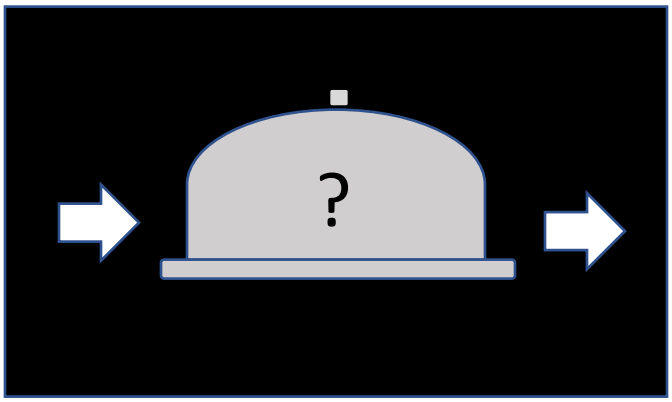


Black Box Kitchen

Callandra Ruiter

Overview

Black Box kitchen is a puzzle/memory game where the players try to assemble a recipe based on a prompt given to them. The prompt consists of three variables. The player has all of these variables available to them from the get-go, but there's a catch – all of these variables are the result of individual processes in the shape of indistinguishable boxes. It's up to the player's problem-solving skills to figure out which boxes contain the variables they need and memory skills to remember the results from previous tests. If the player completes the recipe within the time limit, they move on to the next, which changes the recipe (using the same variables given to them during the first level) but ups the challenge by reducing the amount of time per level.

Influences

The [food]-eria series: Like the series of [food-type]-eria games (ex. Cupcakeria, pizzeria), the player must assemble a dish together based on a prompt within a given time limit. There are only a few variables that each game is based around, but these prompt can have some variety to them nonetheless.

Standard memory games – specifically the one where the player tries to match tiles. The tiles face away from them, and they try to remember the location and image of the ones they've already checked.

The elevator Pitch

Players have to remember the results of failed guess-and-check problem-solving to complete a recipe.

Project Description (Brief):

One of our analyses had us focusing on 'systems' in games, and I was thinking about how to get creative with that. One topic that came to mind when thinking of unusual systems is black box problems – problems where you feed an input in and have to determine what process occurs in the box through examining its output. From there, I thought a fun way to play with that was by having to *make* something with these unknown processes, then the rest came about with trying to make that feasible and fun.

Black box problems in general are kind of interesting in the way they can give insights into the way that we problem solve, and this game wound up having elements of that as well. As we discovered in class, it's cool to look at the way that different people try to solve similar problems, from an organizational standpoint to what they do when they realize they've made a mistake.

Project Description (Detailed)

This game will have at least 5 recipe cards, each of which serve as the level's puzzle. Each card will have three variables, which function as the 'recipe' that the player will have to match. These cards are shuffled, and one is drawn at the beginning of each level. If we were to expand into harder difficulties, the number of recipe cards as well as the number of ingredient variables required for each could be added to.

The ‘variables’ are in the form of small slips, which are grouped together by variable into identical boxes. The player cannot see inside these boxes, and does not know (at the beginning of their game) which box contains what variable. Players must test boxes three at a time. A template is provided as a designated testing spot (with outlines for placing the three boxes) but I feel like that could be foregone if necessary. Still unable to see inside the boxes, the player draws a slip from each and shuffles the slips around so that they do not know which slip came from each box. Then the players are allowed to see the three variables that they’ve lined up.

From there, they can replace or keep the boxes as they see fit to try to figure out which box contains which variable. Depending on the desired level of difficulty, a grid can be provided to the players to help them organize and keep track of the boxes.

Each round, the player has a limited amount of time to complete the designated recipe. The time begins at 2 minutes (though this can be amended for difficulty), and decreases as the player passes the rounds. The second round would be a minute thirty seconds, then one minute, then from there forty-five seconds. The time limit should cap at thirty seconds.

For additional difficulty, more recipes and associated boxes and variables can be added to the game. Alternatively, the recipes can be lengthened to require four or more variables – this would also increase the number of boxes tested at once, and would make the game significantly harder.

What sets this project apart?

I think that while memory and assembly games aren’t really anything new, this spin on them is interesting! In this game, the guess-and-check of memory games are given additional layers: mainly, the process during the guess-and-check portion, and the overarching puzzle behind it. There’s also the element of organization and thought process: as pointed out in class, watching

the way that different people approach problem solving can be both incredibly interesting and very entertaining.

