Appendix III: Test catalog

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Level Design Line-Of-Sight

Game Title	Build	Date	Tester

PURPOSE

Concept element: Level Design: Spatiality (line of sight)
Description: The purpose of this test is to check if the player and NPC has Line of sight (LOS) to the appropriate areas and objects as required by the story, by the level design requirements or by the gameplay.

SETUP

The test requires a representation of the level. If the level is fairly flat, then the representation can be a 2d map, If the level contains significant variations in elevation with overlapping areas, a 3d model should be made.

Prerequisite information:

- Avatar Line-Of-Sight list: make a list of all the objects/area that the player should be able to spot and where to spot them from. These objects include all Leads (see Level Design Progression test).
- Avatar negative Line-Of-Sight list: make a list of all the objects/areas that the player shouldn't be able to spot, except from specific locations.
- NPC Line-Of-Sight list: make a list of all the objects/areas that the NPC should be able to spot and where to spot them from.
- NPC negative Line-Of-Sight list: make a list of all the objects/areas that the player shouldn't be able to spot, except from specific locations.

# of Participants: 1 (preferably Game designer)

Special qualifications:

The tester must know the game.

Materials:

Spatial Model

- The test requires a scale representation of the level. If the level is fairly flat, then the representation can be a 2d map, If the level contains significant variations in elevation with overlapping areas, a 3d model should be made.
- Long, thin straight stick
- A scale representation of the avatar and NPCs
- A definition of the place on the avatar where the camera is placed.
- Pen & paper

Area: an office with space enough for the representation of the level.

	Estimated time: 1-3 hours, depending on the size of the level. **Tests using a similar setup:** All ofthe same type of level design tests (2D/3D)
METHOD	**Performing the test:** The test is an examination of what the player can see when he is in various areas of the level. This is done by placing the avatar in the various areas and using the stick to see whether there is an unbroken line of sight from the avatar to the examined area. The test also examines what the NPC can see from the various areas of the level. Pay attention to the facing of both the avatar and the camera (especially if you have several camera modes) to ensure that the player can see what you want you intend for them to see. Avatar Line-of-Sight: • Place the representation of the avatar at the relevant spot (this could be a lead-spot, spawn-point, general area etc). . • Use the stick to measure from the camera-location of the avatar to see whether there's an unbroken line from the avatar to the decided object/NPC/ area. • Move the avatar and examine the next spot; continue until all the locations are examined. NPC Line-Of-Sight: • Place the representation of the NPC at the relevant spot (this could be a lead-spot, spawn-point, general area etc). . • Use the stick to measure from the camera-spot of the NPC to see whether there's an unbroken line from the avatar to the decided object/NPC/ area/avatar. • Move the avatar and examine the next spot; continue until all the spots are examined.
DATA	**Data List:** • An Avatar Line-Of-Sight list of the places where the avatar should have line-of-sight to a range of objects or areas. For each entry whether the avatar has Line-Of-Sight or not is marked. • An Avatar Negative Line-Of-Sight list of the places where the avatar should

	not have line-of-sight to a range of objects or areas. For each entry whether the avatar has Line-Of-Sight or not is marked. • An NPC Line-Of-Sight list of the places where a given NPC should have line-of-sight to a range of objects or areas. For each entry whether the NPC has Line-Of-Sight or not is marked. • An NPC Negative Line-Of-Sight list of the places where a given NPC should not have line-of-sight to a range of objects or areas. For each entry whether the NPC has Line-Of-Sight or not is marked.
ANALYSIS	**Problem severity:** Major issues: • Missing or erratic line of sight in combat • Missing line of sight to an area the player is required to go to progress • Missing line of sight to an essential resource • Large discrepancies in avatar and player LOS Minor issues: Missing line of sight to a power-up or non-essential resource Missing line of sight to an area that the player is not required to explore **Analysis of Problems:** • Examine the Avatar Line-Of-Sight list to find out whether there's line-of-sight at all the places where the avatar should have line-of-sight to an object • Examine Avatar negative Line-Of-Sight list to find out whether there's line-of-sight to objects where the avatar shouldn't have line-of-sight to an object. • Examine NPC Line-Of-Sight list to find out whether there's line-of-sight at all the places where the NPC shouldn't have line-of-sight to an object • Examine NPC negative Line-Of-Sight list to find out whether there's line-of-sight to objects where the avatar shouldn't have line-of-sight to an object.

RESULT	**Suggested fixes:** If the player has no line of sight to important areas/objects, examine why. If there's a barrier in the line-of-sight, move it. If the terrain is in the way, either elevate the player's position or lower the position of the object. Examine whether it's possible to move the object to another position where the player has line-of-sight. If the avatar has line-of-sight to important areas/objects from areas where he shouldn't have it either • Place a barrier between the player and the object. • Make the area impenetrable by the player • Move the object • Raise the terrain of the object • Lower the players POV If the NPC has no line of sight to important areas/objects, examine why. If there's a barrier in the line-of-sight, move it. If the terrain is in the way, either elevate the NPCs position or lower the position of the object. Examine whether it's possible to move the object to another position where the NPC has line-of-sight. . If the NPC has line-of-sight to important areas/objects from areas where he shouldn't have it either • Place a barrier between the player and the object. • Make the area impenetrable by the player • Move the object • Raise or lower the terrain at the object • Raise or lower the terrain at the players POV
FOLLOW-UP	**Further testing:** The level should also be tested with Level Design Progression. The level should tested again if it has been changed as a consequence of the test. The relationship between engine and LOS, lighting and render range should be tested if there are unknown factors. **New ideas and solutions:**

	Ideas that pop up concerning atmospheric effects, such as fog, darkness and rain, should be written down and evaluated.

Level Design Progression

Game Title	Build	Date	Tester

PURPOSE

Concept element:

Level Design: Progression

Description:

The test reveals whether there exists an unbroken *Lead*-trail from the start of the level to the end of the level. It also examines whether the ideal progression of events in the level can be realized by the player by following the trail of leads provided by the designer.

SETUP

[The test requires a representation of the level. If the level is fairly flat, then the representation can be a 2d map, If the level contains significant variations in elevation with overlapping areas, a 3d model should be made.

Prerequisite information:

# of Participants: Game designer

Special qualifications:

The tester must know the game.

Materials:

Spatial Model

- A appropriate "to scale" representation of the level
- A scale representation of the avatar and NPCs
- A description of the events, such as in-game cut scenes and dialog, in the level, including what triggers them and when.
- Pen & paper

Area: an office with space enough for the representation of the level.

Estimated time: 1-3 hours, depending on the size of the level.

Tests using a similar setup: All of the same type of level design tests (2d/3d)

METHOD

Performing the test:

The test is a walkthrough of the level using the representation of the level and the characters. It will also require visualizing several of the events and the movements of the characters.

Pay attention to the facing of both the avatar and the camera (especially if you have

	several camera modes) to ensure that the player can see what you want you intend for them to see. • Start with the starting position in the game. • Examine whether there is anything in the environment that draws the players attention and advances the progression through the level. This is usually movement, better lightning, interaction-assets, noticeable game-objects, approaching enemies, power-ups or sound, • If the player move to the position of the weenie, what can he see? Are there anything in the environment that draws the players attention and ensures further progression? If so, move to that spot. If not mark the area as a LOS / *Lead* problem spot. • If the player encounters puzzles that block the progression, is the solution visible from the spot that he encounters it at? Or has the player encountered the solution or similar puzzles earlier? Does the PC carry the key to the puzzle in his/her inventory? If not, mark the puzzle as a Puzzle problem spot. • Continue with this walk-through until the level ends.
DATA	**Data List:** A list of all the problem spots relating to the progression through the level: • Areas of slow progression • Areas where progression is broken • Progression broken by unsolvable puzzles
ANALYSIS	**Problem severity:** Major problems: • Instances where puzzles can become unsolvable due to lost resource or information • Progression broken and no way of getting back on track except for trial and error. Minor problems: • Slow progression • Large amount of backtracking

	Analysis of Problems: Examine whether any of the following is true: • Broken chain: is there any point where the player is placed at a position where he can't perceive the next lead? • Showstopper puzzles: is the player presented with a puzzle, where he can't see the solution? The analysis shows whether there is an unbroken chain of leads from the start of the level to the end of the level.
RESULT	**Suggested fixes:** In the case of a broken chain, examine how to add more weenies to connect breach the gap. In the case of a showstopper puzzle, re-design the puzzle so that either: • the player can see the solution to the puzzle from the position of the last lead before the puzzle • the player is introduced to the solution to the puzzle at an earlier weenie-spot and is made aware that it's an interaction asset. If the chain is repeatedly broken, then the progression should be re-designed. If the level doesn't afford for a different progression, then the spatiality of the whole level should be re-designed.
FOLLOW-UP	**Further testing:** If the locations of different parts of a puzzle are far apart, the level should also be tested with Test Level Design Line-Of-Sight. The leads should be tested with either the Interaction Asset Test (if they're interaction assets) or with Test Style Assets (if they're non-interactive assets). **New ideas and solutions:**

