

Strategic Features and Terrain Generation for Balanced Heroes of Might and Magic III Maps

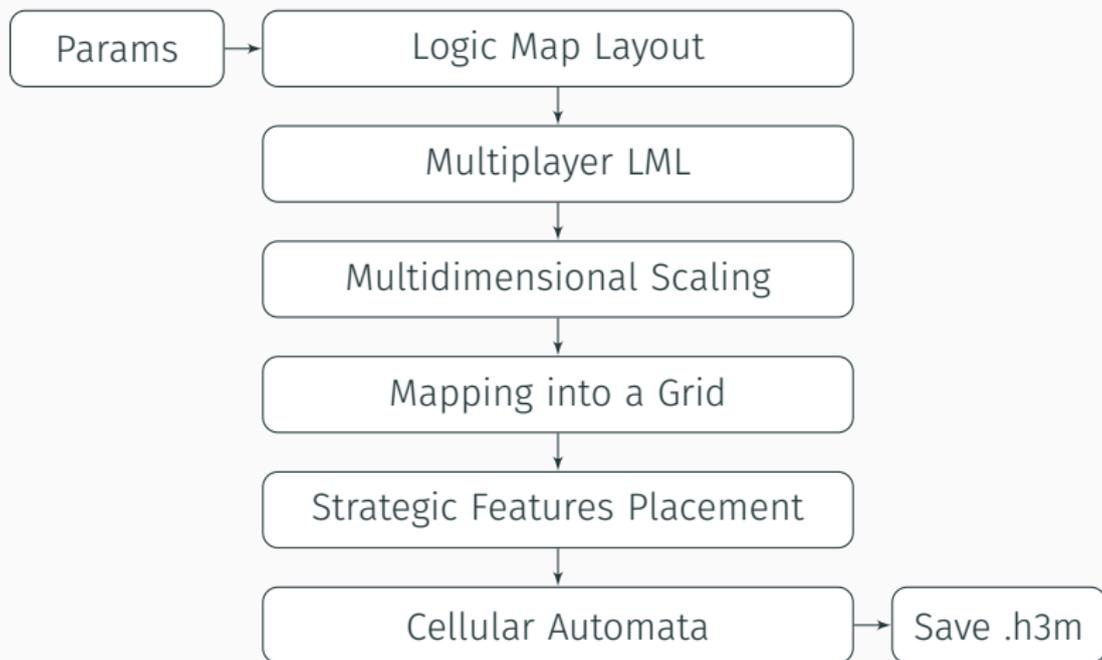
Jakub Kowalski, **Radosław Miernik**, Piotr Pytlik, Maciej Pawlikowski,
Krzysztof Piecuch, Jakub Sękowski

August 16, 2018

Institute of Computer Science, University of Wrocław
Wrocław, Poland

Overview

Overview



Such construction of the generator allow us to restart the whole process from a given point:

Such construction of the generator allow us to restart the whole process from a given point:

I really like that terrain but it's too hard for me - reduce the number of monsters.

Such construction of the generator allow us to restart the whole process from a given point:

I really like that terrain but it's too hard for me - reduce the number of monsters.

But also output a map after each stage so we can easily test it with players or various evaluation functions in the future:

Such construction of the generator allow us to restart the whole process from a given point:

I really like that terrain but it's too hard for me - reduce the number of monsters.

But also output a map after each stage so we can easily test it with players or various evaluation functions in the future:

Is this road scheme better than the other?

