Gameplay Design - Assignment 3D: Trial of the Mad Dog - Written report of Game Design Concept

Group 15

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1 Abstract

In this report, we present the design concept of the game Trial of the Mad Dog. Trial of the Mad Dog is a board game played by four players and is meant as an enjoyable experience targeting casual players that hope to find some minutes of enjoyment in each play session. This paper showcase the game rules, its theme and its conceptualization to prototype development stages. Additionally, we describe how in-house play testing and the player feedback helped to shape and enhance the prototype and overall game experience.

1.1 Paper Structure

At the start of the paper, a detailed game description is provided. This is done without using any of the concepts from the related literature, because the purpose of that section is to be understandable by all readers, regardless of their previous knowledge in the field of game design.

Next, we look into the back story supporting the game, afterwards analyzing how the presentation in both, gameplay and visualization terms, complement that backstory and tone. Moving on with the game's description of the core and secondary gameplay. This section focuses on how the game is played, on its rules and regulations, and which mechanics and game design patterns are used to construct the gameplay. Further explaining the interaction and application of these patterns and mechanics we use a model created with Machinations[24] and an i* model created with Creative Leaf[11] to showcase that interaction, while explaining the reasoning behind each design.

Next, we present several game competitors and how they differ from our game. These games, when mentioned, have a brief explanation of their concepts that are shared with our game, as well as differences captured in our game that makes it unique in comparison to the competition. Going ahead, we explain how we are planning players should learn the game. This assumption is based on data gathered through early play tests of the game.

Advancing the paper is the process used to create the design concept. With the subsections of first prototype, play test and iterative refinements, this section includes the process of the prototype design, the methods used and how they helped with the conceptualization and creation of the playable prototype. The play test subsection, focuses on the data gathered from players that tested the game during the play sessions. In section iterative refinements we describe how we approached the process of making changes that were made as a reaction to the feedback we received.

Concluding the paper, the possible future changes to the concept are mentioned.

2 Introduction

"Cops and Robbers is a fun game that almost everyone recognizes". That was the first line that sprouted the idea for the Trial of the Mad Dog. A game based on the simplicity of Cops and Robbers. Cops chasing robbers around and robbers trying to flee with a precious loot. A simple and familiar idea to most potential players. However, the translation of this game as a form of play to a game

meant for gamers gives the potential for the addition of more complex themes and game rules. This was our main drive to go through with this idea and not with some of the first ones.

2.1 Literature used

Throughout the text we use the concepts of game design patterns and mechanics. For the game design patterns, we use the definition provided by Björk and Holopainen [36]. In the text, game design design patterns are visually indicated by *Italic Font* with the capitals at the start of each word. We use the mechanics as defined by Sicart [40]. The mechanics are visually indicated by **Bold Font** with the capitals at the start of each word. For this game we always portray the players as agents. We also use the MDA model, which stands for Mechanics, Dynamics and Aesthetics, provided by Hunicke et al. [38] for a further indication of how the game design patterns affect the gameplay. To describe the process used to create the design concept, we refer to the methods used in the book by Fullerton [37].

3 Game description

In this section, we provide the description of the game. The idea for the description is to be understandable by a broad audience. For that purpose, in this section, we have not used any of the concepts of describing the game structure mentioned in the section 2.1.

Trial of the Mad Dog is a board game for four players played with dice on a 12x12 tiled board. It is inspired by the famous Tag [30] game using the Cops and Robbers theme and setting. The game rules are elementary to understand and play, as the main focus revolves around the interaction of the players. This interaction is achieved by having all players against each other having to gather as many money bags as possible from a common resource pool. Enhancing this interaction is the introduction of the police officer player, who seeks to capture the robber players instead of collecting the money bags. This is made possible due to the fact that the police officer character, although with no access to the resource pool directly, can capture and eliminate other players, effectively acquiring their current loot. This asymmetrical gameplay is shared to all players in the span of four rounds, each giving the chance for another player to play as the officer. The sum up of all points gathered in these four rounds dictates the winner of the game.

In detail, the game starts and one of the players is the officer and the others are the robbers. Each player starts at one of the four corners of the board. The board has tiles blocked with building avatars, preventing passage through them. This makes the board have clear road tiles and how the players can move through them. On the board there are avatars of moneybags placed on predefined tiles. The robbers' goal is to gather as many moneybags as possible, each worth of one point, and exit through their designated exit tile. Each exit tile is unique for each robber player and placed opposite of their starting position. The first turn belongs to the robber sitting on the right of the police officer player and then in a counter-clockwise fashion, each player takes their turn. The round ends after all robbers are out of the board. Either because they have been caught, or because they have escaped through their exit tiles. On each round, the player that started the previous round is now the officer player and all moneybags and robber avatars are reset on their starting positions. By rotating the board 90 degrees makes it easier to pinpoint which avatar belongs to which player. After four rounds the game ends.

Movement is achieved through the roll of dice. One die for robber players and two for the officer player. The players spend all of their movement points (points are given from the dice roll) on their turn. For a robber player the amount of movement points given is equal to dice roll. The police officer player gets to roll two dice and chooses the highest roll of the two, giving them an edge on the board. The officer, when only one robber is left on the board, enhances their movement by adding the sum of the two dice roll instead of picking the highest one. The most interesting (and according to play tests the most difficult aspect of the game) is players making turns on the board. The movement is dependent on the avatar's orientation, meaning that the players need to rotate their avatars in order to change their forward direction (players are only allowed to move in a forward direction). This is done by having each 90 degree turn consume a movement point. As an additional limit, a player can perform a 180 degree turn by spending two movement points (one for the police officer player) and only if they initiate their turn with that move. Once they have moved to another tile they lose that opportunity (within that exact turn).

For robbers to gather moneybags, they simply need to pass through a tile that contains one, so they can get more than one moneybag on one turn. Similarly, the officer can capture robber players by passing through the tiles they are standing on. When robbers get a moneybag, they add it to their loot. They only add their loot to their overall score after the successfully exit the board. If they get caught, they hand this round's loot to the officer and remove their avatar from the board. The officer cannot gather moneybags from the ground and can only get points in this round by capturing other players.

After four rounds end, the players compare their overall score and the one with the highest score wins. A draw is a valid end game state.

4 Thematic and diegetic aspects

In this section, we regard the usage of the terms "thematic" and "diegetic" as presented in the article by Vella [41].

