Chaotic Mind - A Top-Down Shooter in a Shifting Labyrinth

"Spinodal Studios"
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Title: Chaotic Mind

Platform: Windows PC

Premise: You are a brilliant physicist plagued by a terrible virus of the mind. The madness haunts your dreams and is siphoning off your thoughts and memories. You've already forgotten the first few decades of your life and will forget everything you have ever known if you don't take action. The only cure is to delve deep within the maze of your own mind and rediscover your past, ridding yourself of the madness which has wormed its way into the deepest and darkest corners of your mind. You enter a deep meditation and and confront the nightmares, wondering if you'll ever wake up again…

Game Structure: The game will be a top-down shooter that follows a Single Player vs. Game interaction pattern. It is set in a series of progressively harder grid-based maze-maps that the player must navigate through by shifting squares of the map around and defeating any enemies that they encounter. The player will collect a number of objects which eventually reveal the entrance of the next level. As a matter of story, each level of the game will contain objects from further in the protagonist's past. Each map will also have a final challenge that must be surpassed in order to progress to the next level. This will most likely be either a bigger enemy with more health, or a swarm of smaller enemies.

Player Experience Goal: The player should feel as the protagonist does, and progress through empathetic emotions from terror and weakness through to catharsis.

Action Slice: At any given time, the player will be engaged in a set of activities. At a high level, the player will be trying to shift the maze to get to the next goal object in the most efficient manner possible. Lower down, the player will need to be planning which movements they want to make with the character and which shifts want to make to the maze tiles. Not at all times, but quite often the player may need to defend themselves from enemy attacks, which could be accomplished through the use of weapons or carefully timed tile shifts. The player will be granted the ability to selectively pause the game in order to have time to consider the potentially complex set of information.

Maze Layout: See Figure 1. Each map will consist of a generated grid of tiles**.** Each tile will have four doors, one per side. However, none, one, or more of the doors will be blocked by debris, effectively giving them the following schematic layouts (rotated to all orientations): [ ], [ ], [ ], [ ]. The dimensions of the grid will be variable, with later levels likely having larger dimensions. The randomness of the pieces will result in separate passageways distributed through the map. The alteration mechanic of the map will be explained in a later section.

