

Using ASP for procedural generation

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Abstract

TODO

1 Introduction

TODO tbd

2 Related Work

A. M. Smith and Mateas 2011 present a general methodology of how ASP can be used to generate high-level overview design spaces within games, showcasing a chromatic maze generator. A. J. Smith and Bryson 2014 explore how ASP can be used to generate hierarchical game environments. The authors build dungeon maps in two stages. The first stage is the high-level overview environment, which includes rooms and passages for each 6 by 6 region. The second phase then breaks down the regions into 60 by 60 grids, placing specific items and monsters. The authors found this approach to be computationally taxing, taking seconds to generate.

We try to combine these phases into one high level overview, providing a legal pathway between islands while assigning enemies, keys, and doors. We leave the specific placement of items within the room to the game engine.

Some other resources to read still:

- An Application of ASP for Procedural Content Generation in Video Games by Andrea De Seta, Mario Alviano
- DESIGNING A PROCEDURALLY GENERATED METROIDVANIA STYLE VIDEO GAME USING ANSWER SET PROGRAMMING by John Morris
- Applying Answer Set Programming in Game Level Design by Antonova, Evgenia
- PROCEDURAL GENERATION IN 2D METROIDVANIA GAME WITH ANSWER SET PROGRAMMING AND PERLIN NOISE by John Xu¹, John Morris²

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