In this section we discuss the game's back story, as well as its presentation and how it is shown through the game's visuals and gameplay. Additionally, there are some aesthetics that we wish to achieve.

4.1 Backstory

1920.

The year is marked with the culmination and peaking of the underbelly of Feiht City. A city once known for its grand and imposing presence in the industrial world, now lost to the depravity of lawlessness. From petty thieves to brilliant orchestrators of crime, Feiht City has become an underling to mobsters and gangsters. These individuals of questionable morals are infesting the misty streets and shadowed alleyways with dark bargains and dreadful deals. The smoke and steam released by the factories and workshops of old, now cloak muggers, crooks and other night-crawlers.

Above them all sits John "the Mad Dog" Black. A cunning and ruthless man that has the city within his grasp. He prides himself as a gambling entrepreneur and will go out of his way to spectate a challenge unravel and people struggling to overcome it. Controlling everything above and below ground with an iron fist, the Mad Dog, has decided to further his expansion and influence to territories unknown. However, for that achievement to be obtained, this businessman of unsound mind, will need new recruits. Recruits that will first need to prove themselves worthy of joining in. This, however, is no easy task as the Mad Dog has very high standards from the people that work for him. He surely knows this, as he has used his power and clout to coordinate an absurd challenge for eager candidates to participate in. He has scattered all throughout the city separate moneybags and issued a Trial. A Trial for the brave, or foolish, enough to collect and present them to him. The person with the most moneybags would win the challenge and have the privilege to join in the ranks of the Mad Dog.

The Trial is to be completed in four days time and the Mad Dog has ordered the moneybags to be replaced on each day. Of all candidates that could appear, only four police officers have shown the interest and will to complete this Trial. However, they cannot gather the moneybags while on duty. People would know they want to work for the city's most potent kingpin. Their reputation is on the line and, in a city like this, what would they be without it?

They need not worry about that, though. They can always eliminate their competition by catching the other competitors on their day of work and spend the rest competing out of their uniform. After all, arresting participants can give them access to their loot. As for their arrest, nothing a little bribe from the arrested cannot fix. They get to walk next day and they can keep the loot for... well, personal use.

Who will rise and prove themselves worthy to join? Who can best the challenge and finally begin anew? The clock is ticking! The days are passing! The Trial of the Mad Dog begins.

4.2 Presentation

The story as described appears moody and with a heavy theme until the mention of the police officer trying to enlist themselves into the ranks of the mob boss. This mixture of tones is to make light of an otherwise serious matter, that of corruption and organized crime. The players should feel as if they are

joining a crime comedy like those seen in movies like "Snatch" [29] or "Lock, Stock and two smoking Barrels" [21]. The feeling of Fantasy aesthetic is what we aim to invoke with the presentation.

To accomplish this, we focused on two things. The gameplay mechanics and how they represent and support the story given and the look of the game. Though the latter to be explored completely lastly in the development process, as a focus on asset creation on a not finalized game can lead to hours of commitment that must be discarded due to changes.

4.2.1 Presentation through the gameplay

A game of Trial of the Mad Dog lasts four rounds. These rounds represent the days passing as the Trial takes place. On each round, moneybags are distributed across the *Game Board* [19] to be picked up by the robber *Characters* [7]. On each round, the moneybags are replenished, thus showing the replacement the Mad Dog has ordered his henchmen to do in order for the Trial to continue. Additionally, the game is played with four players, who represent the four candidates to join in the ranks of the mob boss. On each round, a different player gets to play as a police officer *Character* [7] who has advantage of the stronger *Abilities* [1] than the other robber *Characters* [7]. Although the officer player cannot gather moneybags from the ground, they can capture other players *Eliminating* [15] them from this round and taking away this rounds *Loot* [22] they have gathered so far. This shows the mentality of the *Characters* [7] as lawful police officers doing their job when on duty, while taking the bribe of the caught players so that they can continue pursuing their goal on the next day. Either as an officer or as a robber. This gameplay loop of four days exchanging roles of who gets to be on duty (thus this rounds officer player) serves both, as Narrative and as a Challenge aesthetic. The players strive to get as many moneybags as possible, while keeping a low profile when on duty. The players, as well as their *Character* [7] counter-parts, do not work with one another, however, with the presence of the officer *Character* [7] there is interaction among them. Either directly, by the officer actively chasing other players, or indirectly with the robber players giving "suggestions" as to whom should the officer chase next. Thus, leading to the Fellowship aesthetic.

4.2.2 Presentation through visuals

The back story describes misty, dark and filthy streets. Only traversed by suspicious personalities that appear as shadows on the smoke and steam generated from neighbouring buildings. Feiht City is a urban city and as such should have a sense of scale, both vertically as well as horizontally. In the prototype stage, we showcased this by having a rather large board (divided into tiles) and forcing players to exit to a tile opposite of their starting position. Additionally, we have made 3D assets to make buildings that block the way and naturally form the in-between roads and also because of their height give out a sense of a vertical scale. We made a prototype with buildings 15 cm tall which was inconvenient because the building blocked the view for the players. We cut the buildings in half, which still included the same problems. Finally we choose to use building only one cm tall. To capture the heights of the buildings we added top-down shots of real world buildings on top of the building tiles. Further down into development we aim to use similar methods for making the building assets and game board, with hand drawn pictures to accomplish the feel and look of 1920's New York type of building looks.

For the player *Characters* [7], 3D sculpted models for the thieves is thought as figures with big cloaks and hats hiding their faces. This is crucial to the narrative of the game as the robbers are essentially officers off duty in hiding when conducting the procedures of the ensuing Trial. The robber models should have a colored variation or some mark that would help players know with a quick look which *Avatar* [3] is theirs for this round (possibly different colored hats). Furthermore, the officer *Character* [7] should have bright colors of their uniform and strike a confident pose, as this *Avatar* [3] model is considerably different than the robber ones. Finally, all *Avatars* [3] should have something in their pose that shows their current direction of **Movement** as knowing the direction of a player *Character* [7] at all times is a major gameplay element. This is achieved, in the prototype stage, with train *Avatars* [3] (representing robber *Characters* [7]) with a pointy front, and a Stormtrooper pointing forward as the officer *Character* [7]. In latter stages of development, when the models are made, the robbers will have a leg sticking out of their cloak indicating a step being taken. The foot shows the direction. For the officer player, the officer avatar blows a whistle and points forward, thus showing their direction.