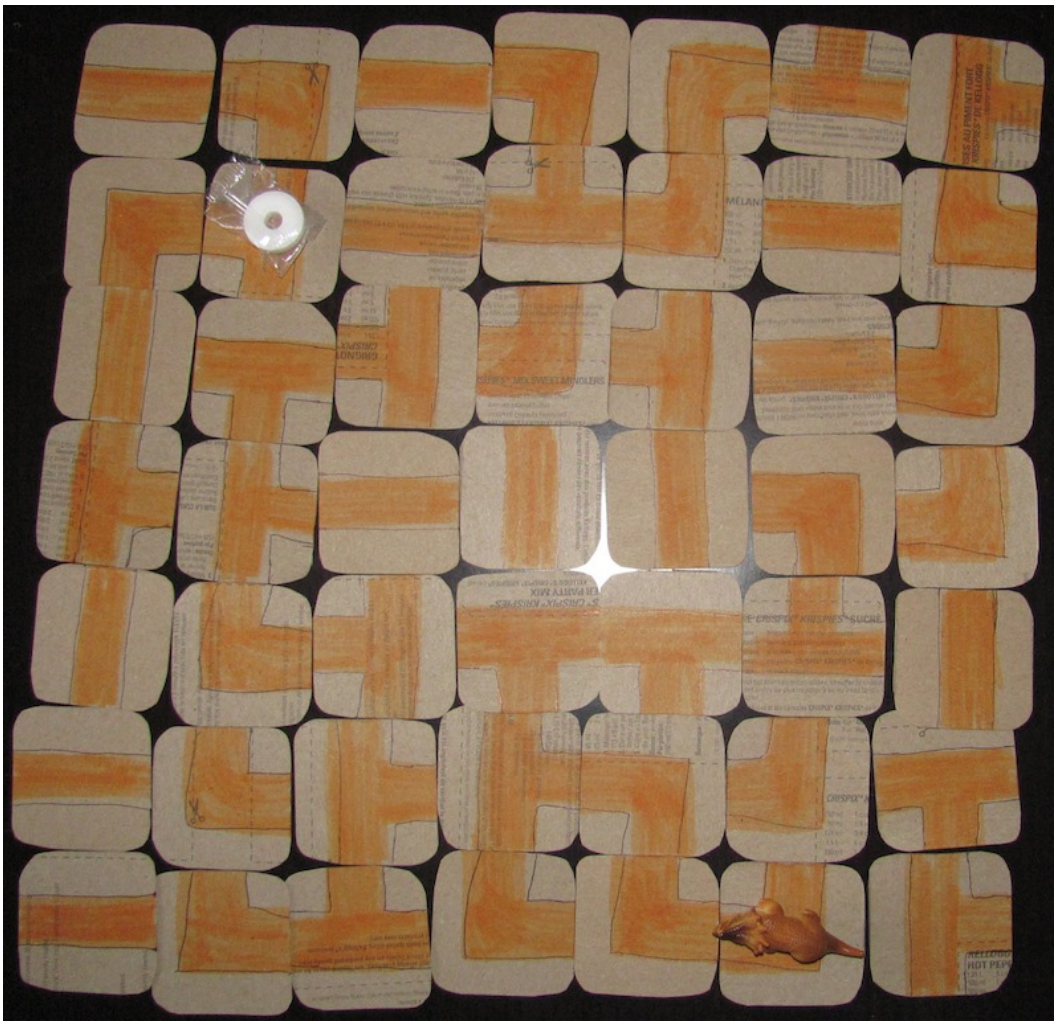

Figure 1: Fully explored maze

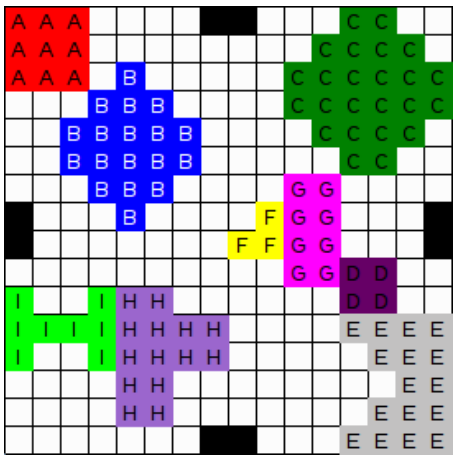

Figure 2: A single tile of the [ ] type

Tile Layout: Each tile will have its own interior grid to lay out the debris objects blocking doors. They will come from a pool of pre-fabricated objects matching the chaotic look and feel of the game. An example of a 16*16 tile with 9 pieces of debris is pictured in Figure 2, above.

This tile would be of the type [ ] since the right door is blocked by the debris in the room. The black areas are the spaces right in front of the doors and must be kept clear for every tile. This means that the player is always allowed to enter any tile from any direction, and observe its contents. However, the objects will be placed such that there is never a path from a blocked door in a room to any other door in that room.

Since the debris-map feature is secondary to the overall maze-aspect of the game, development will likely start with simple tiles, more resembling their schematic representation (As pictured on the game prototype pieces). Once the basic game mechanics are implemented, some of the team can devote more time to implementing it.

Exploration: At the start of the game, the player can only see the tile they occupy, the target tile, and the up to 8 diagonal and adjacent rooms to their current location (see Figure 3). All 8 are visible in order to give the player information on which to base their decision to shift tiles. The rest of the tiles are obscured by darkness, preventing the player from perceiving anything inside them. As the player moves through the tiles, the tiles that become “visible” are revealed (see Figure 4). Three possibilities present themselves for tiles that were once visible, but have become not visible. One possibility would be to keep them revealed to the player, so they could see everything that happens in the tile, another would be to return the tile to an unrevealed state, or possibly just show the structure of the tile without its contents.