Heroes of Might and Magic III





MON 2

MON 3

RES

RES

RES

MON 3

RES

MON 1

RES

MON 2

RES

RES

MON 3

RES

RES

MON 2

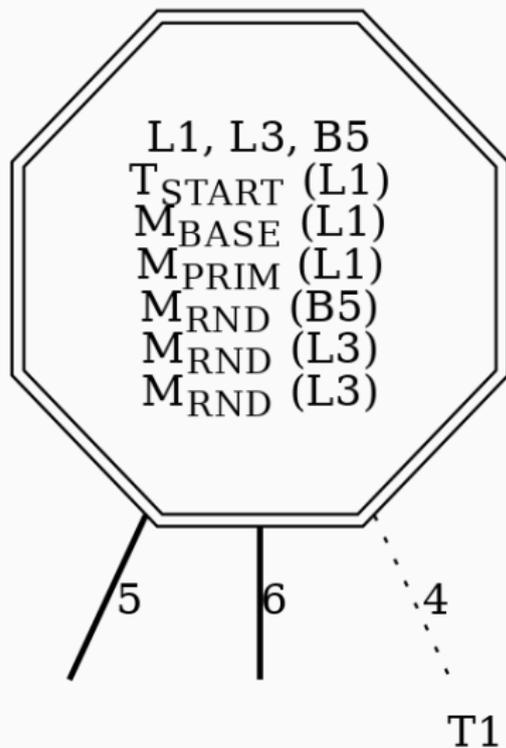
RES

Logic Map Layout

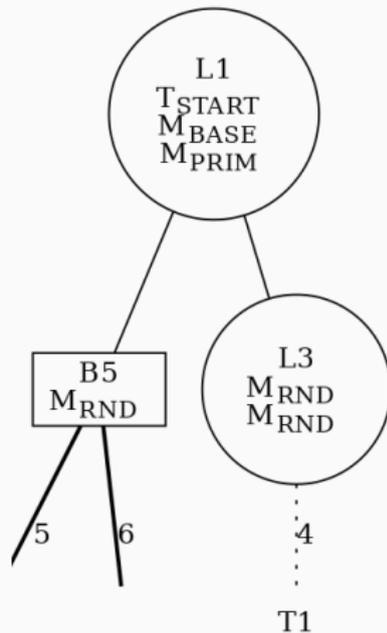
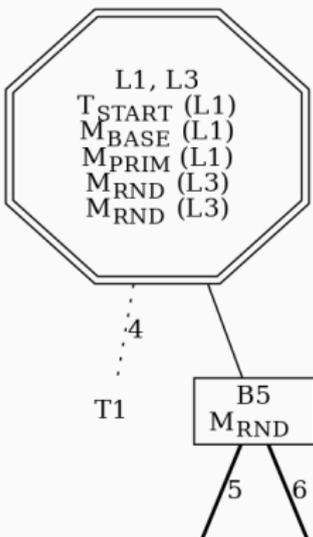
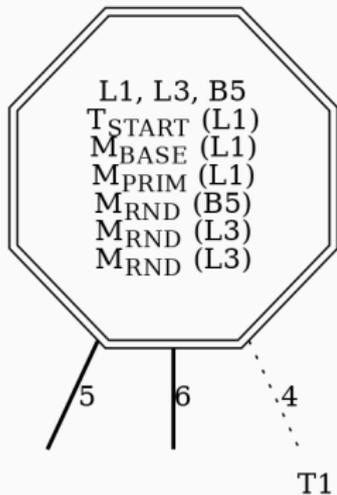
Logic Map Layout

LML is a graph of nodes representing zones, and edges, representing connections between them.

Each node contains a multiset of zone classes and a multiset of features (with a proper class associated).



Logic Map Layout

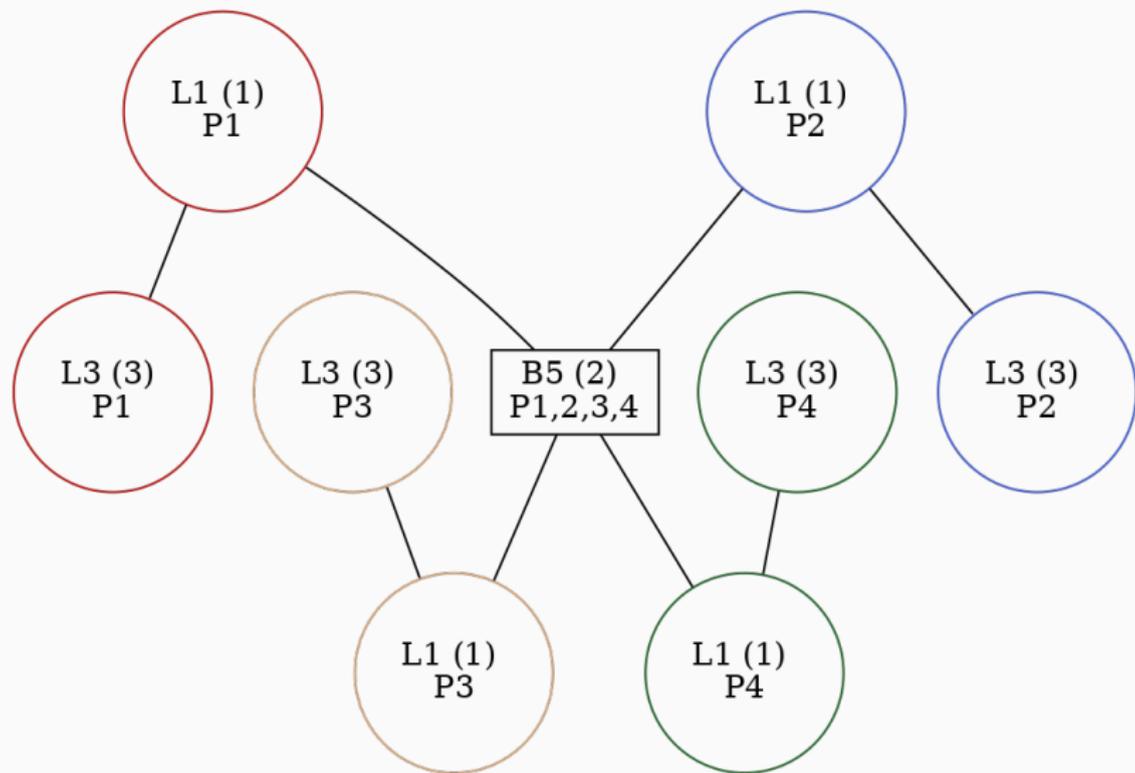


Multiplayer Logic Map Layout

Multiplayer Logic Map Layout

To create this graph, we make a copy of LML for each player. Then, we join these duplicated LML's via the outer edges and merge certain buffer zones.