4

5 Core and secondary gameplay

The core design of the game focus on players switching the *Characters* [7] with altered *Abilities* [1] and *Asymmetric Goals* [2] during one gameplay session. Four players are playing four rounds of the game, while each of them has to play a police officer *Character* [7] exactly one round and a robber *Character* [7] exactly three rounds. Players are *Taking Turns* [35] in **Dice Rolling** which dictates the length of the **Movement**. The game is played on a predefined *Game Board* [19] with evenly distributed *Loot* [22] in a form of money bags and three exit points for each robber player to finish the round at.

5.1 Game board

In the Figure 1, we can see a mock-up of the game board. The explanation of the *Game Board* [19] layout is following:

- **Starting Position**: These are the places where the four players start every round.

- **Street Tiles**: These are the places where Robbers and Police Officer can move freely in order to achieve their respective goals.

- **Moneybags Tiles**: These are the tiles where the moneybag tokens are placed.

- **Building Tiles**: These mobile tiles represent inaccessible places for both Robbers and Police Officer.

- **Exit Tiles**: These squares, which are located on the opposite corner from Robber's starting squares, allow Robbers to successfully escape, together with the moneybags they are carrying at that moment.

This mock-up represents, in a visually easier way, the final state of the prototype *Game Board* [19].
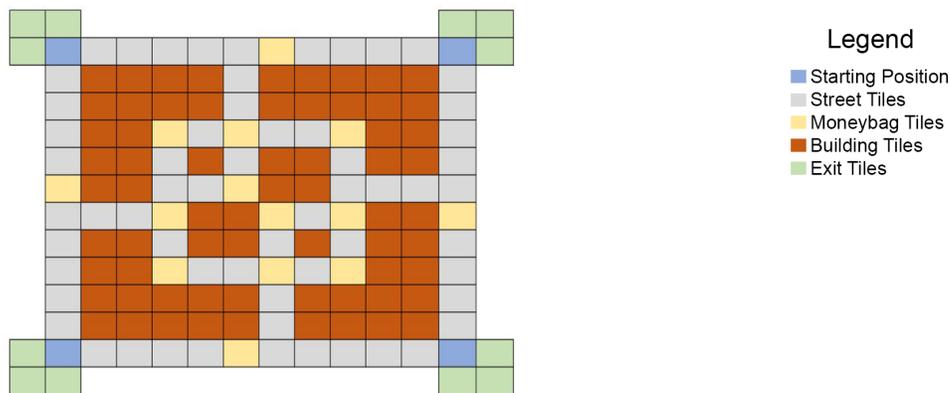

Figure 1: Initial game board set-up.

5.2 Robber gameplay

When playing a robber, players try to reach their predefined exit which is visually indicated by the colour of the player's *Avatar* [3]. While **Moving** towards the exit, they strive to **Collect** as much
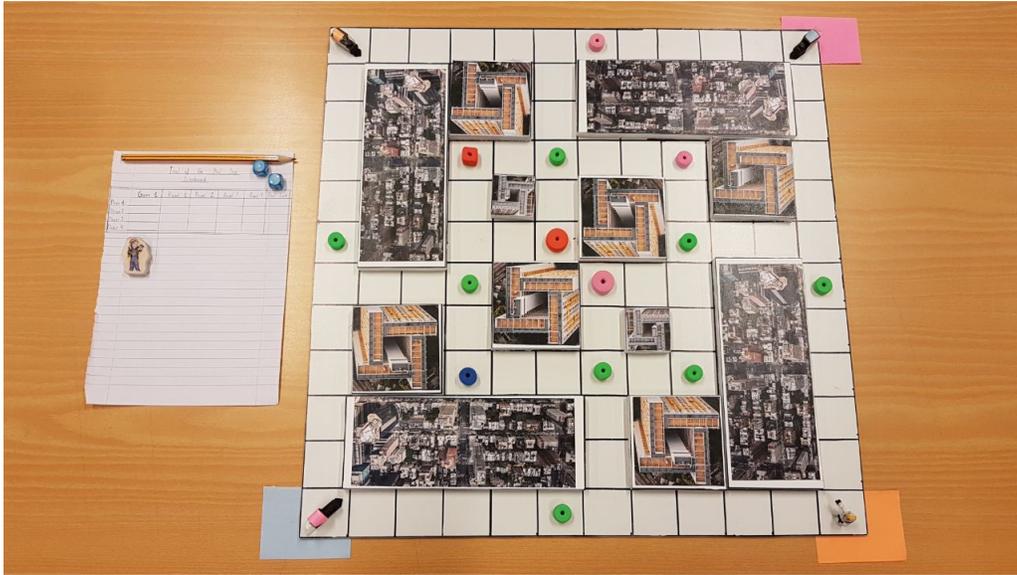
Figure 2: Initial game board set-up.

Loot [22], in a form of a coloured tokens as seen in a Figure **??**, as possible. The **Collect** mechanic is invoked as a secondary mechanic by performing **Movement**, when player crosses the *Loot* [22] during his **Move**, he can pick it up and count towards the temporary *Score* [28]. The *Score* [28] is add to final one only when the robber successfully reaches the exit in the round.

While **Collecting** the *Loot* [22] and trying to reach the exit, players needs to plan their **Movement** to *Evade* [17] the police officer *Character* [7] crossing their current position, as they would be immediately removed from the current round and lost all of their *Loot* [22]. While performing the **Movement** mechanic, several restrictions are applied:

- When making a 90 degree turn, one movement point from the **Dice Roll** is lost.

- When starting the **Move**, players are able to turn only 180 degrees (loosing two movement points effectively).

- When the move has started, players are able to turn only 90 degrees at a certain spot (loosing one moving point effectively).

5.3   Police officer gameplay

Playing a police officer *Character* [7] introduce several advantages in the **Movement** mechanic in comparison to the robber gameplay:

- When starting the **Move**, player is able to turn only 180 degrees, but loosing only one movement point.

- Player is using two *Dice* [14] for **Dice Roll** and choosing the higher value for the player's **Move**.

- When only one robber is left in the current round, player is using two *Dice* [14] for **Dice Roll** and sum the values of both *Dice* [14] for the player's **Movement** points. This mechanic change adds up to not getting stuck in prolonging the round too much and also introduces the *Tension* [32] in the last robber player as the player's chances to reach the exit are lowered down.