Interaction Assets Character normal use

Game Title	Build	Date	Tester
PURPOSE	**Concept element:** Presentation: Interaction Assets (Characters) **Description:** The purpose of this test is to determine whether the visual representation of the characters in the game and their function in the story and gameplay display a strong and intuitive correlation.		
SETUP	**Prerequisite information:** Description of the characters that appear in the game. This includes: • Description of how and where the character is introduced. • Gameplay function • Goals • Some background • Relation to the protagonist • List of abilities (e.g. “strong”, “good with machines”, “blind”) • Personality (e.g. “cunning”, “stupid”, “treacherous”) • Role, or function in the story (e.g. “hero”, “ally”, “mentor” etc.) **# of Participants:** Tester + respondents **Special qualifications:** The tester should be familiar with the characters. The respondent should not. The respondent should be within the target audience of the game. **Materials:** Visual Representation If the game contains more than about 20 distinct characters testing them in groups based on location or importance should be considered. • Pictures of the cast. This can be photos, collages or original concepts. They should preferably depict the character in a signature pose. Include variants of certain characters, maybe drawn in a different style or seen from another angle. • Short character sheets for each character, that includes the information listed in “prerequisite information”. • Separate lists of abilities, roles and personalities		

	• Pen • Post it notes three different colors (e.g. blue for Role, pink for Personality and yellow for Ability). **Area:** Undisturbed office with a large table or whiteboard for displaying the character-sketches. **Estimated time:** 30-50 min. per iteration (approx 20 characters) **Tests using a similar setup:** Interaction Assets Characters stress
METHOD	**Performing the test:** Ask open questions, encourage the respondent to reason aloud, be particularly aware of cultural and age biases in interpretations. **Present the purpose of the test:** "This is a test to find out how a player interprets and reacts to characters in the game". **Present the game to the respondent:** o Describe the type of game (rpg, shooter etc.) o The setting and mood of the game. **Present characters to the respondent:** "I will now show you a series of pictures that correspond to characters in the game. For each character I want you to match the pictures to the roles, personality traits and abilities on the lists. Please reason aloud while you match characters to descriptions" Shuffle the pictures of the characters and present all the pictures to the respondent, and describing the situation in which they are encountered. Remember to include extradiegetic information, such as glowing arrows over the character's head and GUI symbols. If the character changes over time present the situations and note down the respondent's reactions separately for each situation. Write down the responses on appropriately colored post-it notes (e.g. blue for Role, pink for Personality and yellow for Ability). Also check off each time a role, ability or personality trait is assigned to a character. Remember to ask the respondent why each character is interpreted the way it is.

	Doing a second pass: Spread the character pictures, now with the appropriate post-it notes in place. Present the respondent with the actual character sheet for each character. Ask the respondent what he/she thinks of the actual characteristics of the characters and the difference between the respondent's original interpretations; does it make the character more or less interesting? Write the respondent's reply down on the back of the picture or on a separate sheet and attach it to the picture.
DATA	**Data List:** • A list of with a check-mark for each time one is assigned to a character. • Character pictures with **abilities, personality traits** and **roles** assigned to them in a way that corresponds to the respondent's immediate interpretation of the character. • The respondent's comments concerning the relationship between his/her interpretation and the character sheet.
ANALYSIS	**Problem severity:** If there are some personalities, roles or abilities that are not perceived by the respondent how important is it that this particular function is evident? If the respondent misunderstands a character, or it is ambiguous will this create problems for interaction or understanding the story? **Analysis of Problems:** Trough several iterations the recognizability and the appropriateness of the different characters can be gauged. Are the characters too stereotypical, not stereotypical enough? Are important aspects of the character not going to be evident over the course of the game? Do the duplicates correspond? In some settings, like mysteries and Film Noir NOT knowing who is who, and requiring the player to spend some time finding out about characters and distinguishing friend from foe may be desirable. Just make sure it's for the right reasons.
RESULT	**Suggested fixes:** Make sure characters that have to be understood in a certain way exhibit some visual qualities that shows this. Stereotypes are a strong tool for this, remember to use it with caution.

FOLLOW-UP	**Further testing:** For characters that seem to create a problematic first impression an Interaction Assets Character stress test should be run. If there are major revisions to key characters a plot test should be run to ensure that the plot still makes sense with the new characters. **New ideas and solutions:** Interesting juxtapositions between the respondent's actual interpretations and intended interpretations could lead to a re-design of certain characters. Especially if several respondents react favorably to specific combinations of traits, perceived or actual.

Interaction Assets Character Stress

Game Title	Build	Date	Tester

PURPOSE

Concept Element: Presentation: Interaction assets (characters)

Description: The purpose of this test is to judge the recognizability of the visual representation of the characters in the game in conditions where the player would be required to make split-second judgments, such as deciding whether to fire at a character or not.

SETUP

Prerequisite information:

Description of the characters that appear in the game. This includes:

- Goals
- Relation to the protagonist
- List of abilities
- Some background
- Function in the story
- Gameplay function
- Description of the intended interpretation of the character.

An interaction list describing the basic actions available to the player/avatar (shoot, talk, sneak, enter inventory, save etc.) These should be codified as far as possible to speed up the data collection, and to allow results from several respondents to be easily compared.

# of Participants: Tester + respondents

Special qualifications: The tester should be familiar with the characters. The respondent should not. The respondent should be within the target audience of the game.

Materials:

Visual Representation

- **Pictures of the cast.** These can be photos, collages or original concepts. They should preferably depict the character in a signature pose and/or context. And have a small space for notes at the bottom. Include variants of certain characters, with different equipment, other symbols or seen from another angle or with different lighting.

	• **Pen** for both the respondent and the tester • **Post it notes.** Yellow for changed interpretations and pink for suggestions to changes to the character and additional comments. **Area:** Undisturbed office with a large table or whiteboard for displaying the character-sketches. **Estimated time:** Approx. 15 min. per iteration (15-20 characters) **Tests using a similar setup:** Characters normal-use test
METHOD	**Performing the test:** Ask open questions, encourage the respondent to reason aloud, be particularly aware of cultural and age biases in interpretations. **Present the purpose of the test:** *"This is a test to find out how a player interprets and reacts to characters in the game when under pressure."* **Present the game to the respondent:** o Describe the type of game (rpg, shooter etc.) o The setting and mood of the game. o The basic actions available to the player, as they appear in the interaction list. **Present characters to the respondent:** *"I will now show you a series of pictures that correspond to characters in the game. You will only get a quick look at each, no more than a couple of seconds. Immediatly describe what kind of character you think it is. Then describe your immediate reaction if you were to spot the character in the game."* Responses should be given in a format similar to the following *"It's an enemy soldier, I shoot him in the head!"* or *"I don't know… the love interest of the main character, maybe? I go over to her and try to talk to her."* Shuffle the pictures of the characters, and put them in a face-down pile in front of you.

	Present the pictures to the respondent by flipping the sheet over. Allow the respondent only a few seconds to respond to being shown the character and write down his or her responses in the space at the bottom of the sheet. Proceed through the pile, putting the sheets the respondent has seen in a new face-down pile. **Verify and contextualize the responses:** When the respondent has seen all the characters spread the pictures out on the table and ask the respondent: *"Why did you interpret the characters the way you did?"* Allow the respondent to change his/her interpretation and write it down on a yellow post-it note, placing it next to the original answer. Be sure to get the reasons for both the original and the new interpretations and write them down on the post-it note or the sheet as appropriate. **Get the respondent to suggest possible solutions.** Present the respondent with each of the character descriptions prepared in advance and ask the respondent: *"What changes would have to be made in order for you to respond to the character in the intended fashion?"* Write the answer on a pink post-it note and attach it to the picture.
DATA	**Data List:** When the test is complete you should have collected the following data: • The respondent's immediate reaction and response to the game characters • A list of problems and misconceptions • Some ideas for improvement
ANALYSIS	**Problem Severity:** When deciding whether or not to change the character be mindful of the consequences of the respondent's interpretation, and try to evaluate if the respondent's alternative interpretation could be interesting and functional in the context of the game. If the concept does not lose anything if the character is changed according to

	recommendations from several respondents the character should be changed. The same is true if the split second identification of a character is critical, and the respondents have trouble with this. **Analysis of Problems:** Trough several iterations the immediate recognizability and the appropriateness of the different characters can be gauged. In some settings requiring the player to spend some time finding out about characters and distinguishing friend from foe may be desirable. There is a need to find the balance between making the characters too stereotypical, and thus uninteresting, and not making them stereotypical enough, and thus confusing the player. Pay particular attention to differing interpretation of variants of the same character.
RESULT	**Suggested fixes:** Avoid creating game-breaking situations, such as the player killing off key-NPCs. The designer should evaluate if the common reactions fits the play-experience he or she wants to create. If it does not, the character should be changed. Animation, dialogue and game mechanics will also factor in, and if a design is particularly good from another point of view (e.g. aesthetically pleasing) these elements can be designed to compensate for interpretational problems with the visual representation. This is more relevant for characters where the first impression and immediate understanding is less important.
FOLLOW-UP	**Further testing:** If long-term reactions are important and might differ significantly from the first impression performing the Interaction Asset: Character normal-use test (where context is explained, together with GUI and other extradiegetic info) is advisable.

