

Le Développement d'un programme joueur

T.I.P.E 2014

Plan

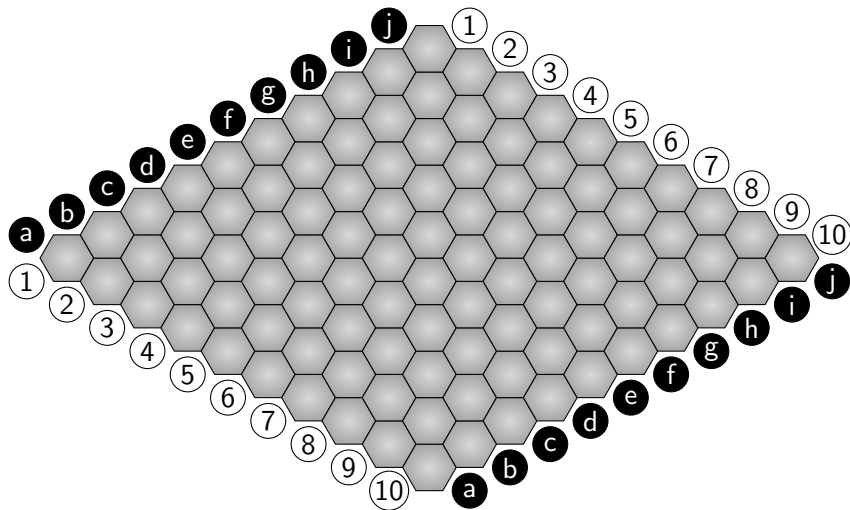
Introduction

Aproche simple

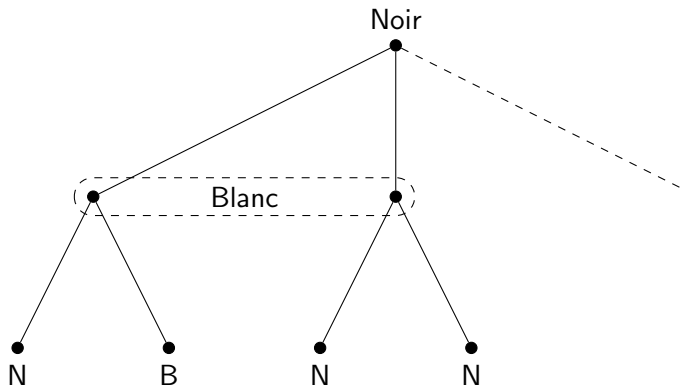
Presentation

Complexité

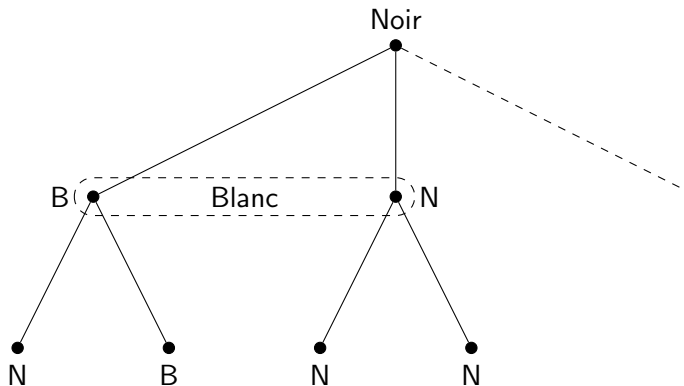
Hex



Présentation de l'algorithme Minimax



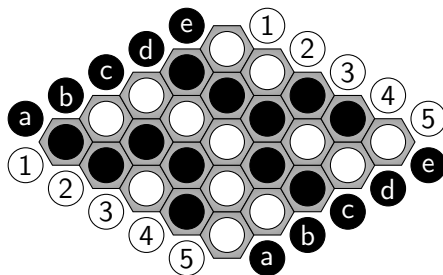
Présentation de l'algorithme Minimax



Décomposition du minimax

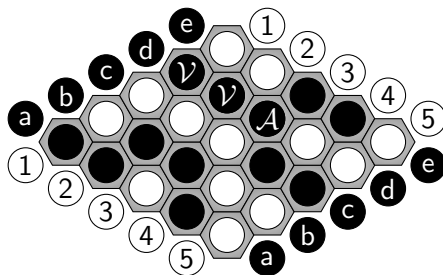
- ▶ `getWinningPlay`
- ▶ `winner`

winner

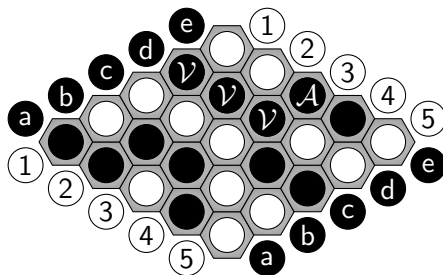


A diagram of a honeycomb lattice structure. The central hexagon is labeled \mathcal{A} . The lattice is surrounded by a boundary. Labels a, b, c, d, e are placed on the outermost hexagons, and labels $1, 2, 3, 4, 5$ are placed on the inner boundary hexagons. The labels a, b, c, d, e are arranged in a clockwise cycle starting from the bottom-left, and the labels $1, 2, 3, 4, 5$ are arranged in a clockwise cycle starting from the top-left. The central hexagon is labeled \mathcal{A} .

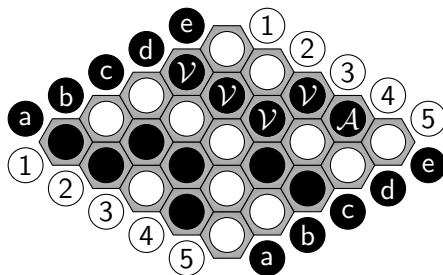
Implémentation



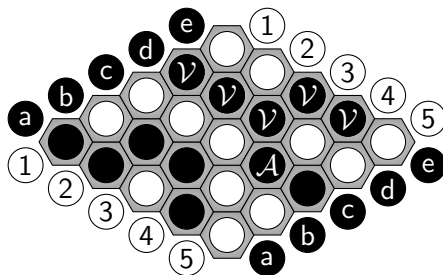
Implémentation



Implémentation

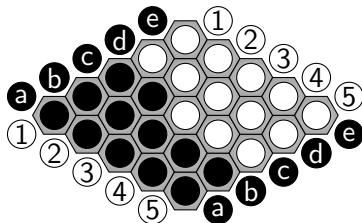


Implémentation



A diagram of a honeycomb lattice structure. The lattice is composed of hexagonal cells, some of which are shaded black and others white. The lattice is labeled with letters and numbers. Letters 'a', 'b', 'c', 'd', 'e' are placed in black circles, and numbers '1', '2', '3', '4', '5' are placed in white circles. The letters 'v' and 'A' are placed in white circles. The lattice is arranged in a hexagonal pattern, with the central cell being white and labeled 'v'.

Calcul de la complexité



- Complexité d'un parcours

$$P(n) = \sum_{k=1}^{\left\lceil \frac{n^2}{2} \right\rceil} k$$

$$\implies P(n) = O\left(\left\lceil \frac{n^2}{2} \right\rceil^2\right)$$

$$\Rightarrow P(n) = O(n^4)$$

- ▶ Complexité de winner

$$W(n) = nP(n) = O(n^5)$$