The aim of the police officer *Character* [7] is to use the secondary mechanic of **Catching** the robbers invoked by **Moving** across the positions of the robbers, *Eliminating* [15] them from the current round and gaining all of their *Loot* [22]. Also, this *Character* [7] cannot be removed from the current round.

With the advantages introduced, police officer has the upper hand each round, introducing a positive feedback loop in the game by gaining the more *Score* [28] the more *Loot* [22] has been **Collected** by

the robber *Character* [7] players. The effects of this positive loop can be seen in the Figure 5. At the same time, the introduction of the *Asymmetric Goals* [2] in the game forcing each player to play the police officer *Character* [7] exactly one round is trying to balance the game and effectively introducing negative feedback loop in that manner.

In order to display the core and secondary gameplay of the game, a Machinations model has been created. It can be seen in the Figure 3.
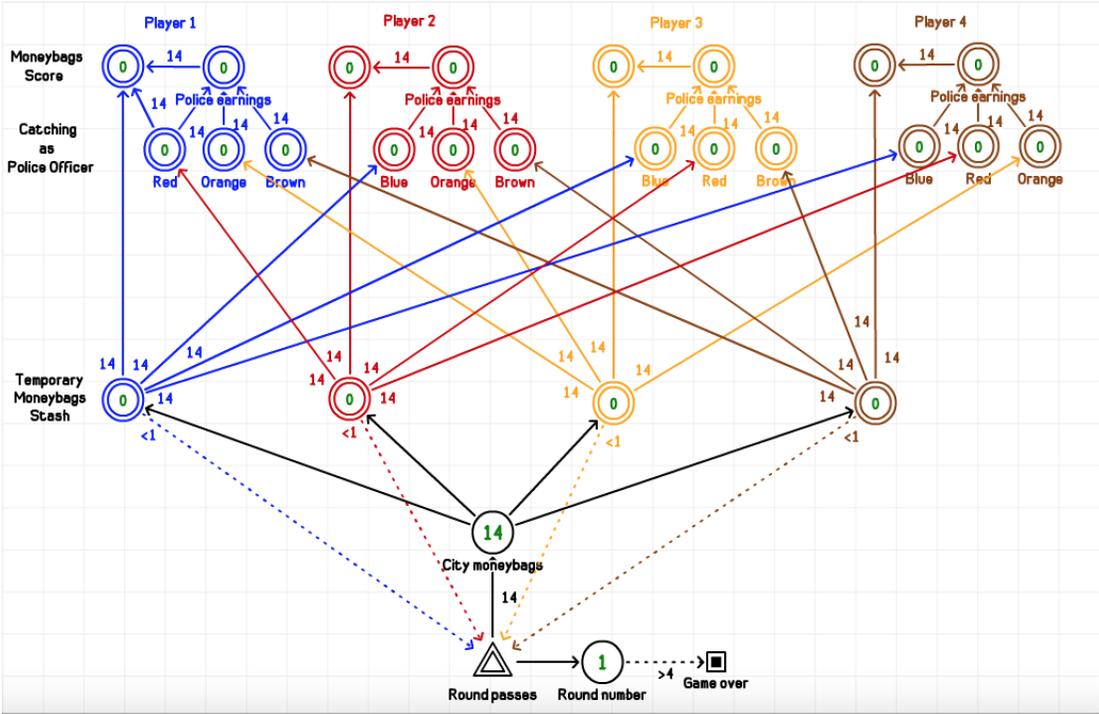

Figure 3: Core and secondary gameplay displayed using Machinations software.

In the first round, Player 1 takes the role of the police officer, while the other players takes the role of robbers. When the Robbers **Collect** moneybags from the game board (represented as the city moneybags pool), they are added to their temporary moneybags stash. If the Player 1 **Catch** any robber before they leave, all the moneybags they have **Collected** so far will go to their catching as police officer pool, and afterwards, to their moneybags *Score* [28]. However, if robbers successfully escape, their moneybags will be send out from their temporary moneybags stash to their moneybags *Score* [28]. Once all Robbers have escaped or caught, a round will pass, increasing round number by one and up to 14 more moneybags will be added to the city moneybags pool too. Furthermore, the police officer role will swap to the Player 2. Finally, the game will finish when a fifth round is tried to be played in the model, heading immediately to the *End State Scoring* [16]. At this point, the players will count all the moneybags they have collected so far which are within their moneybags score pool.

To describe the interactions between the robber and police officer player and the game board, an i* model was created. In the Figure 4 we see two player agents, each embodying the robber and police officer *Characters* [7]. Both agents have as a main goal to gather the highest score. Both the player agents have a *Score* [28] that is computed by the sum of the **Collected** moneybags for each round. The collected moneybags resource is the player agents current rounds *Score* [28].

In the case of the robber agent, the movement is the only means to **Collect** moneybags and exit the game board, as shown in the model. The collected moneybags resource depend on the ability of the robber agent to **Collect** these bags from the game board, thus they are depended by the existence of these bags. A resource provided from the *Game Board* [19] agent. However, for the moneybags to be accumulated in the fixed *Score* [28], the robber agent must secure them by exiting the *Game Board* [19], thus leading to the fixed score resource dependency of the exit the *Game Board* [19] goal. Exiting the game board hurts their *Ability* [1] to **Collect** further moneybags as they must wait for the

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round to end in order for them to re-enter the *Game Board* [19]. This interaction works both ways, as **Collecting** moneybags hurts the exit the game board goal, because players will go out of the shortest path to reach the exit and increase their chance of getting caught by the police officer agent.

In the case of the police officer agent, the collected money bags resource here is depended by the goal of catching robbers, as the police officer agent cannot pick up moneybags from the *Game Board* [19]. However, **Catching** robbers alone is not enough, said robbers must have gathered some moneybags first. Thus leading to the **Catch** robbers with many moneybags soft goal, which helps to accumulate the *Score* [28]. **Catching** a robber breaks their ability to **collect** the moneybags or exit the the *Game Board* [19] (exit with securing their *Loot* [22] at least), as they are *Eliminated* [15] for the remainder of the round.