I/O Devices

Game Title	Build	Date	Tester
PURPOSE	**Concept element:** Interaction: I/O devices **Description:** The purpose of the test is to examine if the controls cover the intended interaction possibilities in an easy to use fashion. It also helps list new interaction possibilities if necessary.		
SETUP	**Prerequisite information:** List of interaction possibilities and corresponding I/O device mappings. List of basic AI behaviours List of the basic types of Interaction Assets **# of Participants:** 1 taking the role of the avatar 1 taking the role of the player 1 person taking notes and / or filming 1 or more NPCs, depending on the degree of character interaction. Total: 4-6 people **Special qualifications:** The person taking the role of the avatar should have comparable physique to the intended avatar. A lot of moves can be "faked", but the person should be able to perform at least the basic moves of the avatar. This could include aiming a gun, jumping, dodging, roundhouse kicks etc. The person taking the role of the player should be familiar with the I/O device being used and have a clear voice. The person taking notes and / or filming should have a basic understanding of the camera equipment. The people taking the roles of the NPCs need to be able to perform the appropriate actions, as per the avatar, and may need some basic mock-up dialogue, depending on the interaction.		

	Materials: Avatar Enactment o Chalk or other appropriate marking device o Boxes or other easy to move props o Any special items (car wrecks, bushes etc.) or mock ups of these. o Digital Camera or Video camera with a screen. o Controller or mock-up controller -*The following on some unified level of abstraction:* o Mock ups of screen overlays (maps, inventory, GUI etc.) for the "player". o List of preliminary controller mappings for the "avatar". o Scripts for the "NPCs" **Area:** Large area or building, preferably of the kind you want modeled in the game (warehouse, woods, vacant lot etc.) with enough room to do the actions required in the list of Interaction Possibilities, with enough light to film in. **Estimated time:** 3 hours preparation time + 20 min. preparation pr. Interaction possibility. 2 min. pr. Interaction possibility performance time. Realistically a full day should be set aside for the actual enactment. **Tests using a similar setup:** Animation list test, Camera test, AI agent test.
METHOD	**Performing the test:** **The "player"** stands behind the avatar, at a comfortable distance, moving relative to the avatar only if required to get enough info to perform correct control-decisions. The **"**player**"** describes his controller–inputs and button–presses while performing them, calling "mistake" when pressing wrong buttons or other controls. When the player enters alternative screens, such as map, inventory or character development, or modes such as mini-games or vehicles, be sure to pay attention to changes in controller mappings. **The "avatar"** performs the corresponding moves, as listed on his/her controller mapping sheet. If there are missing information the avatar should notify the designer of this by saying: "missing", if a wrong move is made he/she calls "mistake". **The "Camera"** follows the Avatar trying to keep both the player and avatar in the picture at all times.

	The NPCs acts as described in their scripts, keeping track of their own stats, such as health and ammo etc. **The Designer** takes notes, keeps track of the player's stats and inventory, explains the effects of interactions and what the mock-up items are and look like to the player. If the designer needs time to move the camera, or take notes he can yell "pause" and all participants stop moving and "action" to make them start moving again. Innovative or untested mappings should be tested more thoroughly than those which are tried and true. NEVER assume that a given mapping or interaction mode works – try it out!
DATA	**Data List:** • A revised or confirmed list of controller buttons / functions • Reveals isolated problem spots • A self-report of the rate of mistakes done by the player (should not be used to determine ease of use). • Unused functions • Problematic functions • Video for analysis • Ease of transition between modes and mapping schemes.
ANALYSIS	**Problem severity:** It is critical to avoid: Mapping functions that should or have to function simultaneously in such a way that they exclude each other. Actions that prevent other necessary actions from being initiated. Function-trees that are too deep and difficult to navigate. Mappings that violate conventions when there is no need Mappings that violate conventions in an unforgiving way Mappings that seem counter-intuitive to the player. Context sensitive controls that conflict with standard mapping. **Analysis of Problems:** Get together and talk about the experience, focusing on the player, asking into what

	happened and using the video to isolate problem spots etc. How easy were the functions to use? How did the player use alternate modes and/or screens? Was the transition between them problem free? **Video:** Does the player look a lot at the controller, instead of the action? Does the player react to the Interaction assets as intended?
RESULT	**Suggested fixes:** Are the controls clumsy? Fix them! Problems in transition between screens can be fixed by better mapping or by removing or adding pausing of the game when entering them. Transition between modes must also be clear to the player, and mappings of controls can be made more or less distinct in order to integrate or distinguish the modes more clearly. Some problems could also force a revision of the list of interaction possibilities and corresponding sub-systems.
FOLLOW-UP	**Further testing:** If the video indicate problems with camera placement the Camera test might be in order. If interaction assets have to be changed they should be tested again. **New ideas and solutions:** Throughout a process involving this many people quite a lot of ideas can surface, be sure to note them all down and go through them critically not too long after.

Risks

Game Title	Build	Date	Tester

PURPOSE	**Concept element:** Overview: Risks **Description:** The purpose of the test is to examine what parts of the concept that introduces new risks into the development-process.
SETUP	**Prerequisite information:** You need a full description of the concept. **# of Participants:** 2 **Special qualifications:** Game designer, Technical Lead **Materials:** Description of concept, understanding of current software technology in company, understanding of current technology in general. **Area:** Meeting room **Estimated time:** 4-6 hours **Tests using a similar setup:** Crazy Ideas
METHOD	**Performing the test:** In this context "new" means unfamiliar to the current or planned team. Examine the concept and feature list and answer the following: • What new technologies does the game require? • What new editors will the developers be forced to use? • Will it be necessary to develop editors? • Will it be necessary to modify existing editors? • Will it be necessary to develop new, groundbreaking technology? • How does the concept challenge current technologies? • Given current technology, what parts of the concept is most likely to create a technical challenge? Make a list with the concept elements that are most likely to cause a risk
DATA	**Data List:** A list of answers to the questions under **method** with information on which parts of the concept that are most likely to create a technical risk.
ANALYSIS	**Problem severity:** Risks that are caused by elements that are not core concept are less problematic. Risks that are linked to core concepts are a lot more problematic, and could cause the

	project to fail. **Analysis of Problems:** Compare the parts to the list of core concepts: • If the risk is caused by a core concept, examine whether it's possible to minimize the risk by altering the core concept *without compromising it.* • If it isn't possible to alter the core concept, examine whether the core concept can be removed *without jeopardizing the uniqueness of the game.* • If it isn't possible to alter the core concept, be aware of the risk during development. • If the risk isn't caused by a core concept, examine whether the concept can be altered to minimize the risk or whether the concept can be entirely removed from the game.
RESULT	**Problem fixes:** The analysis reveals what concept-elements are the most risky, and what are realated to the core concepts. Depending on what Those not related to the core concepts add to the game a set amount of resources can be set aside to evaluate their feasibility while work on this feature is put on hold or they can be dropped right away. Risks concerning core concepts should be addressed as soon as possible by doing a feasibility check. If the risk-analysis lists all the core concept as major technical challenges/risks, then the game is most likely not technically feasible. Examine if it's possible to alter the core concepts, so that it becomes technically feasible. If it isn't possible to alter the core concepts, then the game is too risky to make and development should be stopped.
FOLLOW-UP	**Further testing:** A feasibility check could involve any number of tests from the test catalogue as appropriate. If core concept-elements are altered as a result of this test the revised design should be tested again.

	New ideas and solutions: New, less risky solutions that have surfaced during the course of the testing should be tested for compatibility with the other concept elements.