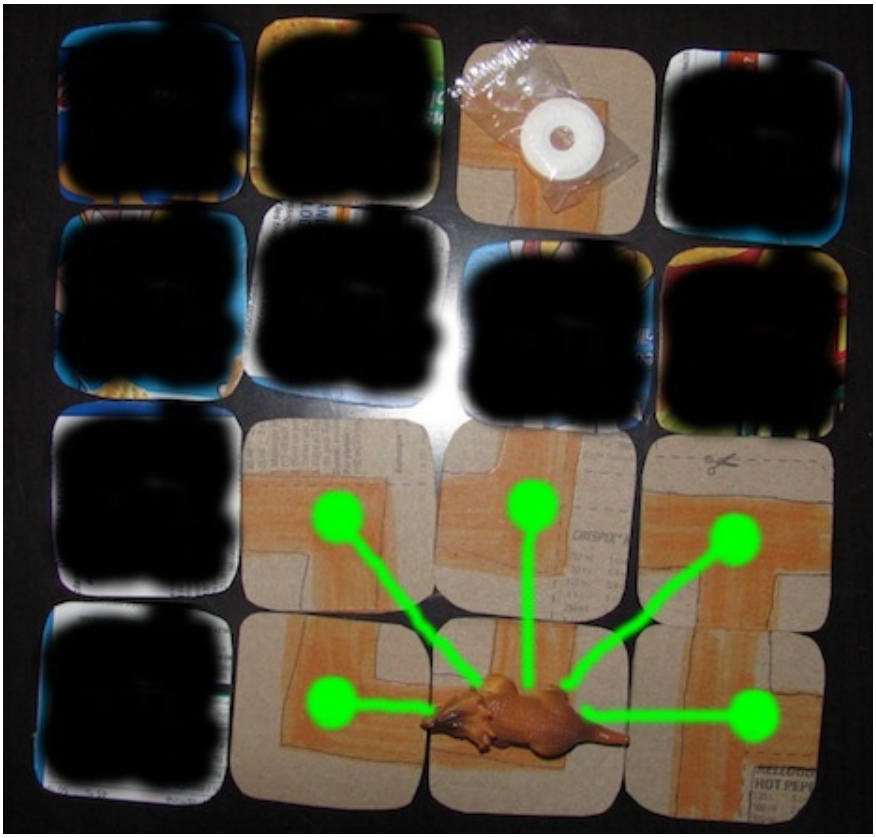

Figure 3: Initial start position

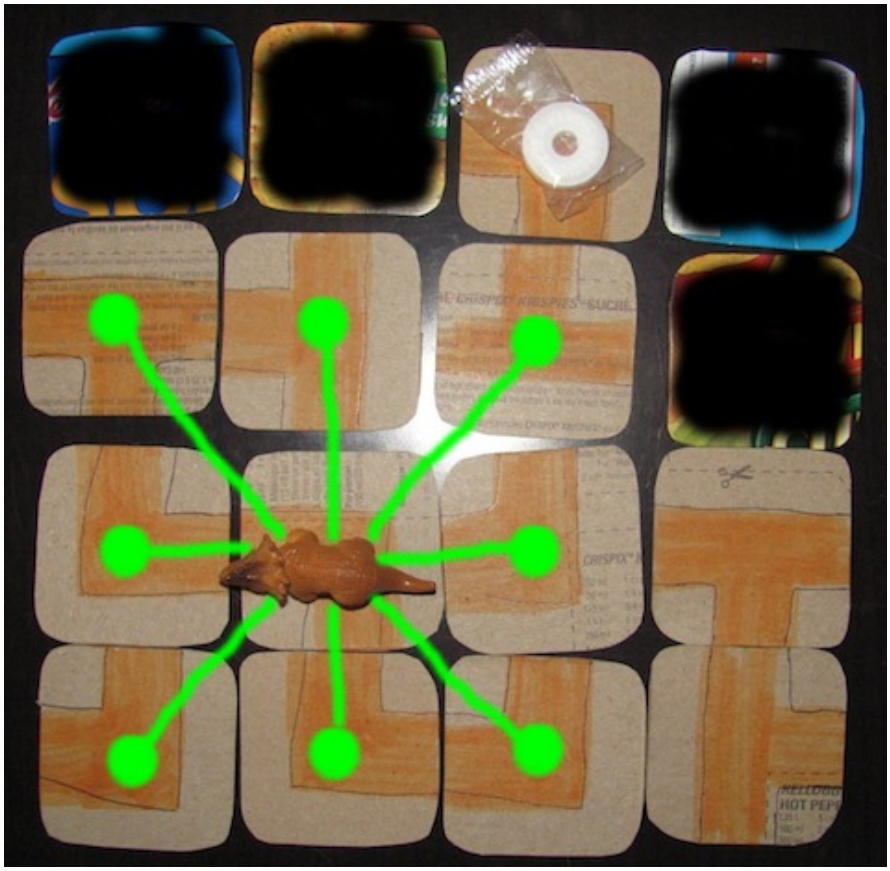

Figure 4: Player moved and discovered more tiles

Mechanics: See Figure 5. The player is able to remotely shift a row or column of the maze to open new pathways by inserting a new tile at one end of the row or column, pushing aside the others. This tile could be generated in one of many ways, as a blind random selection by the game, as a player selection from a random list of pieces, or as the last tile to be pushed off the grid. The sliding sequence is performed in this manner: Each tile in the row or column will have its doors closed, the rooms will shift to their new locations, and then the doors will open again. The effect of this is that the player and any enemies will be unable to leave or enter the shifting tiles. The maze may possibly be given the ability to shift of its own accord, possibly as a method of rewarding or punishing the player.

While testing playability, we will decide if the player should be allowed to shift the object off the map and lose it (and the level), or if the game will prevent the tiles from being lost. Currently, the goal tile may be shifted, but may not be shifted such that it drops off the edge of the map. When it reaches an edge, the only valid operations on the corresponding group of tiles are to shift the goal tile away from the edge or along it.