The *Game Board* [19] agent only provides the *Dice* [14] and moneybag resources as there are not any other ways for the *Game Board* [19] to interact with the player agents.
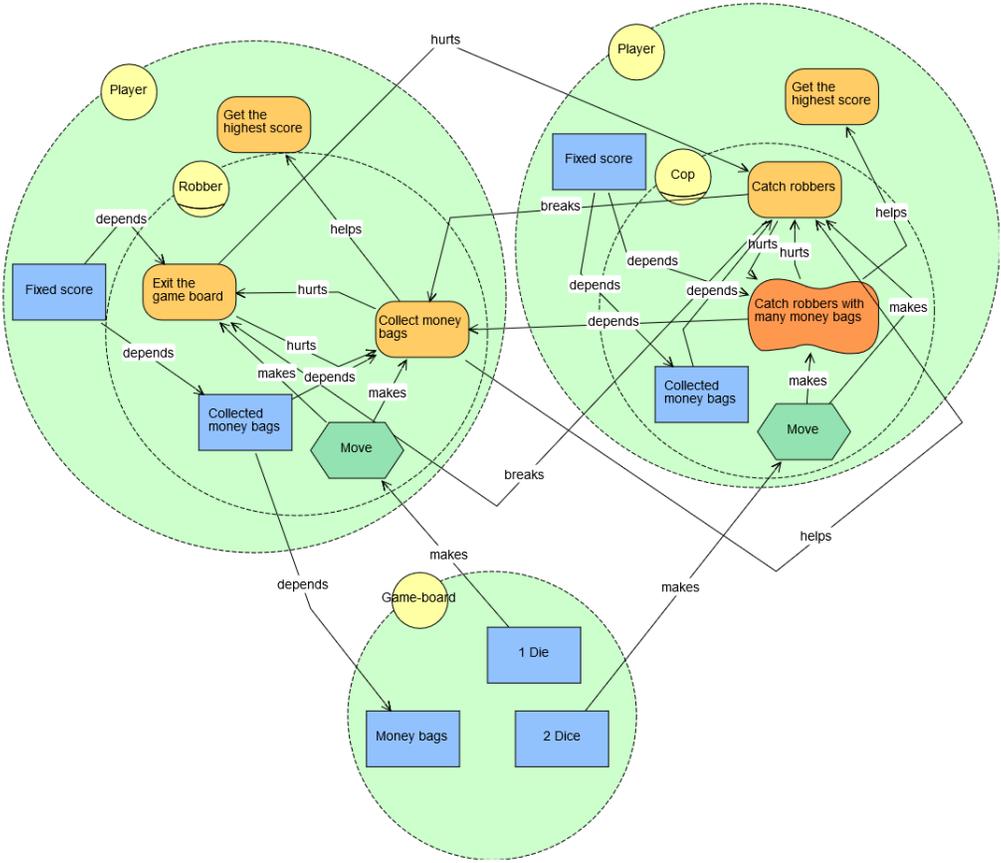
Figure 4: i* model of the game.

5.4 Applying the MDA model

We categorized the patterns used in trail using the MDA model, as well as the generic connections between them as can be seen in Figure 6.

The *Avatars* [3] are an aesthetic pattern in the game, since it is not needed to be able to play the game. Additionally, the *Avatars* [3] are used as the link between players and *Characters* [7] evoking feelings of Mischief, for the robbers, and Confidence, police officers. This is accomplished through the *Avatars'* [3] presentation (as described in section 4.2.2), thus we have decided to have *Avatars* [3] as an aesthetic pattern. The players could keep all of their moves in their head, although that would not correlate well with our idea of a relaxed gameplay session. The *Avatars* [3] provide the players with visual assistance through the game, to help them keep track of where they are. The same argument

Figure 5: Police officer positive feedback loop displayed using Machinations software.

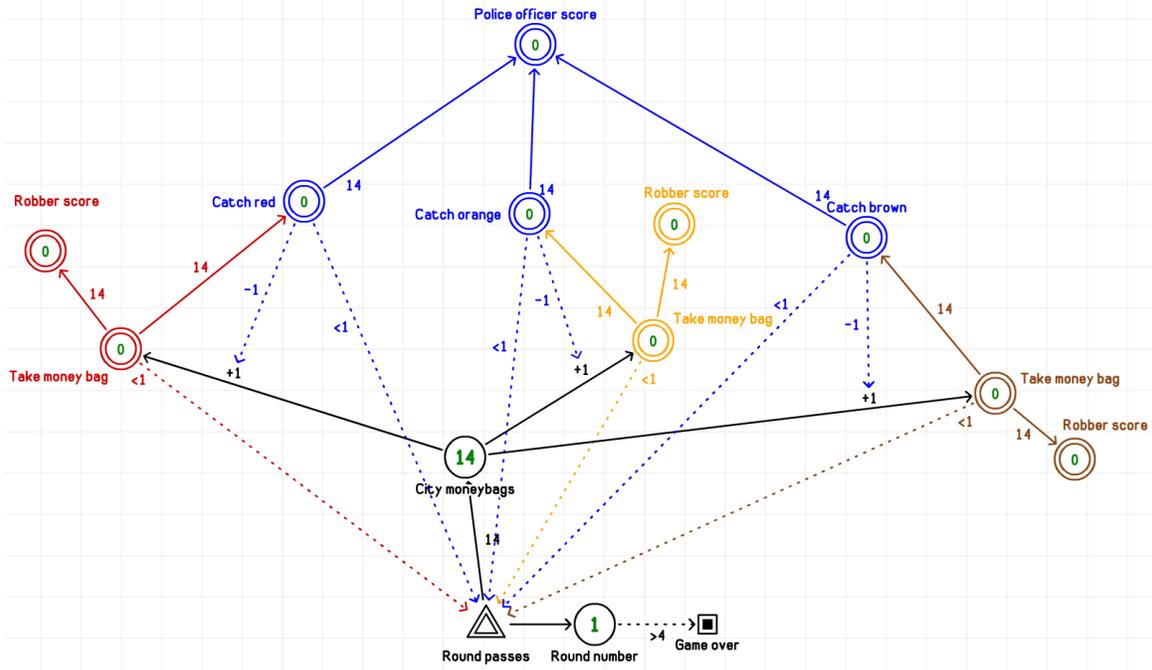could be applied regarding the *Game Board* [19]. However, we choose to describe the *Game Board* [19] as a game design pattern, as a set of game rules, because the *Game Board* [19] is not limited to the physical board, but it also includes the layout and design.

