

Specification

1. Types of maze cells and states that can be associated with a cell.

- WALL
- FREE SPACE
 - can be OCCUPIED
 - can HAVE OBJECT
- JAIL
 - can be OCCUPIED
- HOME
 - can be OCCUPIED
 - can HAVE OBJECT

2. States and attributes that can be associated with each player.

- States
 - can be holding multiples objects, one of each of the following types:
 - FLAG
 - HAMMER
 - can be JAILED
- Attributes
 - Team number
 - Player number
 - Location

3. The set of actions that a player can take.

- MOVE
 - Breaking walls: if wall is target space, and player is holding a hammer, move is valid, and WALL is converted to a FREE SPACE, the free space's color being determined by its column number. If all charges on hammer are expended (10 total), then the
 - If target space is freespace and you are JAILED, move is invalid
 - If freespace or jail and you are not JAILED, move is valid
 - MOVE can trigger CAPTURE PLAYER (see player interaction, takes team color of cell and captured player as variables)
 - MOVE can trigger JAILBREAK (see player interaction, takes team color as variable)
 - When a player moves over an object, they pick it up automatically, unless they are already holding an object of that type
- DROP OBJECT
 - adds object to FREE SPACE on player command, if FREE SPACE doesn't already have object, else object is dropped in closest available cell.
 - can trigger WIN (conditions detailed below)

5. Conditions and Rules associated with winning the game.

The game is won under the following conditions:

1. Enemy flag is dropped in your home base
2. All members of your team are currently in home base, implying that none of them are JAILED
3. Your own flag is in the home base

6. Semantics and Rules for the flags, home bases, and jails and how players interact with each.

Player Collision

- If MOVE causes player to overlap with another player check
 - If player is the same team
 - What type of cell this is and who it belongs to
- CAPTURE PLAYER: If on opposing teams and in a non-jail cell, the player in foreign territory is sent to jailed, and the JAILED attribute is checked for them. The other player remains in the same spot. If on opposing teams and in a JAIL cell, and player in foreign territory is not JAILED, that player is sent to JAIL and the JAILED attribute is checked
- If on opposing teams and in a JAIL cell, and player in foreign territory is JAILED, nothing happens
- If on same team, nothing happens

Rules for Flags

- Flags are picked up whenever a player passes over them, regardless of color. This prevents players of the same color as the flag from sitting on them and preventing the game from progressing. Flag will not be picked up if the player is already holding a flag.
- Flags are dropped if the player holding it is captured by another player
- Flags must be dropped manually, and can be dropped in the same spot as a hammer

Rules for Jail

- Players of the same color as the jail can move freely in and out of it.
- Players JAILED in the jail can move within the jail, but cannot exit
- JAILBREAK: Players not JAILED can move into an opposing team's jail to free JAILED players. Upon detecting the not JAILED player has entered the jail, all JAILED players in the jail are teleported back to their home base, and the JAILED attribute is removed. The player who freed them however remains in the same spot.