Plot Linear Interactive Choices			
Game Title	**Build**	**Date**	**Tester**
PURPOSE	**Primary Concept element:** Story**:** Plot **Secondary Concept elements:** Other story elements, Interaction: Interaction Possibilities and Level Design: Progression. **Description:** The purpose of the test is to examine whether the choices and actions that the players have available to them in a game with a linear plot are meaningful and coherent.		
SETUP	**Prerequisite information:** • Manuscript that shows the structure of the plot (as in 5a Background for tests) and breakdowns for each event. • Description of the player character and the main fictional non-player characters for the tester • Description of the setting of the game. • List of interaction possibilities • Definition of core gameplay • To avoid wasting the respondent's time a progression test should have been made, to make sure that the game /tested levels actually are possible to complete and provide a list of potential problem spots. **# of Participants**: 2 (1 tester, 1 respondent) **Special qualifications:** The tester should be intimately familiar with the story. The respondent shouldn't be aware of the story in the game. The respondent should belong to the target audience. **Materials:** Roleplaying • A description of the setting of the game (:the game world) • A preliminary map of the locations in the game • A description of one of the plots in the game, broken down into individual events, and containing list of valid choices/interactions for the event. There should also be a space for noting new information given to the respondent ,alternative choices made by the respondent and checkboxes for "dead end"		

	and “needed description to continue” • A description of the player character(s) • Descriptions of the main non-player-characters • Pen and paper for taking notes • Recording device **Area:** Meeting room with little distraction and noise. **Estimated time:** 1-2 hours pr. level **Tests using a similar setup:** Test Plot Linear Interactive uses the same setup.
METHOD	Recording the play-session either on an audio or video recording can ease the data-analysis process considerably and allow the tester to focus on the playthrough, and only write short notes on the respondent’s actions. First give the respondent the background of the game: Read to or let the respondent read the description of the player character & the setting of the game. Read aloud/let the respondent read the descriptions in the following order: 1. A description of the setting of the game (:the game world) 2. A description of the player character(s) 3. Description of the core gameplay **Playthrough procedure:** Begin the playthrough by describing the starting area, and the first event to the respondent. Describe: • Where the action is taking place • Who are present • What has happened • Sensory input: sights and sounds Ask the respondent what he/she wants to do. • **Additional information**: If the respondent requests information supply

information that is readily available and explain what actions would be needed to obtain more information (e.g. “Do you want to go outside and look?”)

New information: If the respondent requests information that would be obvious in the final game, but is not present in the manuscript or the other descriptions the tester should make it up. Write a note of this new information down next to the event breakdown, under “New information"

Write down what the respondent chooses to do The respondent’s action should as far as possible be put into one of the following categories:

- **Valid choice**: These are choices the designer has anticipated and set down in the manuscript. Most of these actions need not be written down in any detail, a checkmark next to the chosen option in the event breakdown will suffice. These actions should of course be covered by the game’s list of interaction possibilities, if not note this down as something to be fixed.
- **Alternate Choice**: Sometimes the respondent will make alternate, unanticipated choices or try to perform actions not covered by the list of interaction possibilities to move the plot forward. These actions should generally be allowed, but fail to produce a decisive effect. The exact outcome may have to be improvised. Note all alternate choices and their effects down next to the event breakdown, under “alternate choices”

Describe the outcome of the respondent’s actions, as they are intended to be presented in the game, following the general guidelines below:

Narration guideline:

Actions that will ruin the game flow, or bypass vital areas will fail.

Actions that are not part of the game’s interaction possibilities will fail or produce trivial results

Otherwise all actions that can succeed will succeed.

Difficult actions should be narrated dramatically, and incur some cost (e.g. using a lot of ammunition or losing some health.)

Trivial actions should simply succeed and be narrated with a minimal cost (e.g. one-bullet headshot, sneaking past a guard without being

noticed.)

Dead-End: Sometimes the respondent won't be able to find one of the valid choices and will get stuck. When the respondent has tried three different strategies and failed or just gives up, the tester should:

1. Record that the respondent got stuck next to the event under "Dead End".
2. Ask the respondent what he/she thinks he/she would need to proceed (e.g. a map, understanding the villain's motivation, a better weapon etc.)
3. Provide the respondent with what he/she think is needed and note this down under "new information".
4. If the respondent still cannot proceed, explain what must be done to proceed and note that the respondent needed a description to proceed.

When the respondent's action(s) leads him/her to another event, start the playthrough procedure from the top by describing the new event to him/her.Repeat this process for all events until the respondent has reached the end of the game or level.

Data contextualization

In this part the aim is to get the respondent to put his/her responses in context.

If the respondent persistently chose or disregarded a single strategy or insisted on pursuing *alternate choices* (ex. wanting to talk to enemies in a FPS), ask the respondent why he/she did this. This could be due to a misunderstanding of the game, because he desires another type of play or because the setting creates some expectations that had not been taken into account.

If the respondent got stuck ask him/her why he/she tried the other three strategies. Then ask what would be needed for the respondent to attempt the intended strategy sooner. Also ask the respondent if he/she feels the indented strategy makes sense.

Finally ask the respondent some questions about the overall impression of the story, try to get the respondent to focus on the actual play experience.

	"What did you think of the mood as you were playing? Why?" *"Did you feel anything was missing or extraneous during play? Why?"* *"What was the best part of the playthrough – what did you like? Why?"* *"What was the worst part of the playthrough – what did you dislike? Why?"* *"Did what happened during the playthrough make sense to you? Why?/Why not?"* *"What was your overall impression of the playthrough?"*

DATA	**Data List:**
	• Valid choices made and avoided for each event.
	  o Explanation of why the respondent pursued or failed to pursue these choices.
	• Alternate choices made for each event.
	  o Explanation of why the respondent pursued these choices.
	• New information for each event, if any.
	• A "Dead end" warning for events that the respondent could not figure out.
	  o Additional information about the "Dead End".
	• A list of interaction possibilities missing from the original list.
	• A list of general comments about the plot.

ANALYSIS	**Problem severity:** Problem severity depends a lot on the main focus of the game experience (e.g. Tell a story, Convey a mood, Constantly put the player in the middle of the action, Challenge the players reasoning, Create a profound sense of there-ness and immersion). A well-stated core gameplay and high concept should make this easy. Below is a general guideline, starting with the most severe problems: 1. Interaction possibilities that are critical to performing a required interaction are missing from the list of interaction possibilities for the game. 2. The respondent encountered dead ends and needed a description of how to proceed. 3. The plot was uninteresting or nonsensical. 4. The respondent encountered dead ends and needed "new information". 5. The respondent systematically ignored or overlooked valid interaction modes and instead made alternate choices.

	6. The respondent systematically ignored or overlooked valid interaction modes, but chose other valid interaction modes. 7. Trivial, but planned, interaction possibilities are missing from the list of interaction possibilities for the game. **Analysis of Problems:** Be aware that this test-method may have a bias toward free-form communication, prompting the respondent to opt for conversation to a greater degree than with a digital product. First of all, looking at the aggregate of the respondent's actions, did the actions taken reflect the intended core gameplay? If they did, the changes to the DD should be geared towards allowing the described behavior. If not the changes to the DD should be focused on facilitating the appropriate behavior. **Valid choices**: If a certain valid interaction or strategy is systematically ignored this can be due to: • Personal taste – do all our respondents show this preference? • Game design – is the interaction less interesting, or does it produce inferior results? • Missing affordances – is the interaction mode or choice not readily apparent? **Dead-End**: Examine how often the respondent got stuck and the tester had to help him onwards. Examine if the plot affords for the valid choice in the event, and the strategies the respondent tried instead. **Alternate Choice**: Examine how to introduce constraints for the alternate choices that conflict with or are outside the core gameplay. Consider how alternate choices that support the core gameplay and high concept can be integrated into the game. **Overall changes**: Be careful of changes that remove what the respondent liked about the playthrough, or add more of what the respondent disliked.
RESULT	**Suggested fixes:** Generally the player must aware of his interactive options (affordance) and he must

	understand what options are not valid (constraints). If the respondent persistently chooses *alternate choices* (ex. wanting to talk to enemies in a FPS), Examine how the event affords for the right choice; examine how to introduce clearer constraints for the alternate choice. If the alternate choice makes more sense within the context of setting either change or modify the setting or plot or consider adding the alternate choice to the list of interaction possibilities. If the respondent(s) *persistently* hit dead ends, the choices in the plot might not be as obvious as they appear to the designer. Examine whether the issue is caused due to lacking affordance and constraints or whether the choices in general don't make sense within the context of the setting and considering the motivations of the player-character or non-player-characters.
FOLLOW-UP	**Further testing:** If the respondent(s) actions seem to suggest that several choices don't make sense in the context of the setting, then it might be a good idea to test the setting and meaning of the plot with a non-interactive plot test . **New ideas and solutions:** Alternate choices that fit the high concept and core gameplay should be included in the "crazy ideas" or considered for implementation.

Test Plot Linear Non-Interactive

Game Title	Build	Date	Tester

PURPOSE

Primary Concept element: Story: Plot

Secondary Concept elements: Story: Setting, Story: NPCs and Story: Player Character

Description: The purpose of the test is to examine whether a given plot in a linear game is meaningful to the respondent and to uncover as many holes in the plot as possible. It doesn't examine whether the choices in the game are meaningful (for this see Test Plot Linear Interactive).

SETUP

Prerequisite information:

You need a description of the plot of the game. You also need a description of the player character, the non-player characters and the setting of the game.

