Syntax

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1 Syntax of our language

This language will be a domain specific language specialising in the manipulation of tiles.

1.1 Backus-Naur Form

```
<program> ::= <tile-definitions> <tiling-rules>
<tile-definitions> ::= <tile-definition> | <tile-definitions> <tile-definition>
<tile-definition> ::= "tile" <tile-name> "{" <cell-rows> "}"
<tile-name> ::= <identifier>
<cell-rows> ::= <cell-row> | <cell-rows> <cell-row>
<cell-row> ::= <cell> | <cell-row> <cell>
<cell> ::= "0" | "1"
<tiling-rules> ::= <tiling-rule> | <tiling-rules> <tiling-rule>
<tiling-rule> ::= <tile-name> "->" <tile-set>
<tile-set> ::= <tile> | <tile-set> <tile>
<tile> ::= <tile-name> | <tile-rotation> <tile>
<tile-rotation> ::= "R" | "L" | "U" | "D"
<identifier> ::= <alpha> | <identifier> <alpha> | <identifier> <digit>
<alpha> ::= "A" | "B" | ... | "Z" | "a" | "b" | ... | "z" | "_"
<digit> ::= "0" | "1" | ... | "9"
```

1.1.1 Explanation

1. A program consists of tile-definitions and tiling-rules.
2. Tile-definitions allows you to compound multiple tiles together.
3. A tile-definition defines a tile with a tile-name and cell-rows.
4. A tile-name is an identifier that uniquely identifies a tile.
5. cell-rows consists of one or more cell-row.
6. A cell-row is a sequence of cell values.
7. A cell is either "0" or "1", representing an empty or filled cell, respectively.
8. tiling-rules specifies how tiles can be combined to form larger tiles.
9. A tiling-rule maps a tile-name to a tile-set.
10. A tile-set consists of one or more tile.
11. A tile can be a tile-name or a rotated tile.
12. A tile-rotation specifies a rotation of a tile, with "R", "L", "U", and "D" representing right, left, up, and down rotations, respectively.
13. An identifier is a sequence of one or more alphanumeric characters or underscores, starting with an alphabet character.
14. An alpha is an uppercase or lowercase alphabet character or underscore.
15. A digit is a number from 0 to 9.