To prevent players from directly shifting themselves into position to grab the goal object, an amount of enemies will appear and swarm the player on each shift. This ties into the premise in that shifting the maze upsets the natural order of your mind, letting the mind-virus know where you are and provoking it into trying to stop you.

A particular tile's representation on the minimap (explained in the HUD section) shows the layout of the tile as one of the simple forms previously described, to provide the player information that they can use to make their decisions on tile shifts.

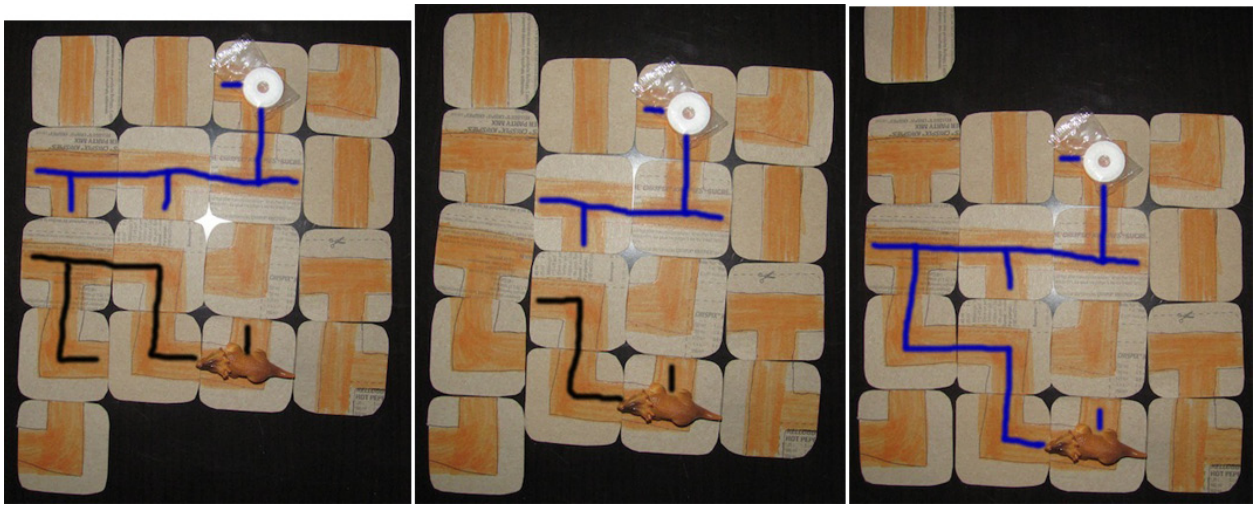

Figure 5: Shifting the leftmost column up to create a path to the goal

The player will be equipped with a few simple weapons outlined below, in order to eliminate the enemies they encounter. Since these could not be play-tested on paper, they will be tweaked as the development progresses. The player may also have "magic"-style attacks, which will possibly do things other than kill the enemies, such as convert them to the player's side. The magic abilities may be implemented as cool-down (limit frequency of use) or as a mana cost (drain a pool that refills at a set rate per unit time), depending on their end purpose.