# of Participants: 2 (1 tester, 1 respondent)

Special qualifications: The respondent shouldn't know the game

Materials:

Interview

- A description of the setting of the game (:the gameworld)
- A description of one of the plots in the game
- A description of the player character(s)
- Descriptions of the main non-player-characters

Area: Meeting room

Estimated time: 1-2 hours pr. level

Tests using a similar setup: Test Plot Non-Linear Non-Interactive uses the same setup.

METHOD

Performing the test:

The answers to the questions below should be recorded. This can be done as a interactive online-formula that the respondent can answer, by taking notes during the interview or by recording the interview and transcribing it.

Read aloud/let the respondent read the descriptions in the following order:

- A description of the setting of the game (:the gameworld)
- A description of the player character(s)
- Descriptions of the main non-player-character(s)
- A description of the plot in the game

Verify the respondent's understanding of the description by asking the respondent to give a short description of the following in his or her own words:

- The setting
- The player character(s)
- The major non-player-character(s)
- The plot of the game.

Examine the coherence of the plot by asking following questions:

- Does the gameworld appear internally consistent to you?
  "What do you think of the setting?"
  "Is there something in the setting that doesn't make sense?"
  "What would you alter about the setting –if anything? Why?"

- Player Character
  "What do you think of the player character?"
  "Does the player character's motivation make sense to you?"
  "Does the player character's actions make sense to you?"
  "What would you do if you were him/her/it?"
  "Are there anything you would change about him to make his actions more meaningful?"
  "Would it be a more interesting story from another character's point of view?"

- The non-player character
  "What do you think of the non-player character(s)?"
  "Do their motivation make sense to you?"
  "Do their actions in the plot make sense to you?"
  "Are there anything you'll change about their motivation to make their

	actions make more sense?" *(or)" Would It make more sense if they acted otherwise?"* Examine the meaning of the plot by asking following questions: • The plot *"Does the progression in the plot make sense to you? Why not?"* *"What do you think of the plot"?* *"Are there events in the plot that you don't understand why are happening? Why not?"* *"Are there events in the plot with consequences you don't understand? Which and why?"* *"What themes can you see in the plot? Are they well developed?"* *"Is there a moral to this story? What is it?"* *"How could the plot develop instead?"* Examine if the plot is coherent with the story, PCs/NPCs & setting**:** *"Are the story, the player-charter(s), setting and the NPCs coherent?"* *"Do they contradict each other on the narrative level?"* If the respondent gives answers that weren't anticipated, then the interviewer should ask questions to increase his/her understanding of the respondent's answers.
DATA	**Data list:** The data will be a list of qualitative answers to the questions. These will be the respondent's view of the plot and perhaps some suggestions as to how the plot could be improved.
ANALYSIS	**Problem Severity:** Severe problems include: • Plot holes and logical inconsistencies • Events whose cause the respondent cannot decipher • Character actions that do not make sense • Character motivations that do not make sense Less severe problems include:

	• Shallow characters • Underdeveloped themes • Morals that are not clear to the respondent **Analysis of Problems:** If the respondent expresses that the plot is broken or doesn't make sense, examine what causes the issue: is it the plot, the PC(s)/NPCs or a conflict between the setting and the plot? Examine whether it's possible to alter the part of the plot that causes the issue: • If it's the plot, try to alter the chain of events by altering the progression, by adding events or by removing events • If it's the PC(s)/NPCs, examine if the conflict is caused o by inconsistency between the characters and their actions? If this is the case, then examine how the characters can be altered to justify their actions or how their actions can be made differently. o whether it's caused by a narrative inconsistency between the PC(s)/NPCs and the setting? Examine what causes the in-consistency and how the PC(s)/NPCs or the setting can be altered to fit each other. • If it's a conflict between the setting and the plot o Examine what exactly causes the inconsistency and see if it can be altered. If it's a general incompatibility, then examine whether either the setting or the plot should be replaced with one that's more compatible with the other. After performing this test you will have determined whether the plot-structure makes sense to a person outside the project. Weak points in the plot will have been isolated, and you should have some ideas to how to strengthen them.
RESULT	**Suggested fixes:** Plot holes must be fixed. How this is done depends on their nature, but consistency,

	integrity and meaning should be maintained no matter what the player does. If the basic premise of the plot is faulty, you may have to re-work it from scratch. Some stories may seem out of-place in certain settings, to a given mood or from a particular point of view. Try the same plot with different moods, main characters and settings.
FOLLOW-UP	**Further testing:** If the plot, the setting or the PC(s)/NPCs have been changed as a consequence of the test, then these components must be tested again. **New ideas and solutions:** This test can spawn a range of ideas from combining or splitting up characters, to tweaking the setting or graphical style to suit the mood of the story better. Any interesting ideas should be noted down in “Crazy Ideas” and evaluated at a later stage.

Plot Non-Linear Interactive Choices

Game Title	Build	Date	Tester

PURPOSE

Primary Concept element: Story**:** Plot

Secondary Concept elements: Other story elements, Interaction: Interaction Possibilities and Level Design: Progression.

Description: The purpose of the test is to examine whether the choices and actions that the players have available to them in a game with a non-linear plot are meaningful and coherent.

SETUP

Prerequisite information:

- Manuscript that shows the structure of the plot (as in 5a Background for tests) and breakdowns for each event. Because this is a non-linear plot make sure that events with different states based on previous player actions are clearly marked.
- Description of the player character and the main fictional non-player characters for the tester
- Description of the setting of the game.
- List of interaction possibilities
- Definition of core gameplay
- To avoid wasting the respondent's time a progression test should have been made, to make sure that the game /tested levels actually are possible to complete and provide a list of potential problem spots.

# of Participants: 2 (1 tester, 1 respondent)

Special qualifications: The tester should be intimately familiar with the story. The respondent shouldn't be aware of the story in the game. The respondent should belong to the target audience.

Materials:

Roleplaying

- A description of the setting of the game (:the game world)
- A preliminary map of the locations in the game
- A description of one of the plots in the game, broken down into individual events, and containing list of valid choices/interactions for the event. There

	should also be a space for noting new information given to the respondent ,alternative choices made by the respondent and checkboxes for “dead end” and “needed description to continue” • A description of the player character(s) • Descriptions of the main non-player-characters • Pen and paper for taking notes • Recording device **Area:** Meeting room with little distraction and noise. **Estimated time:** 1-2 hours pr. level **Tests using a similar setup:** Test Plot Linear Interactive uses the same setup.
METHOD	Recording the play-session either on an audio or video recording can ease the data-analysis process considerably and allow the tester to focus on the playthrough, and only write short notes on the respondent’s actions. First give the respondent the background of the game: Read to or let the respondent read the description of the player character & the setting of the game. Read aloud/let the respondent read the descriptions in the following order: 4. A description of the setting of the game (:the game world) 5. A description of the player character(s) 6. Description of the core gameplay **Playthrough procedure:** Begin the playthrough by describing the starting area, and the first event to the respondent. Describe: • Where the action is taking place • Who are present • What has happened • Sensory input: sights and sounds

Ask the respondent what he/she wants to do.

- **Additional information**: If the respondent requests information supply information that is readily available and explain what actions would be needed to obtain more information (e.g. “Do you want to go outside and look?”)

  New information: If the respondent requests information that would be obvious in the final game, but is not present in the manuscript or the other descriptions the tester should make it up. Write a note of this new information down next to the event breakdown, under “New information"

Write down what the respondent chooses to do The respondent’s action should as far as possible be put into one of the following categories:

- **Valid choice**: These are choices the designer has anticipated and set down in the manuscript. Most of these actions need not be written down in any detail, a checkmark next to the chosen option in the event breakdown will suffice. These actions should of course be covered by the game’s list of interaction possibilities, if not note this down as something to be fixed.
- **Alternate Choice**: Sometimes the respondent will make alternate, unanticipated choices or try to perform actions not covered by the list of interaction possibilities to move the plot forward. These actions should generally be allowed, but fail to produce a decisive effect. The exact outcome may have to be improvised. Note all alternate choices and their effects down next to the event breakdown, under “alternate choices”

Describe the outcome of the respondent’s actions, as they are intended to be presented in the game, following the general guidelines below:

Narration guideline:

Actions that will ruin the game flow, or bypass vital areas will fail.

Actions that are not part of the game’s interaction possibilities will fail or produce trivial results

Otherwise all actions that can succeed will succeed.

Difficult actions should be narrated dramatically, and incur some cost (e.g. using a lot of ammunition or losing some health.)

Trivial actions should simply succeed and be narrated with a minimal cost (e.g. one-bullet headshot, sneaking past a guard without being noticed.)

Dead-End: Sometimes the respondent won't be able to find one of the valid choices and will get stuck. When the respondent has tried three different strategies and failed or just gives up, the tester should:

5. Record that the respondent got stuck next to the event under "Dead End".
6. Ask the respondent what he/she thinks he/she would need to proceed (e.g. a map, understanding the villain's motivation, a better weapon etc.)
7. Provide the respondent with what he/she think is needed and note this down under "new information".
8. If the respondent still cannot proceed, explain what must be done to proceed and note that the respondent needed a description to proceed.