For the game we only discorded one non-generic connection between the patterns. This is in regards to how the *Loot* [22] affects the *Score* [28]. This is because, the *Loot* [22] will increase the *Score* [28]. The *Score* [28] will then modulate the *End State Scoring* [16].

The most prominent pattern in the model is *Tension* [32], because it is instantiated by *Taking Turns* [35], *Damage* [12], *Scores* [28], and *Evade Evade*. This is further modified by *Taking Turns* [35]. We describe *Tension* [32] as an aesthetic in the game. During the game testing sessions, the *Tension* [32] usually led to laughter among the participants.

6   Competitors

The *Asymmetric Goals* [2] are combined with a symmetric goal of having the highest *Score* [28] at the *End State Scoring* [16] part of a session. This makes the *Asymmetric Goals* [2] in the game differ from games like Tag [30].

Since the game is played in rounds we use shifting asymmetry (meaning that all players get to play with the strong *Character* [7]) to balance the game. Although, the police officer is a powerful player, everyone plays as the police officer once.

6.1   Tag

Tag [30] is a game suitable for kids with *Asymmetric Goals* [2]. One player is in a "it" state, this player's goal is to catch, or "tag", the other player. The other players are trying to *Evade* [17] the "it" player. If an *Evading* [17] player is caught by the "it" player, the "it" player will enter the *Evading* [17] state and the *Evading* [17] player will enter the "it" state.

Compared to the Trial of the Mad Dog, Tag excludes the patterns *Randomness* [27], *Luck* [23], *Scores* [28], and *End State Scoring* [16], which are all prominent in Trial of the Mad Dog.

Figure 6: This is a model for how the gameplay patterns and mechanics in the game influence each other in a generic way. The MDA is also applied where the blue color represents mechanics, red represents dynamics, and yellow represents aesthetics. The filled lines visualize that a pattern or mechanic can instantiate a pattern or mechanic in the direction of the arrow. If the line is dotted, it means that the pattern or mechanic can modulate the pattern or mechanic. A hollow array represent a special case that applies only on this game.

6.2 Evolve

Evolve [39] is a computer-based game, where a *Team* [31] of four players competes against one more powerful player, who gets stronger over the duration of a match. In terms of the *Asymmetric Goals* [2] Evolve is a similar game to Trial of the Mad Dog. It also shares the *Damage* [12] and the *Avatars* [3] patterns as well as the **Moving** mechanic. However the target audience of the games is different. Another major difference is, that four of the players in Evolve form a team and are therefore urged to *Cooperate* [8], while in Trial of the Mad Dog, although *Cooperation* [8] between players can emerge, every player is playing for their own benefit.

6.3 Fantasyland

Fantasyland [18] is a board game for two to four players and another game using the *Asymmetric Goals* [2], as one player has a different role from the other players. This player has to **Catch** the other players, a mechanic shared with Trial of the Mad Dog, while they try to *Evade* [17] him and gather gems. However a difference is, that these roles change dynamically throughout the game session, as the two players change the roles, when the catching player catches another player, similar to the game Tag [30] as described in section 6.1.

6.4 Cops and robbers

Cops and Robbers [9] is a *Turn-Based Game* [34] for two players which is similar in a theme to our game where there are players who adopt either the role of a Robber or a Cop. However, that is where

the similarities end. The gameplay of Cops and Robbers is initiated and regulated using a *Deck* [13] of custom *Cards* [5]. Another difference lies in the basic mechanics. One of the basic mechanics involved in our game is the **Dice Roll** whereas in Cops and Robbers the basic mechanics are **Drawing** and **Placing** the *Cards* [5]. The goal of Cops and Robbers also differs from ours. The goal of each player is to race towards a location to occupy it to either gather *Loot* [22] as the Robber, or protect the city as the Cop. The game ends when the Robber has gained 24 *Loot* [22], or the Cop has 24 arrests.

6.5   Tjuv och polis

Tjuv och polis [33] (Thief and Police) is a Swedish game board game with *Asymmetric Goals* [2]. In this game a player takes on the role of a police officers while the rest of the players are thieves. The game's end state is reached when all the thieves have fled the city or are in a jail. The goal of the thieves is to **Collect** as much money as possible by robbing banks and stores. The game shares most of the patterns used with Trial of the Mad Dog. However, the game is not played in road and everyone wont get a chance to play both the police officer and the thieves.

7   Plan for how players should learn the game

Each play test session began with one or two of the designers acting as moderators and explaining the rules to the play testers. The players seemed to easily understand the rules as almost none of them have had any questions regarding gameplay. At the end of the session the moderators asked the following question: "Are the rules easy to understand?". On every occasion the play testers replied "Yes". This is confirmed by observations made by the moderators. On occasions the moderators had to explain a rule again, but usually only during the first round. The rule that seemed to the be the most confusing was when players had to spend movement points to turn. Based on this we have concluded that a single paper explaining the rules is enough for the players to understand how to play.

However, it was necessary for the moderator to actively demonstrate how the turning works, while verbally counting each movement point spent. This felt necessary for the moderators to do in order to ensure that the players fully understood that part of the game. Images showing a step by step example of turning in the game helps solving this issue.

In terms of level design the board clearly shows the tiles and how each needs a movement point to enter, as it is common practice in most board games to have this type of movement. Additionally, the buildings pose as impassable tiles with attached 3D tiles, thus discouraging players from going through them or review the rules of the game for clarification.

The pawn design is critical for the players to keep track of their direction. Mentioned in the presentation section (4.2.2), the pawn needs to have a clear way of showing direction at all times. Furthermore, the coloring of each robber *Avatar* [3] helps in two things. First, players can know with a glance where is their *Avatar* [3] and not confuse it with others. Second, for the Robber *Avatars* [3], the exit tiles are marked with their distinctive color, thus helping players to know from where they can escape the board.

Regarding the dice visuals, since only the police officer player uses a second *Dice* [14], we enhance this by making one of the dice be blue and white while the other is black with white dots. This adds another visual element that distinguishes the officer character from the robbers since they get to use this stylized die on the round they are controlling the officer.

Since many of the patterns used in the game, including *Dice* [14], *Luck* [23], *Avatar* [3], and *End State Scoring* [16] exists in many board games. This makes it easy for the players to get a grasp of the rules.

