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## Exam #2 – CMPS 80K – Foundations of Interactive Game Design

100 points, worth 17% of the final course grade

*Answer key*

### Game Demonstration

At the beginning of the exam, and also at the end of the exam, a brief game demonstration will be given. Based on the understanding you develop of the game from observing the demonstration, answer questions #1 through and including #5 below.

If your answer would depend on knowledge of the game you did not learn during the demonstration, or you are using additional information you know about the game beyond that shown in the demonstration, please write down any assumed information about the game you are using in your answer. Note that the questions have been designed so that this should not be required.

*Game demonstration: Sonic the Hedgehog (Sega Genesis)*

1. (10 points) What type(s) of *challenge* does the demonstrated game provide? Name the kind of challenge, and describe how the demonstrated game exemplifies this type of challenge.

*There are several possible correct answers to this question, and so assigning points will depend on the quality of the argumentation to support the answer. A full credit answer should give (a) the correct name of the type of challenge, (b) enough of a description so that you can tell they understand what the type of challenge means, and (c) they connect the description to specific elements of the game.*

*Sensorimotor. This is the primary form of challenge provided by the game. The player receives input via their eyes about the current state of the gameworld (location of platforms, enemies, coins to collect, springboards, etc.), and the position of the player avatar (Sonic) within the world. The player reacts to this input by deciding when and how to move or jump.*

*Spatial reasoning. Part of playing Sonic the Hedgehog is analyzing the spatial configuration of platforms, enemies, coins, etc. to determine future player actions. There are certainly enemies in this game that just pop up (the fish in the waterfall) and need to be dodged.*

*Pattern recognition. An advanced player of Sonic could certainly memorize the levels to the point where they detect patterns in the levels, and can take action based on their understanding of these patterns. Patterns include the location of platforms, enemies, coins, paths, etc. A speed run in Sonic would be an example of pattern recognition, since it involves memorization of the entire level.*

*Sequential reasoning. It might be possible to argue that someone memorizing the level in Sonic is engaging in sequential reasoning, since they are putting together a long sequence of steps (running, jumping), in order to progress through the level.*

*There are a few types of challenge that Sonic the Hedgehog **does not exhibit**, or exhibits weakly.*

*Resource management. Yes, you have a limited number of lives in Sonic, but there the number of remaining lives does not substantially affect the challenge provided by the game. Yes, there are coins to collect, but they just add to points; they aren't a resource that requires active management.*

*Social reasoning. You don't ever talk to anyone in this game. That makes social interaction difficult.*

*Cerebellar. Yes, this part of the brain is involved somewhat in making fingers move over the gamepad, but the challenges involved are more complex than pure cerebellar challenges, which are primarily form-based (discus, golf, etc.)*

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2. (a) (2 points) Does the demonstrated game provide *conflict*? (Yes or No)

Yes.

2. (b) (8 points) If yes, name the *type(s) of conflict* the demonstrated game supports, and describe how the elements of the game *enable this conflict*. If no, describe why the game does not support conflict.

*There are two forms of conflict exhibited by this game. A full credit answer **only needs to give one type** of conflict. However, if multiple types of conflict are listed, they must all be correct.*

*Physical conflict. There are multiple opponent types (fish in the waterfall, for example) in this game that are actively trying to attack the player avatar. If they hit the player, it causes loss of rings, and then loss of life.*

*Performance conflict. If you are playing with another person, this game does have affordances for player vs. player conflict where you both try to achieve a high score, or the fastest speed through a level, or the greatest progression through the game.*

*The game does not well support the following types of conflict:*

*Verbal. There are no chat affordances built into the game. However, one could imagine an answer that discussed multiple people playing at the same time, where the players engaged in verbal conflict as a way of affecting the play of the current player.*

*Political. There are no affordances in the game for political conflict. There are no ways to recruit allies, or under cut social alliances. There are no allies or social interactions in the game.*

*Economic. The game has no economic system, beyond collecting coins to increase score.*

3. (4 points) Describe one *reward* and one *punishment* the demonstrated game provides.