When the respondent's action(s) leads him/her to another event, start the playthrough procedure from the top by describing the new event to him/her.Repeat this process for all events until the respondent has reached the end of the game or level.

Data contextualization

In this part the aim is to get the respondent to put his/her responses in context.

If the respondent persistently chose or disregarded a single strategy or insisted on pursuing *alternate choices* (ex. wanting to talk to enemies in a FPS), ask the respondent why he/she did this. This could be due to a misunderstanding of the game, because he desires another type of play or because the setting creates some expectations that had not been taken into account.

If the respondent got stuck ask him/her why he/she tried the other three strategies. Then ask what would be needed for the respondent to attempt the intended strategy sooner. Also ask the respondent if he/she feels the indented strategy makes sense.

Finally ask the respondent some questions about the overall impression of the story,

	try to get the respondent to focus on the actual play experience. *"What did you think of the mood as you were playing? Why?"* *"Did you feel anything was missing or extraneous during play? Why?"* *"What was the best part of the playthrough – what did you like? Why?"* *"What was the worst part of the playthrough – what did you dislike? Why?"* *"Did what happened during the playthrough make sense to you? Why?/Why not?"* *"What was your overall impression of the playthrough?"*

DATA	**Data List:**
	• Valid choices made and avoided for each event.
	  o Explanation of why the respondent pursued or failed to pursue these choices.
	• Alternate choices made for each event.
	  o Explanation of why the respondent pursued these choices.
	• New information for each event, if any.
	• A "Dead end" warning for events that the respondent could not figure out.
	  o Additional information about the "Dead End".
	• A list of interaction possibilities missing from the original list.
	• A list of general comments about the plot.

ANALYSIS	**Problem severity:** Problem severity depends a lot on the main focus of the game experience (e.g. Tell a story, Convey a mood, Constantly put the player in the middle of the action, Challenge the players reasoning, Create a profound sense of there-ness and immersion). A well-stated core gameplay and high concept should make this easy. Below is a general guideline, starting with the most severe problems: 8. Interaction possibilities that are critical to performing a required interaction are missing from the list of interaction possibilities for the game. 9. The respondent encountered dead ends and needed a description of how to proceed. 10. The plot was uninteresting or nonsensical. 11. The respondent encountered dead ends and needed "new information".

12. The respondent systematically ignored or overlooked valid interaction modes and instead made alternate choices.
13. The respondent systematically ignored or overlooked valid interaction modes, but chose other valid interaction modes.
14. Trivial, but planned, interaction possibilities are missing from the list of interaction possibilities for the game.

Analysis of Problems:

Be aware that this test-method may have a bias toward free-form communication, prompting the respondent to opt for conversation to a greater degree than with a digital product.

First of all, looking at the aggregate of the respondent's actions, did the actions taken reflect the intended core gameplay? If they did, the changes to the DD should be geared towards allowing the described behavior. If not the changes to the DD should be focused on facilitating the appropriate behavior.

Valid choices:

If a certain valid interaction or strategy is systematically ignored this can be due to:

- Personal taste – do all our respondents show this preference?
- Game design – is the interaction less interesting, or does it produce inferior results?
- Missing affordances – is the interaction mode or choice not readily apparent?

Dead-End:

Examine how often the respondent got stuck and the tester had to help him onwards. Examine if the plot affords for the valid choice in the event, and the strategies the respondent tried instead.

Alternate Choice: Examine how to introduce constraints for the alternate choices that conflict with or are outside the core gameplay. Consider how alternate choices that support the core gameplay and high concept can be integrated into the game.

Overall changes: Be careful of changes that remove what the respondent liked about

	the playthrough, or add more of what the respondent disliked.
RESULT	**Suggested fixes:** Generally the player must aware of his interactive options (affordance) and he must understand what options are not valid (constraints). If the respondent persistently chooses *alternate choices* (ex. wanting to talk to enemies in a FPS), Examine how the event affords for the right choice; examine how to introduce clearer constraints for the alternate choice. If the alternate choice makes more sense within the context of setting either change or modify the setting or plot or consider adding the alternate choice to the list of interaction possibilities. If the respondent(s) *persistently* hit dead ends, the choices in the plot might not be as obvious as they appear to the designer. Examine whether the issue is caused due to lacking affordance and constraints or whether the choices in general don't make sense within the context of the setting and considering the motivations of the player-character or non-player-characters.
FOLLOW-UP	**Further testing:** If the respondent(s) actions seem to suggest that several choices don't make sense in the context of the setting, then it might be a good idea to test the setting and meaning of the plot with a non-interactive plot test . **New ideas and solutions:** Alternate choices that fit the high concept and core gameplay should be included in the "crazy ideas" or considered for implementation.

Test Plot Non-Linear Non-Interactive

Game Title	Build	Date	Tester

PURPOSE

Primary Concept element: Story: Plot

Secondary Concept elements: Story: Setting, Story: NPCs and Story: Player Character

Description: The purpose of the test is to examine whether a given plot in a non-linear game is meaningful to the respondent and to uncover as many holes in the plot as possible. It doesn't examine whether the choices in the game are meaningful (for this see Test Plot Non-Linear Interactive).

SETUP

Prerequisite information:

You need a reverse-engineered description of a given plot in the game. You also need a description of the player character, the non-player characters and the setting of the game.

# of Participants: 2 (1 tester, 1 respondent)

Special qualifications: The respondent shouldn't know the game

Materials:

Interview

- A description of the setting of the game (:the gameworld)
- A description of one of the plots in the game
- A description of the player character(s)
- Descriptions of the main non-player-characters

Area: Meeting room

Estimated time: 1-2 hours pr. level

Tests using a similar setup: Test Plot Linear Non-Interactive uses the same setup.

METHOD

Performing the test:

The answers to the questions below should be recorded. This can be done as a interactive online-formula that the respondent can answer, by taking notes during the interview or by recording the interview and transcribing it.

Read aloud/let the respondent read the descriptions in the following order:

- A description of the setting of the game (:the gameworld)

- A description of the player character(s)
- Descriptions of the main non-player-character(s)
- A description of the plot in the game

Verify the respondent's understanding of the description by asking the respondent to give a short description of the following in his or her own words:

- The setting
- The player character(s)
- The major non-player-character(s)
- The plot of the game.

Examine the coherence of the plot by asking following questions:

- Does the gameworld appear internally consistent to you?

  "What do you think of the setting?"

  "Is there something in the setting that doesn't make sense?"

  "What would you alter about the setting –if anything? Why?"

- Player Character

  "What do you think of the player character?"

  "Does the player character's motivation make sense to you?"

  "Does the player character's actions make sense to you?"

  "What would you do if you were him/her/it?"

  "Are there anything you would change about him to make his actions more meaningful?"

  "Would it be a more interesting story from another character's point of view?"

- The non-player character

  "What do you think of the non-player character(s)?"

  "Do their motivation make sense to you?"

  "Do their actions in the plot make sense to you?"

  "Are there anything you'll change about their motivation to make their actions make more sense?"

	(or)" Would It make more sense if they acted otherwise?" Examine the meaning of the plot by asking following questions: • The plot *"Does the progression in the plot make sense to you? Why not?"* *"What do you think of the plot"?* *"Are there events in the plot that you don't understand why are happening? Why not?"* *"Are there events in the plot with consequences you don't understand? Which and why?"* *"What themes can you see in the plot? Are they well developed?"* *"Is there a moral to this story? What is it?"* *"How could the plot develop instead?"* Examine if the plot is coherent with the story, PCs/NPCs & setting**:** *"Are the story, the player-charter(s), setting and the NPCs coherent?"* *"Do they contradict each other on the narrative level?"* If the respondent gives answers that weren't anticipated, then the interviewer should ask questions to increase his/her understanding of the respondent's answers.
DATA	**Data list:** The data will be a list of qualitative answers to the questions. These will be the respondent's view of the plot and perhaps some suggestions as to how the plot could be improved.
ANALYSIS	**Problem Severity:** Severe problems include: • Plot holes and logical inconsistencies • Events whose cause the respondent cannot decipher • Character actions that do not make sense • Character motivations that do not make sense Less severe problems include: • Shallow characters

	• Underdeveloped themes • Morals that are not clear to the respondent **Analysis of Problems:** If the respondent expresses that the plot is broken or doesn't make sense, examine what causes the issue: is it the plot, the PC(s)/NPCs or a conflict between the setting and the plot? Examine whether it's possible to alter the part of the plot that causes the issue: • If it's the plot, try to alter the chain of events by altering the progression, by adding events or by removing events • If it's the PC(s)/NPCs, examine if the conflict is caused o by inconsistency between the characters and their actions? If this is the case, then examine how the characters can be altered to justify their actions or how their actions can be made differently. o whether it's caused by a narrative inconsistency between the PC(s)/NPCs and the setting? Examine what causes the in-consistency and how the PC(s)/NPCs or the setting can be altered to fit each other. • If it's a conflict between the setting and the plot o Examine what exactly causes the inconsistency and see if it can be altered. If it's a general incompatibility, then examine whether either the setting or the plot should be replaced with one that's more compatible with the other. After performing this test you will have determined whether the plot-structure makes sense to a person outside the project. Weak points in the plot will have been isolated, and you should have some ideas to how to strengthen them.
RESULT	**Suggested fixes:** Plot holes must be fixed. How this is done depends on their nature, but consistency, integrity and meaning should be maintained no matter what the player does.

