

Faculty of Mathematics and Physics
Charles University in Prague
28th November 2016



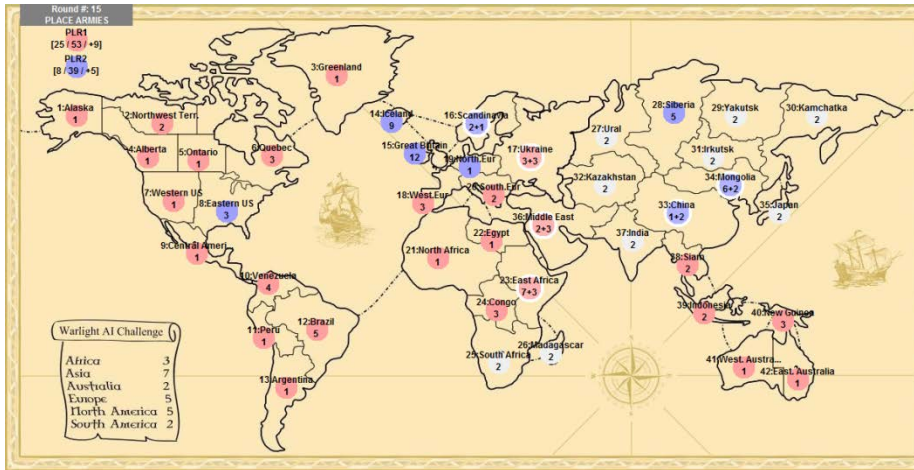
Time to apply stuff...

Artificial Intelligence 1

Lab 05 – Conquest Intro



Today – Conquest Intro



INFO

SEARCH

ACTIONS



Conquest

<https://github.com/kefik/conquest-engine-gui>



Game Steps

- 1) Simulator Decides on regions to pick from
- 2) P1 Chooses initial regions
- 3) P2 Chooses initial regions
- 4) Simulator Decides who gets what
- 5) Simulator Sends the state to P1 and P2
- 6) P1 Places armies
- 7) P2 Places armies
- 8) P1 Issues commands
- 9) P2 Issues commands
- 10) Simulator Applies 4+5
- 11) Simulator Executes commands in random order
- 12) Simulator Checks for game end
- 13) [Repeat from 05]

Conquest

<https://github.com/kefik/conquest-engine-gui>



Choosing initial regions:

- Simulator offers 2 random regions from every continent
- Players mark preferences on regions
- If two players wants the same region on the same level of preference => coin-toss
- Every player is given 2 armies to begin with in every given region

Conquest

<https://github.com/kefik/conquest-engine-gui>



Placing armies:

- Each player receives 5 armies to distribute
- Each player receives extra armies according to continents they control
 - Africa => 3
 - Asia => 7
 - Australia => 2
 - Europe => 5
 - North America => 5
 - South America => 2
- You control the continent if you control all its regions
- You control a region if you have at least 1 army there
- You can place armies only to regions you control

```
ArmiesToPlace(player) =  
    5+ContinentRewards(player)
```

Conquest

<https://github.com/kefik/conquest-engine-gui>



Issuing orders (by players) and their execution (by simulator):

- Players do not get updates on where their opponent has placed their armies
- You do not know the exact order which your commands will be executed in
- In case you want to move more soldiers than you have, a maximum number of soldiers is moved
- In case your command is invalid (you do not own the region or do not have more than 1 army there), it is discarded

Conquest

<https://github.com/kefik/conquest-engine-gui>



Movement restrictions:

- At least 1 army must remain within the region you're moving from
- You can move only to the neighboring region of the region you're moving from
- In theory, "soldier trafficking" is possible, but you must be lucky...

Conquest

<https://github.com/kefik/conquest-engine-gui>



Fights

- Depends on `Engine.config.fightMode`
- We will use `CONTINUAL_1_1_A60_D70`
- Fight runs in combat rounds until either side is wiped out; you cannot withdraw from the fight

Every combat round

- There is 70% chance 1 attacker will die
- There is 60% chance 1 defender will die

Conquest

<https://github.com/kefik/conquest-engine-gui>



And that's how you play the game!



Homework 05+06

20 Points



1. **Implement Conquest agent**
By implementing [Expectiminimax](#) algorithm + [alpha/beta pruning](#).
3. **There is going to be a Conquest competition!**
 - Tournament entry deadline: **7.1.2017 (23:59)**
 - You have 20 seconds per move (Intel Core i7-4700 MQ, Haswell) and 1GB memory (-Xmx Java switch) to work with
 - Max 200 rounds.
 - Table Tournament (all vs. all)
 - a) Winner == number of victories; number Victory == the winner is the player with the most regions / continents / armies
 - b) in case of tie within the TABLE – we decide according to the one-on-one result
 - If you wish to create own GameState abstraction, do it within your project, do not modify anything outside Conquest-Playground

Submit your homework



- Completely zip-up your project(s) folder
 - **WITHOUT** the **bin** folder!
- Send it to:
 - Jakub Gemrot
 - gemrot@gamedev.cuni.cz
- Use subject:
 - AI1 – 2016 – Ho6 – Conquest
- Note that (yours/mine) GMail will accept zip files containing executables if the file has its extension obfuscate (e.g. zi_ or zzz)
- Deadline for entering the tournament is **7.1.2016 (23:59)**
- Every reported & confirmed bug (within the framework) is for **1** credit!