8   The process used to create the concept

The creation of the concept of a game is usually a complex process. Creating the game concept for Trial of the Mad Dog we followed the Jone's model of the design process. Starting of with creative techniques to generate divergent ideas. Afterwards we set design goals to filter and transform the ideas, leading to the process of convergence to be able to define an explicit concept.

8.1 First prototype

Before we started to create the concept of the Trial of the Mad Dog, we needed to decide on the type of the game we wanted to create. We started the thinking process on the specific game idea. We decided to brainstorm [37] ideas, where we first did not constrain any suggestions and went through the outcomes afterwards. The brainstorming session generated large portion of the ideas, which we later decided to filter by taking only casual and easy-to-follow-the-rules games into consideration, to make our game simple and playable without any age limit. Following are the examples of the ideas generated as the base game concepts, ordered chronologically, as the priorities evolved:

- **Labyrinth**: The first idea that came out from the brainstorming session was a table-top turned-based role-playing game (TTRPG). The main focus was exploration and completion of quests within a labyrinthine game board. This maze was supposed to hold number of rooms which randomly contain different artifacts, treasures, weapons, enemies, and more. An engaging game board was the most important element in this game and we focused on having the game board from that moment onwards.

- **Mario Kart as a board game**: Due the complexity of all the RPG elements that should have been implemented in the Labyrinth game in a short amount of time, another idea came out. It was thought to develop a board game highly inspired by the video games Mario Kart [26] or Crash Team Racing [10], where the players race to the victory at the same time that they harm each other with weapons and traps. This game board had the shape of a circuit with some lanes which provided players different advantages depending on the one they were driving on. Players also could advance faster through shortcuts, like in Snakes and Ladders, and draw actions cards after picking-up special boxes through the circuit.

- **The previous with a Grand Theft Auto** flavour: However, after checking if the racing game was already made by someone else before, similar games were found out such as Mario Kart 7: Super Sound Racing Game [25]. This is why it was thought to add elements from the Grand Theft Auto (GTA) [20] video game saga to the previous idea. Some of this elements included escaping from the police, earning money, and committing crimes. Nevertheless, the audience of this kind of game would have been only focused in adult players who had played before to games similar to GTA [20].

- **Trial of the Mad Dog**: At that moment when we were aiming for a more casual game which could be played by every kind of players, families, and group of friends, is when the Trial of the Mad Dog started to take shape. The idea was primarily to imitate one of the most popular child games Tag [30] with a theme of cops catching the robbers.

As a next step, we decided to formulate the medium and general mechanics and rules of the gameplay. As we wanted to keep the core mechanics of catching and *Evading* [17] of the Tag [30] game, we decided the "Cops and Robbers" variation of the game would be easy to capture on a *Game Board* [19] representing the play area withing which the players can **Move** and try to escape, catch or *Evade* [17].

After the medium was chosen, we needed to come up with the set of basic mechanics and rules for the game. Again, we relied on the brainstorming process, but this time, we decided to follow the Mind map [37] by taking turns and visually applying and expanding the ideas one after another on a white board to diminish the effect of linear thinking and trying to come up with innovative ideas that would extend the possible Tag [30] game dynamics. As a next step, we applied the Put it on the wall [37] technique to draw and test out our ideas on the first visualized *Game Board* [19] drawn on a white board that can be seen in the Figure 7. As can be seen in the figure, the first idea was to introduce the roads system and applying the traffic rules, which rendered hard to combine with the simplicity of the mechanics and desired gameplay decided on in the previous step.

The process thus generated the list of elements of the gameplay, for which we needed to decide which ones to discard, modify, or keep in the game. The list of the ideas we decided to remove or modify into the first prototype are as follows:

- **Two lane roads**: Initially, the road tiles where split in two and players would need to move in the correct lane in order to move forward. Turning would be different if a player did it from the
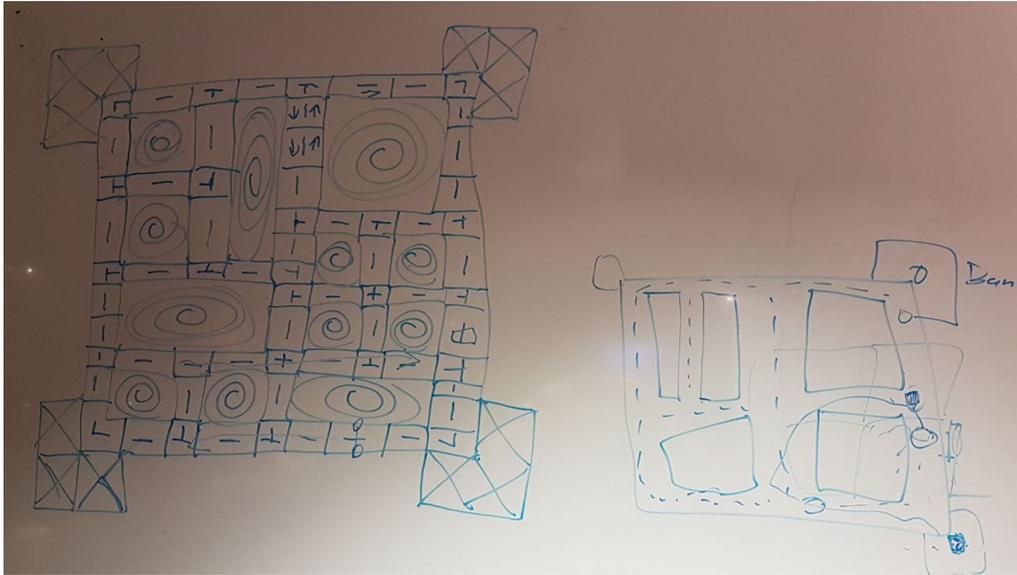
Figure 7: Initial board as an outcome of Put it on the wall technique [37].

inner or outer lane (the outer taking more movement points to accomplish). It was discarded because it did not provide much to enhance the experience as it did to damage it.

- **Power-up cards**: The concept of cards, which had started since the start of the project, was to be picked up like the moneybags and give special abilities to the player. Abilities like instant U-turn, more dice to roll and throw spikes to slow down other players. It was discarded due to the complexity it added, to an otherwise simple intended gameplay experience.

- **Same number of dice for all players**: This was quickly changed as the police officer player was either to weak or too strong. Games also had the possibility of dragging out when only two players were active. This introduced the, choose highest of the two method for the officer player and add the result of the two when only one robber remains.

