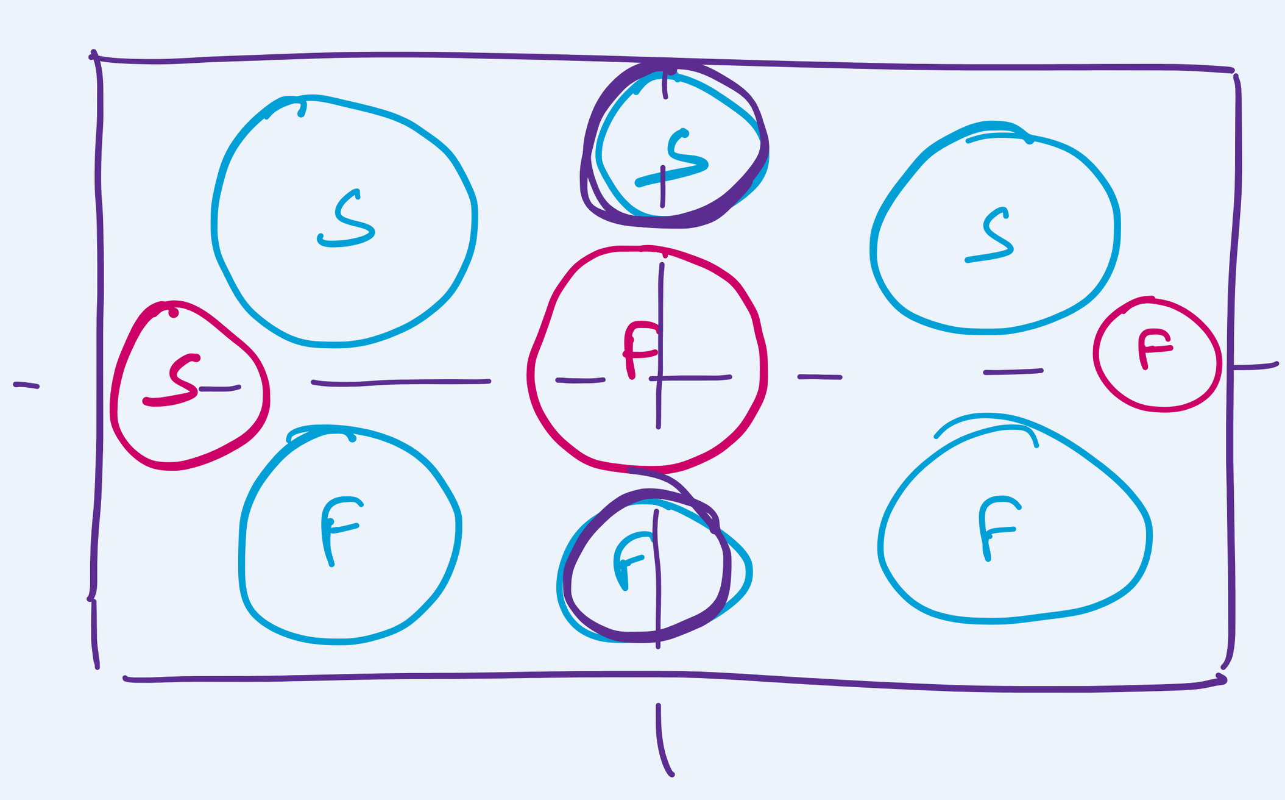
```
if (n % 3 == 0)
    print ("Bob");
else
    print ("Alice");
```

[5 5] [2] → radius of circle

dimensions of a table







a, b, r

```
if (2*r > math.min(a, b))
    print (second);
else
    print (first);
```