	If the basic premise of the plot is faulty, you may have to re-work it from scratch. Some stories may seem out of-place in certain settings, to a given mood or from a particular point of view. Try the same plot with different moods, main characters and settings.
FOLLOW-UP	**Further testing:** If the plot, the setting or the PC(s)/NPCs have been changed as a consequence of the test, then these components must be tested again. **New ideas and solutions:** This test can spawn a range of ideas from combining or splitting up characters, to tweaking the setting or graphical style to suit the mood of the story better. Any interesting ideas should be noted down in “Crazy Ideas” and evaluated at a later stage.

Rules – Normal Use

Game Title	Build	Date	Tester

PURPOSE

Concept element: Mechanics: Rules

Description: The purpose of this test to play through the "vertical slice", or similar level and evaluate the basic dynamics of the game in order to find out which parts of the rule set works and which need to be changed.

The test is designed to find obvious imbalances, missing descriptions of key interactions, holes in the rules and ambiguities in the rules system and dynamics that are too random or predictable, and thus less interesting to the player.

SETUP

Prerequisite information:

Design Goals: Description of the play experience you want the rules to give, what kind of gameplay the rules should encourage and allow.

Written, operationalized rules:

The descriptions should be output oriented and include the range and spread of desirable outcomes for each action. These can be on a higher abstraction level, granularity is not a main issue here, it's more important to get a smooth play-experience that includes all the basic dynamics in the first iterations.

For most 3rd person shooters this would have to include variables such as:

- Hit points or whatever other system the game uses to model damage, armor, hit locations, hit effects etc.
- Rate of fire / reload time /ammo etc.
- Movement rate
- Field of Vision
- Accuracy / targeting model (including lock-on, range and auto-aim features)

List of actions:

This should also include definitions of the relationships between actions, such as what actions and effects abort/open up or disable other actions both for the avatar and the NPCs.

	Time mapping: Estimated durations of each action, and any associated effects. Optionally play-time can be divided into rounds and phases. This can be useful on higher levels of abstraction and / or when a lot of NPCs are involved. **Item lists:** This should include quantified description of how the tools, such as weapons and items, work, as well as their effects on the game world. **Triggers:** List of the intra- or extradiegetic triggers or warnings that can cause the player and the NPCs to react, and when. This could include animations, sounds and system messages. **# of Participants:** 2: "Player" and "AI" **Special qualifications:** Both participants should be members of the design team, ideally the game designer is the "Player", and the technical lead is the "AI". **Materials:** [Spatial Model] Description, map or mock up of the vertical slice level in any form. Scale figures and buildings / props (eg. army men, lego figures) Randomizer (e.g. dice, computer) Rulers or measuring tape **Area:**Room w. large table **Estimated time:** Depends on the size of the vertical slice. **Tests using a similar setup:** Line-of-sight and Obstacles tests
METHOD	**Performing the test:** Set up buildings and props according to the description of the Vertical Slice level, or another level containing simulations of the core features (all essential weapons, modes of transport and major interaction types) in the game. Play through it using the operationalized rules.

	One participant takes control over the model(s) representing the avatar(s), while another controls the NPCs. Note down problems spots as you go. These should fall into a couple of categories: • **Obvious imbalances** - try to remedy them on the fly by changing a single variable, and sticking with the change through the rest of the iteration. Record the change and evaluate it later • **Ambiguities in the rules** – Make a quick decision and make a note of it. Be alert should the situation arise again, but another solution seem more appropriate. • **Too random or too predictable results** – note down the numeric and game-world results of this action from now on, and examine them later. • **Desire to perform an interaction not described in the DD** - when encountered, write it down each time this happens. It should be discussed later. The goal of the first couple of iterations should be a full playthrough of the vertical slice scenario. With repeated iterations play and rules should become more and more detailed and focus on particular areas and interactions. After performing many iterations and working in great detail on one element, finishing off with a final playthrough on a high-level abstraction can help contextualize and validate the changes made.
DATA	**Data List:** • List of obvious imbalances and suggestions on how to fix them. • List of ambiguities in the rules and suggestions to clarifications or interpretations. • List of outcomes perceived as too random or too predictable. • List of interactions the player might want to perform not described in the DD

	or current rules. • You will have determined whether a complete play-trough of a level including all core features is possible under the current ruleset.
ANALYSIS	**Problem Severity:** • Some of the obvious imbalances will have obvious solutions, this includes weapons that do too much damage for example, and can often be implemented right away, others may be more deeply rooted in the underlying system. Repeated playthroughs should reveal which is the case. • Ambiguities in the rules can often be easily clarified, but could also indicate an area or the rules where there are some more serious underlying problems if the situation is encountered again, and the ad-hoc solution found last time doesn't work. • Outcomes perceived as too random or too predictable should be investigated in detail, under different conditions and in different areas. The main problem here is the same: not enough choice. If the impression persists a stress test is in order, and the range of possible result or the presentation of the results should be modified. • Considering not supported interactions you should try to determine the following: ▪ How often the tester wanted to perform the unsupported interaction ▪ How problematic it was that the interaction could not be made. Did it "break the game" by creating exploitable situations? Did it seem illogical, or counter - intuitive? ▪ Whether having to work around this limitation made the game more interesting or challenging. **Analysis of Problems:** It is important to note that the point of the test is not to assess whether the play-experience is fun or not, but to check the rules for consistency and functional holes and whether the current version of the rules reflect the intentions of the designer and match the listed design goals.
RESULT	**Suggested fixes:**

	Based on this the object/situation causing the desire to perform the unsuitable behavior should either be removed / redesigned OR the designer should look for a way to include the desired interaction in the game and integrate it in the play-experience. **Obvious imbalances:** Try to determine the desired range of outcomes. By keeping the focus on the output as long as possible you avoid changing the underlying system too early, and thus inadvertently affecting other areas of the design. The actual implementation in the system could later be retro-fitted to fit the desired output. **Ambiguities in the rules:** If the problem persists these situations should be played again on a more detailed scale in order to find and resolve any potential problems. **Outcomes perceived as too random or too predictable:** Change the interaction or the probabilities so that the player has the impression that his/her choices are meaningful. **Interactions not described in the DD or current rules**: Use the Design Goals to evaluate whether the inclusion of the interaction would benefit or hurt the game. Also assess the implications of including the interaction. If a complete play-through was not possible, isolate the reasons for this, and proceed to fix the rules, story or vertical slice as appropriate. In further iterations: can new problems be traced back to previous "fixes"? If so, try to find a way of fixing both problems, but decide right away which consideration is the most important in case both cannot be accommodated.
FOLLOW-UP	**Further testing:** When the basic rules have been fleshed out and tested with this test, the extreme values should be tested with a Rules stress-test. **New ideas and solutions:** Ideas for representing the information to the player, for example in terms of animations and GUI-elements, can come up during the test. Note them down and add them to the appropriate section of the DD after evaluating them.

Rules – Stress

Game Title	Build	Date	Tester

PURPOSE

Concept element: Mechanics: Rules

Description: The purpose of this test is to reveal exploitable mechanics so they can be fixed. It also determines the range of values and their interaction on extreme levels and helps ensure game balance by removing or re-balancing strategies that are strictly superior or strictly inferior in all or the vast majority of cases.

SETUP

Prerequisite information:

- The rules of the game must be operationalized.
- While the exact granularity need not have been set, relative numbers must be assigned to the variables.
- The mechanics of the gameplay should have been defined and quantified, for example using the "rules - normal use test".
- The relative spread of outcomes of the different actions, and whether these are on a logarithmic, linear or other scale should have been determined.
- The underlying system that will produce the desired range of outcomes, whether using a unified mechanic or being strictly output – based, should also be operationalized.
- A complete list of the Interaction Possibilities must be prepared.

# of Participants: 1-2

Special qualifications: The data-collection portion of the test could be performed by anyone with an intimate knowledge of the game, and some knowledge of probability and mathematics.

The analysis part of this test should include at least one of the Core Concept group, such as the designer or the programming lead.