- **One Exit**: At first the exit of the city was to be found in only one tile for all players. This led into balancing issues on where the players should start. All together or separately. When the decision for separate initial player position was made so was the mirror exit point, unique to each player.

By iteratively removing the constraints of the play area we arrived at the final state of gameplay elements to be kept in the game. We can correlate these early elements in the list below to the Figure 7:

- **Starting Position**: Each of the game board's corners.

- **Moneybags Tiles**: They did not have previously specified positions at that stage of development.

- **Building Tiles**: Tiles filled with circles.

- **Exit Tiles**: Tiles with the X's.

- **Street Tiles**: Everything else.

The gameplay elements kept were then implemented in the low fidelity prototype that can be seen in the figure 2.

8.2 Play testing

After having the low fidelity prototype done and tested by ourselves, we wanted to test it on other group of players, to gain unbiased feedback and capture the ideas that might have not occurred during our brainstorming sessions. We facilitated several play test sessions using our *Game Board* [19] prototype and auxiliary gameplay elements that can be seen in the Figure **??** with trains representing the robbers, storm trooper representing the police officer and coloured tokens representing the money bags distributed around the gameplay area. One or two observers were always present during the play test sessions and take down notes about the comments made by the players during the sessions. On top of that, test players were asked to answer a few questions about the games in a questionnaire prepared for the play testing after the end of the play test. The most arguable part of the game design was to balance the police officer and robbers *Abilities* [1], so that the robber players have a chance to escape, but at the same time, police officer player has a possibility to capture all of the robber players in one round. Furthermore, we wanted to capture the casual gameplay with easy-to-follow rules. Based on these premises, we formulated the questions contained within the questionnaire that can be seen in the Appending in the Figure 8.

8.3 Iterative refinements

To simplify our game we applied the think modular method [37]. Through this method we split our game into two discrete functional units i.e. the cops and robbers. By having these two different units, it allowed us to visualize how the mechanics of both these entities interacted and correlated With each other.

Utilizing the modular approach and following the outcome of the observations and questionnaires, we further decided to use the One change at a time [37] method. We used this method to change the rules for using the **Movement** mechanics of both *Characters* [7] one at a time, to keep track on how the singular changes affected the police officers and robbers units and the further play test sessions. First of all, we received a negative feedback on the police officer *Character* [7] being too overpowered compared to the robbers, as initially, the police officer player did not spend any **Movement** points on performing the rotations at the start of his **Move**. Initially, we thought this would constraint the police officer players *Camping* [4] around the exit points. We picked two candidate changes that could be done to balance police officer power:

- Removing additional **Dice Roll** for deciding the **Movement**.

- Police officer would spend one **Movement** point while doing rotations at the start of their **Move**.

When applying the first candidate, the play test games rendered to be hopeless for the players when taking on police officer *Character* [7], as the players had hard times to capture the robbers *Characters* [7] and needed a lot of *Luck* [23]. After the feedback, we removed this candidate and replaced it with the other option. The feedback for police officer balance was improved, test players felt like the police officer is able to catch everybody and, at the same time, robbers were able to escape on several occasions.

Another observation uncovered was that the players already eliminated from the round were getting bored of waiting for the round to finish. For this, we wanted to implement a rule that would shorten the duration of the round when last robber player is left on the board. We decided to add an additional power-up for the police officer *Character* [7] when the last robber *Character* [7] is standing on the board, being that the player playing police officer *Character* [7] use the sum of the numbers of the two *Dice* [14] after the **Dice Roll**. As an effect, the game duration became shorter and the players did not perceive the change as too harsh for the last robber *Character* [7], as it is justified by the robbers being forced to make a smart moves and keeping track of when they should start move towards their exit to safely finish the round.

9 Next steps

Although we have conducted play tests and reiterated on the gameplay, the game is still only in a prototype state. We suggest further iterations and improvements on the gameplay before polishing the game visually and lifting it to shipping.

9.1 Special abilities

On the last day of play testing, one of the mentioned suggestions we had during the feedback phase for further improvements was to introduce the concept of special *Abilities* [1], similar to the power-up cards we previously discarded for the first prototype as mentioned in section 8.1. These special *Abilities* [1] or power cards when acquired could be used to ignite a special event or *Ability* [1]. One of the ideas considered for future consideration is to introduce special cards with *Abilities* [1] that could either benefit the police officer or the robber depending upon who managed to collect them.

9.2 Different board layouts/set-ups

Another proposal being considered for future development is to introduce different layouts of the *Game Board* [19]. The strategy is to change the layout by rearranging the building components after each round. Changing the layout would throw the players off from getting used to the same layout and using it to their advantage. This strategy allows us to introduce a more *Challenging Gameplay* [6] for the players, which requires more effort from them while retaining the influence of *Luck* [23].

9.3 Polishing/improving game components

There is always room for improvement. One of our future steps is to have better *Avatars* [3] to depict the cops and robbers so they are more identifiable. Also we would prefer to have *Avatars* [3] that could better portray their direction clearly on the tile on the *Game Board* [19], as the direction plays an important role in our game.

9.4 Further expansions

We have had discussions of adding further expansions to our games. To give players more options to play the game we would add variations for less than four players. Other ideas we have discussed amongst each other include expansions where we can have more then four players which could generate an extra element of *Randomness* [27] within the game. We have also considered the possibilities of increasing the number of police officer players in the game rather than one. This would instigate even more *Tension* [32] within the gameplay.

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Appendix

Trial of the Mad Dog quick survey

Gameplay session survey

1. **Is the gameplay interesting? ***
   Mark only one oval.

   ◯ Yes

   ◯ No

2. **Is a gameplay session too long? ***
   Mark only one oval.

   ◯ Yes

   ◯ No

3. **Is the Robber-Cop dynamic balanced? ***
   Mark only one oval.

   ◯ Yes

   ◯ No

4. **If no, why?**

   _____

   _____

   _____

   _____

   _____

5. **Are the rules easy to understand? ***
   Mark only one oval.

   ◯ Yes

   ◯ No

6. **If no, what rules are the most troublesome?**

   _____

7. **Do you have any suggestions for improvement**

   _____

   _____

   _____

   _____

   _____

Figure 8: Trial of the Mad Dog questionnaire [37].