*There are multiple rewards and punishments. Some examples:*

*Rewards:*

*Collect coins*

*Complete a level*

*Finding a secret coin*

*Animation when jumping on trampoline*

*Punishments:*

*Loss of coins*

*Loss of live*

*Loss of time (slowdown, leading to slower overall level time)*

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4. (6 points) Describe one *short term goal* and one *long term goal* in the demonstrated game.

*The primary difference between short and long term goals is the frequency with which they appear. A short term goal is one that can be accomplished within a period of seconds (1--20 seconds), while a long term goal takes approx. 20sec.-5min.*

*Some examples of short and long term goals:*

*Short term:*

*Collecting coins  
Avoiding obstacle (enemy, pit, water, spikes, etc)  
Progressing through part of the level (going through a "rhythm group")*

*Long term:*

*Completing a level  
Completing all of the levels  
Getting to a bonus stage*

5. (10 points) As compared with the other platform games demonstrated in class this quarter (Portal, Super Paper Mario, Ratchet and Clank Future: Tools of Destruction, Donkey Kong, Pitfall, Pacland, Wonderboy, Bug!, Jumping Flash, Super Mario 64), what are some distinctive elements in the *level design* of the demonstrated game?

*This is a very open-ended question, and there are many possible answers here.*

*The most distinctive element of Sonic the Hedgehog is the speed of Sonic in progressing through the level. This drove the design of the levels in multiple ways.*

*Circular aspects of the levels (loop-de-loops)  
Typically, wider spacing of challenges  
Less emphasis on hop-n-bop*

*Answers should receive full credit if they primarily engage issues about level design, and talk about elements of Sonic that seem to be unique as compared to the other games. Since this is a very open-ended question, for which there can be reasonable disagreement among experts, grading is lenient. The goal of the question is to think about level design issues.*

6. (5 points) What is a *core game mechanic*. Describe the core game mechanic of most platform games.

*(3 points) The core game mechanic is the essential game activity players perform over and over again.*

*(2 points) Running and jumping is the core game mechanic of most platform games.*

7. (a) (5 points) What is Chris Crawford's definition of *interactivity*?

*According to Chris Crawford, interactivity is a cyclic process in which two active agents alternately (and metaphorically) listen, think, and speak.*

*Answers that engage this notion of the player having a kind of conversation with the computer should receive the majority of points for this question.*

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7. (b) (5 points) Using Crawford's definition of interactivity, give an example of a game that exhibits *high interactivity*. Describe why this game has high interactivity.

(2 points) *There are many possible examples here.*

*Good examples:*

*Turn-based strategy games, such as Civilization, Advance Wars, and yes, even Pokemon (especially player vs player mode)*

*Real-time strategy games*

*Interactive fictions*

*Façade*

*Possibly a recent FPS, depending on how good they claim the AI to be)*

*Mass Effect (borderline, but the conversation system pushes it over I'd say)*

*Bad examples:*

*Any shmup (not much thinking going on here – mo' bullets, mo' bullets)*

*Most platformers (set-piece levels, almost no AI)*

*Many RPGs (simple dialog, trigger-based plot progression, not deep thinking about player inputs – depends on quality of argumentation how many points to grant).*

(3 points) *Crawford's questions concerning interactivity are:*

*How much of what the player might desire to say does the game permit the player to actually say?*

*How well does the game think about the player's inputs?*

*How well does the game express its reactions?*

*As a result, a good answer would engage all three of these issues (receiving a point for each one).*

8. (a) (3 points) What is the narrative of a game?

*According to Michael Mateas, the narrative of a game is, "the aspects of a game that contribute to it telling a story."*

*A full credit answer connects the notion of narrative to storytelling in games.*

8. (b) (7 points) What is the difference between *embedded* and *emergent* narrative?