Assets Needed

The current version of the playable prototype includes:

- 9 identical boxes – currently, they are made of thin cardboard and tape.
- 9 sets of 15 slips (the variables)
    - These names of these variables are printed out and glued onto the same thin cardboard, then cut out into small rectangles
    - The current prototype includes variables: frying, baking, boiling, seaweed, rice, egg, dough, tomato sauce, and noodles
- 5 recipe tiles
    - These are constructed the same way as the variables, only larger, with both the recipe name and the variables required listed
    - The current prototype includes recipes:
        - Marinara Pasta: Noodles, Boiling, Tomato Sauce
        - Lasagna: Noodles, Tomato Sauce, Baking
        - Custard Tart: Dough, Egg, Baking
        - Egg Fried Rice: Rice, Egg, Frying
        - Musubi: Rice, Boiling, Seaweed
- A timer – So far, players have just used a timer on their phones
- Two simple grids
    - Currently these are three-by-four, with the area slightly bigger than boxes
        - Currently, one of the grids is colored in blocks of two, with one set of two boxes left blank
    - I plan to revise this to four-by-four grids, possibly
        - I plan to color one of the grids in rows of four
    - These are made just by printing the grids on paper

Playtests:

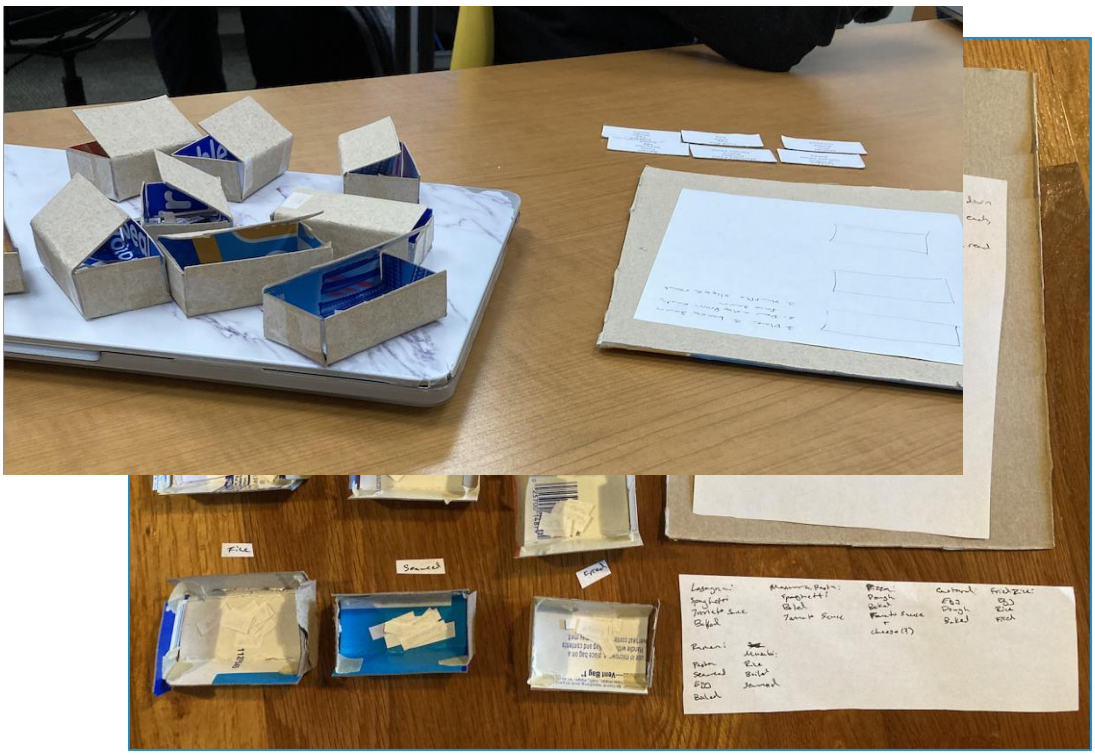
The first set of playtests were held over Thanksgiving break with my sister. These were less usability, and more proof-of-concept. She was a good sport about things (including pretending not to see the variables when they spilled), and I revised the game several times based on her suggestions. The first major change, the timer was added, then the rule about the allotted time

was created. This helped the player to continue to feel at risk of failing even as they began to memorize which boxes held which variable. The second major change had more to do with the construction: the slips of paper that I'd put the variables on were both non-uniform in size (allowing the player to accurately guess which variable they had even when turned away) and very very hard to pick up. I addressed this by changing their construction to a uniform size that was backed with cardboard.

The next set of playtests was a little chaotic. The playtesters didn't really read the instructions through, and as such didn't know what they were doing. Or just ignored some rules entirely. Alivia suggested giving the players a grid (with or without color, depending on difficulty) to help them keep track of the boxes they'd tested. I revised my build based on this suggestion and added two four-by-three grids, one of which was colored in blocks of two.

In the next set of playtests, Ben actually read the rules and tried to play by them. I think that this helped the game immensely. It also became something of a spectator game, where several members of the audience heckled the player. The addition of an audience also helped make it apparent that the player's thought process being put on display was something of interest. Feedback from that set of playtest included revising the rules on several notes: mention the grid and specify what it's for, expand the grid (four by four, maybe?), and specify when the timer should be started. It was also put to my attention that the variables on the recipes did not match the variables in the boxes (ex. 'frying' vs 'fried'). I plan to remake the assets in question for the presentation next week.

The first paper prototype, tested with my sister.



The second playable prototype, tested in class.