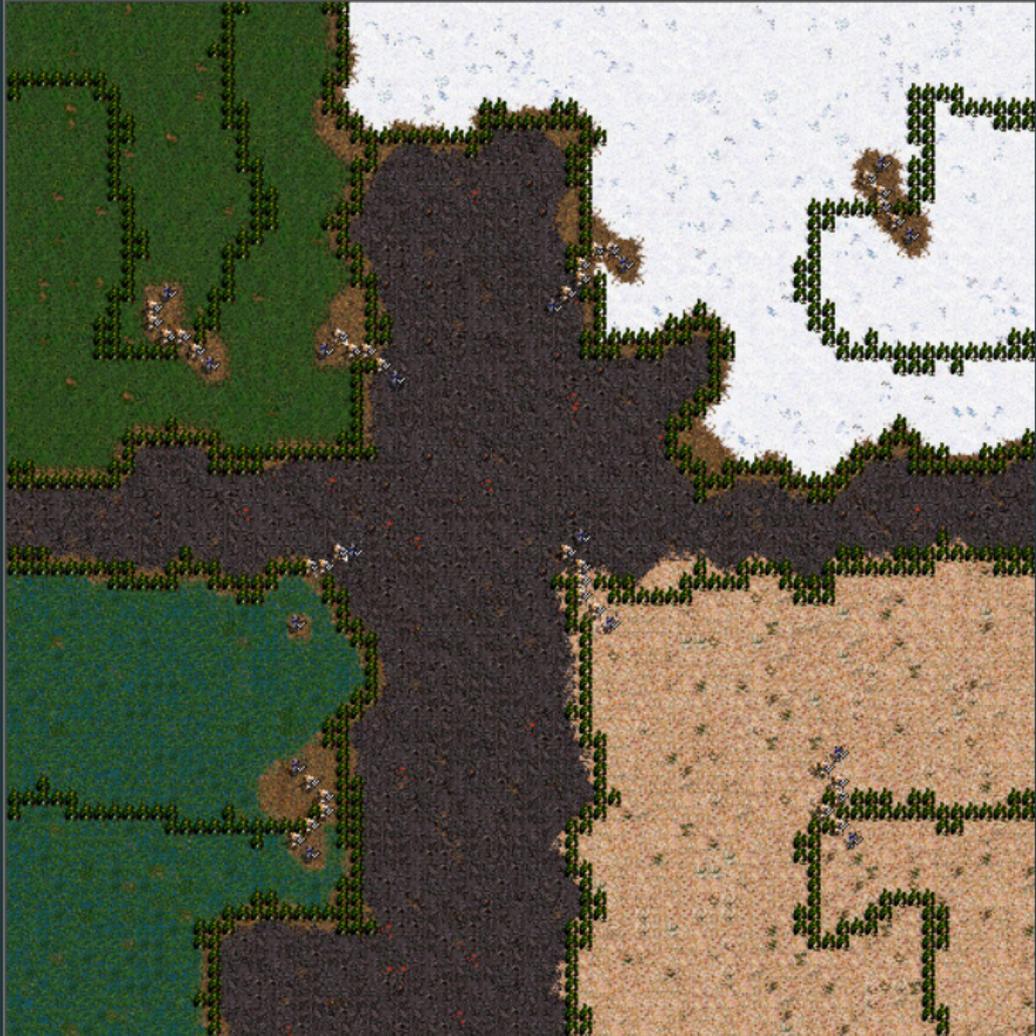
Multiplayer Logic Map Layout

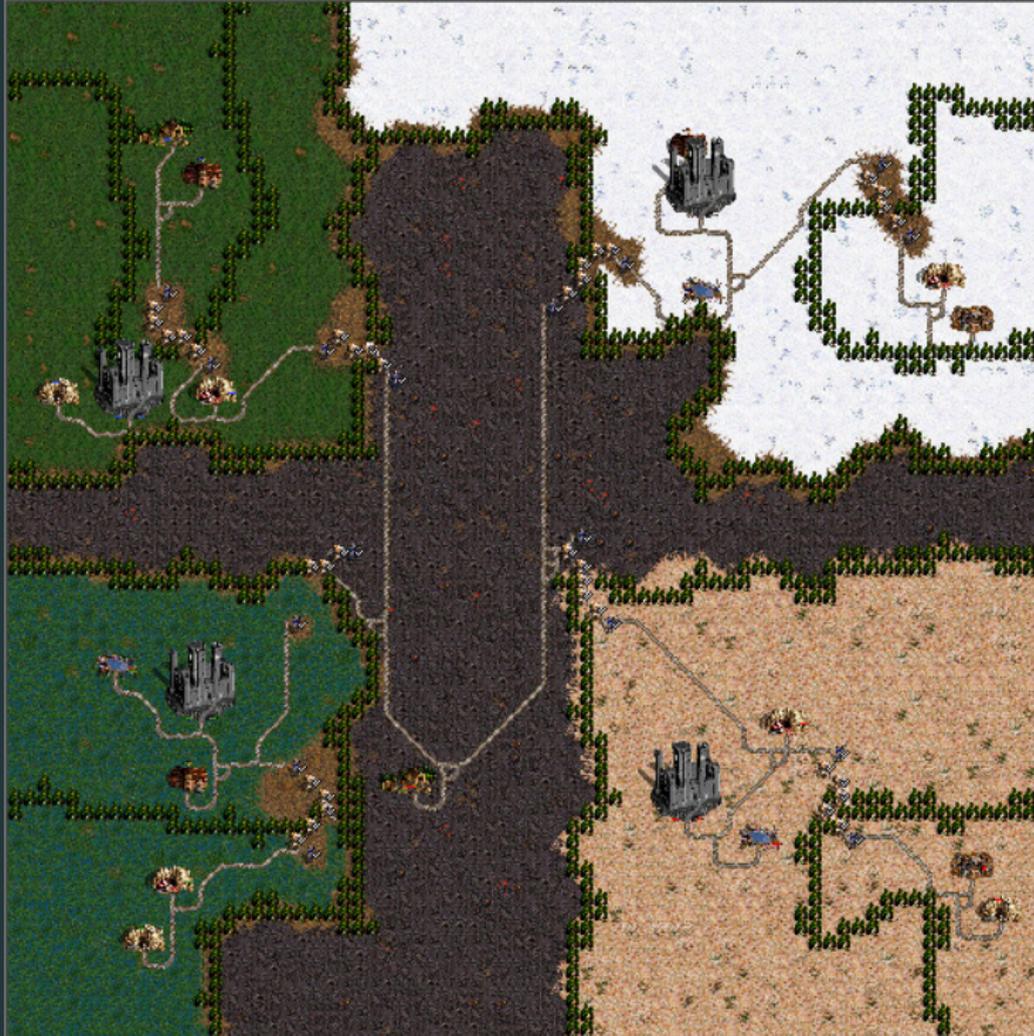


Strategic Features Placement



Results







Future work

- Actually finish the HoMM3 specific features, including water, undergrounds, whirlpools and grail.

- Actually finish the HoMM3 specific features, including water, undergrounds, whirlpools and grail.
- Come up with some evaluating functions after each stage, to check the performance and balance.

- Actually finish the HoMM3 specific features, including water, undergrounds, whirlpools and grail.
- Come up with some evaluating functions after each stage, to check the performance and balance.
- Work on some low-level features, like filling the terrain with various but adequate obstacles or predict player strength at given place and adjust the difficulty at this point.

- Actually finish the HoMM3 specific features, including water, undergrounds, whirlpools and grail.
- Come up with some evaluating functions after each stage, to check the performance and balance.
- Work on some low-level features, like filling the terrain with various but adequate obstacles or predict player strength at given place and adjust the difficulty at this point.
- Look into generating deliberately imbalanced maps, to handicap AI or increase the challenge.

- Actually finish the HoMM3 specific features, including water, undergrounds, whirlpools and grail.
- Come up with some evaluating functions after each stage, to check the performance and balance.
- Work on some low-level features, like filling the terrain with various but adequate obstacles or predict player strength at given place and adjust the difficulty at this point.
- Look into generating deliberately imbalanced maps, to handicap AI or increase the challenge.
- Apply similar approach to different games like Anno or Warcraft series, sharing some of the blocks.



Rank	Player	Land	Days	Score
------	--------	------	------	-------

1

Shandyr the Aw

Fight for the Sword Coast

288

426



2

Orange

Baldur's Gate 1

326

241



3

Sandro

Dead and Buried

75

200



4

Astral

All for One

100

190



5

Oris

Knee Deep in the Dead

125

180



6

Lord Heart

Fangs Winter

150

170



7

Alamar

Dragon Orb

175

160



8

Styg

Emerald Isles

200

150



9

Yog

Overthrow Thy Neighbors

250

140



10

Ajit

Search for the Grail

500

130



11

Iona

The Mandate of Heaven

750

120



CAMPAIGN

STANDARD

RESET

EXIT

Questions?