*Also according to Michael Mateas, an embedded narrative is, "pre-generated narrative content that exists prior to a player's interaction with the game." Some examples include, cut scenes and back story Embedded narrative is often used to provide the fictional background for the game, motivation for actions in the game, and development of story arc. If it's a simple computational trigger that leads to a cut scene or a segment of dialog, then it's embedded.*

*Emergent narrative "arises from the player's interaction with the gameworld, designed levels, rule structure." It is created by the moment-by-moment play of the player within the game. If there is some kind of complex AI choosing the narrative being told, then it's emergent.*

*The difference between the two is that embedded narrative is more structured and brittle, while emergent narrative is more adaptive and interactive. For example, if you miss a narrative trigger in Halo 3 (which I have done), you can wander around the gameworld for many minutes while the rest of the characters in the game are frozen, just waiting for you to encounter the next trigger. This is an example of embedded narrative. A more emergent narrative would give each of the characters some autonomy, and the story would flow from this.*

9. (3 points) What was the name of the first platform game?

*By fiat, Donkey Kong.*

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*There better be a really good explanation to get points for any other game.*

10. (a) (3 points) What was the first widely played computer game?

*Pong.*

10. (b) (4 points) Which people were the creators of the first widely played computer game (i.e., the game that is the answer to 10(a) above)?

*By fiat, Al Alcorn, and Nolan Bushnell.*

11. (5 points) With respect to games, what does *autotelic* mean?

*Well, there were several things mentioned on the slide discussing autotelic play.*

*The most literal definition is auto: self, telos: goal, literally a self-goal, the game provides its own goal.*

*But, the slide also says:*

*Games are constructed to be self-contained worlds*

*The limits of meaning of the game are constrained to the game world*

*The value of playing the game is intrinsic to the game*

*Playing the game is its own reward, not done with expectation of external (or extrinsic) reward*

*Of these the key phrase is, "The value of playing the game is intrinsic to the game." That is, the key idea behind autotelism is that games don't need to provide any reward in the real world; they are inherently rewarding experiences in and of themselves.*

12. (10 points) Describe *two challenges* game designers faced in their design work when moving platformer games from 2D to 3D.

*There are many possible answers here. The key issues are:*

*It is easy to just move around a jumping challenge, and so space needs to be constrained to ensure the player avatar actually must encounter the jumping.*

*It is harder, spatially, to jump from platform to platform, since there is a 2 (and sometimes 3) dimensional direction that needs to be determined for the vector between the origin and destination platform.*

*The challenge of the open world. 3D provides the possibility of having an open world, where the player can roam at will. However, challenges typically require the player to have a number of (spatial) constraints placed on them to ensure they must go through the challenge. This is harder to pull off in 3D. This level design challenge leads, in its simplest form, to levels that are linearized, where there is a single path through the level (and challenges).*

*Placement of platforms. Jumping Flash is a good example of this – the platforms are hard to get onto, and hard to jump from one to another.*

*Full credit goes to answers that are substantiated by strong argumentation and good examples.*

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13. (10 points) *Name and give examples of two forms of non-physical conflict found in games (examples can come from video games and non-computer games). Your answer must give the game's name, as well as brief description of how it exhibits the form of conflict.*

*Many possible answers here.*

*The lecture notes list four forms of conflict that are non-physical. They are:*

*Performance*

*Achieving a better outcome than another player in performing a challenge. Running a race, 2 player Galaxian, etc.*

*Verbal*

*Insults, boasting, insulting joke, narrative assault*

*Political*

*Recruit allies, undercut opponent's social alliances*

*Economic*

*Affecting your opponent financially*

*There are many possible games that can exhibit these types of conflict.*

*Though the question is open-ended, the ways to lose points are to talk about physical conflict (shooting, killing, etc. another player). Other ways to lose points are to not give an example, or to give an inappropriate example.*