Possible Weapons:

- Conventional-style:
  - Gauss gun
  - Lasers
  - Lightning gun
- Magic-style:
  - Disprove existence (weak area-of-effect)
  - Quantum unsettling (strong area-of-effect)
  - Neuroplasticity (some enemies become friendlies)

Player Health: The player will also have to maintain their level of "sanity", which will act as their health throughout the game. Each successful enemy attack will degrade this health, and each story item collected will restore it. Health may be implemented as part of a level or as part of an entire play-through; this a decision to be made as part of play testing and balancing.

Enemy AI: Enemies will be able to find their way through open pathways in the maze. The path-finding algorithm will be straightforward given the regular pattern of the maze. The overall maze has a max of 4 nodes per tile for the large-scale path-finding, whereas the individual tiles have their own limited-size grid map. As development progresses, we will be tweaking how far the enemies can move toward the player, so as to not allow them an unfair advantage. They will also be following some sort of swarming pattern, rather than moving directly at the player.

Graphics: As previously mentioned, Chaotic Mind is a Top-Down Shooter. We plan to implement this as 2-dimensional sprites. Sprite detail could vary from the very basic to the complex, depending on the development time allocated. Particle effects are a possibility as a method of presenting the effect of weapons and/or enhancing the movement of objects and tiles. Tiles will be rendered as a grouped collection of smaller sprites.

User Interface: The in-game user interface will display the player's sanity level, a schematic representation of the tiles of the map (only known tiles will show paths through them), the tile(s)

the user has to shift with, information on which weapons are selected, and currently selected powers (tentatively called focus powers/will powers for the moment).

The user's sanity will displayed as a two-colour bar, where one colour' area decreases as the player gets closer to madness.

The minimap will feature highlighting of the tiles accessible to the player from their current position to ease their planning. The minimap will also be mostly transparent so that the player can be playing on a large map without it obstructing gameplay.

The tile(s) that the user is able to use in shifts will be displayed near the bottom of the screen, as to not interfere with the main action. The currently selected weapon(s) and focus/will power(s) will be in the same area. The powers with cooldowns will have a graphical representation of how much longer it will take to becomes usable again.

Since the game makes you think quite a bit about shifting, it would be frustrating for the user to have to be fighting off enemies while trying to analyze the maze for advantageous shifts. For this reason, when the user presses a certain key, the "shifting" menu will appear and the game will pause. The shifting menu will be where the user can shift the tiles. The main feature of the shifting menu is a larger and more detailed representation of the map. There will be areas around the map which, when clicked, allow the user to place a tile they have (allowing for rotation as well), in order to shift it in. When they confirm the choice, a shift will be queued up and the shift menu will close. The shift will then take place in real-time while the player is roaming the map.

Development System: Chaotic Mind will be developed in Visual Studio 2010 Ultimate edition. It will be coded in C# using the XNA framework for graphics and interaction, and the Farseer Physics Engine[1] for 2-dimensional physics.

Music: To enhance player incorporation[2], we have preliminarily selected music that promotes the feeling of active puzzle solving though a driving iterative melody and beat. The genre of the music is mid-tempo electronica, which aids the sensation of action that the game may deliver as a shooter. Either continuous or discrete delivery of the music is conceivable, with the choice depending on the time length of the average level. The proposed selection can be found in the album *Kinetik* by Phutureprimitive[3].

[1] http://farseerphysics.codeplex.com

[2] Calleja, Gordon. In-Game: From Immersion to Incorporation. MIT Press, 2011.

[3] http://phutureprimitive.bandcamp.com/album/kinetik