Materials: Spreadsheet (Exel or similar program)

Area: No specific requirement

Estimated time: Not known, depends entirely on the complexity of the game.

Tests using a similar setup: Presently none

METHOD

Performing the test:

Create a spreadsheet for each type of interaction in the game. Typical categories for action-shooters are:

- Ranged Combat
- Movement
- Melee combat
- Damage / Healing
- Weapons
- Inventory

Other common systems include:

- Social system
- Trade
- Character advancement
- Power-ups
- Vehicles
- Mission / quest system

List all the variables involved in a given system. Create output boxes with formulas in the spreadsheet that present the aggregate outputs of the system. The numbers in these boxes are where the system interacts with other systems. (For example the weapon system interacts with the damage/healing system through the damage rating of a given weapon, and possibly with the inventory system through the ammunition count.)

Next, enter the extreme and average values for the different variables into the spreadsheet. Register whether the results you get in the output boxes fall within the acceptable values based on the game design goals.

Check what effects the different values, maximum, minimum and average, have on the other systems.

If the game goes through a series of stages the acceptable values of the output-boxes for each stage should be determined and the maximum, minimum and average values for each stage entered into the system.

	Be sure to take into account all inputs from other systems when performing the calculations.
DATA	**Data List:** • Spreadsheet containing all the basic mechanics of the game in a format that allows the full range of numeric data to be input, compared and analyzed. • A list of results from inserting the extreme and expected average values. • An indication of how well the expected average values will correspond to actual in-game values.
ANALYSIS	**Problem Severity:** Be especially wary of the following issues: • Simple, quick, repeatable actions that require little skill, with a large aggregate result. • Effects that multiply, rather than add or subtract from a given result. • Values that approach (or reaching) zero or infinity. • Illogical effects or lack of effect on one system by another (e.g. NPCs will still like you even if you attack them because combat and social interaction are separate systems.) • If the game has, or allows multiple modes of interaction: Is one invalidated by another game element? • Dominant strategies without a viable counter-strategy (e.g. rock vs. paper but no scissors). • Allowing different builds/specializations early, but demanding a special build later. **Analysis of problems:** Be aware that the interactions between the different systems will quite likely create dynamics that are impossible to foresee with this technique. What can be done is to anticipate and avoid some of the worst-case scenarios. **Balance issues:** are some builds, weapons or skills strictly better than others? (Will they always be chosen over the others by an informed player?) Compare the modes of interaction, is one always better or inferior to the others? (e.g.Melee always works better than sniping) Are these imbalances so severe as to

	invalidate other choices and play-styles? Investigate whether there are abusable combinations of variables by inserting extreme values. In this test you should NOT expect "soft" factors, such as limited knowledge or item rarity to be able to prevent players from obtaining the extreme results. Only built-in mathematical limitations should be taken into consideration. Investigate whether the best items and strategies in the game are balanced by another factor (rarity, price, sacrifice of another ability or limited resources) that actually makes a strategic difference and not only works as a gate-keeper, keeping a certain demographic (such as casual gamers) from obtaining or using it. Investigate whether there is a simple progression of items, where the next item effectively replaces the previous, or each new item adds another level of complexity and tactical choice. The answer should be consistent with the core gameplay and high concept.
RESULT	**Suggested fixes:** If a given interaction mode is rendered useless by any other game element it will be necessary to examine it's role in the game. It can be removed, the other element can be removed or one or both re-balanced. Choices that would never be used by an informed player should be fixed or removed. Interactions that require skill should have a greater potential pay-off than interactions that do not. The effects of simple repeatable actions should be limited. At least in multiplayer games every strategy should have a counter strategy.
FOLLOW-UP	**Further testing:** It is vital that the rules are compatible with the engine's physics. Rules that are supported by the engine are both faster and cheaper to implement. If there are several unknown factors concerning implementing the rules in the engine, a risks test might be required. **New ideas and solutions:**

Interaction assets

Game Title	Build	Date	Tester
PURPOSE	**Concept element:** Presentation: Interaction assets (except characters) **Description:** This test is designed to evaluate whether an interactive asset, such as a puzzle element or a weapon, gives enough information about itself and its use to allow the player to interact with it in the intended fashion. The test can also reveal possible secondary uses or functionality for the asset in question. The test will address the following factors: **Affordances –** can the player understand what the object can be used for? **Constraints –** can the player understand what the object cannot be used for? **Feedback –** can the player understand what condition or state the object is in? (on/off, destroyed/being repaired etc.)		
SETUP	**Prerequisite information:** 1. A list of behaviors and functionality that will be coded into each item, prioritized based on how essential a given interaction is to the player's experience of the game. We suggest using the asset template (asset template.xls). The asset template is a standardized sheet with a sample or last concept/render if appropriate on one side, and the interaction possibilities and results of the test on another. It should also contain a path to the asset, and the page in the DD where it is described, and "approved" boxes for lead, creative director etc. 2. The POV and a basic idea of what the avatar looks like. 3. A GUI sketch (2 & 3 could be combined in a screenshot mock - up). 4. A controller setup proposal **# of Participants:** 1 tester 1 respondent The test should be repeated with fresh respondents until it has been thoroughly tested and each time the asset undergoes a major change in looks or functionality. This can be done by the test-group performing quick ad-hoc changes to the design, or by sending the design back to the designers or art department.		

Special qualifications:

The tester must know what behaviors and functionality will be coded into the item.

The tester must:

- Be aware of the asset's intended use
- Be able to evaluate the consequences of emergent use.

Ideally the tester is one of the designers.

The respondent should be informed of:

- The type of game (RPG, shooter etc.)
- The avatar
- The POV
- The GUI
- The controller setup

Otherwise the respondent should be unfamiliar with the game. The respondent should fall within the wider target audience of the game.

Materials:

Visual Representation & Interview

- Complete list of all uses of the asset. (e.g. an asset template)
- Samples, print-outs or mock-ups of the asset, from several angles if a model, and in all states. These MUST be without names, filenames or other written notes so as not to bias the respondent and appear as much as possible as they would in the game (lighting, background, angle etc.)
- A sketch or description of the GUI.
- A sketch or description of the controller setup.
- Description / ideas for interaction animations.
- Notepad for the interviewer
- Markers and drawing-paper for the respondent
- Camera if the asset is/contains an animation or character.
- Other presentation equipment required to present the asset. E.g. overhead projector, speakers etc.

	Area: Separate room, with little or no noise if the asset is/contains a sound, and appropriate lighting if the asset is a physical model. Space to move around if the asset is an animation to allow the respondent to act out the animation if appropriate. **Estimated time:** 15 min. + about 2 min. pr asset tested **Tests using a similar setup:** Character stress test, Avatar test,
METHOD	**Performing the test:** Ask open questions, encourage the respondent to reason aloud, be particularly aware of cultural biases in interpretations. Ask for input in terms of controller input as far as possible. Describe the effect of actions in terms of responses given through the I/O devices (screen, force-feedback etc.) and avatar feedback. Remember to take notes, draw on the printouts, act out/demonstrate movements and interactions and encourage the respondent to do the same. Take pictures of the respondent if he/she acts out interactions etc. **Present the purpose of the test:** "This is a test to find out whether an asset's functions are apparent enough to a player. The function is more important than form." **Present the game to the respondent:** o Describe the type of game (rpg, shooter etc.) o Describe the avatar in general terms (or show a concept) o Describe the POV and camera. o Give the respondent a sketch and description of the GUI. o Give the respondent a sketch and description of the controller setup. **Gauge the respondent's first reaction to the asset:** Present the asset to the respondent. This may require the illustration/mock-up of the asset or playback /acting out an animation or sound. Describe the context of the asset. *"What do you think this is? –Why?"*

"What is it definitely not? – why?"

Describe scenarios where the asset appears, then ask to see if the interpretation changes.

State what type of asset the test subject is.

"What do you do when you see this in the game? Why? "
"What would you not do? Why?"
"How would you react to seeing another character using this in the game? Why?"

Find out if the asset has the right affordances:
"Given the game's context, what do you think is it's primary function in the game?"
"What other things do you think you can use this for in the game?- why/not?"

Compare the answers given to the list of functionalities, separating the answers into 4 categories:

1. Good affordances for the functionality
2. Acceptable affordances for the functionality
3. Unacceptable affordances for the functionality
4. Affordances for undocumented functionality

Then ask for both things that can and cannot be done with the asset using the prepared list of affordances and constraints:
"Do you think you can X with this?" -"why/not?"

Record the answers on the list of functionalities and constraints, and take notes where appropriate.

"What would have to be changed for you to <intended behavior>?"

Changes could include adding audio feedback / animation, changing the iconography etc.

	Feedback: show pictures of the asset in all the different states, and a second picture of the original state. *"what is the difference between these pictures"* Be wary of the same object in differing states perceived as different objects, (indicates to much difference between the states) changes in state that are not noticed (too little difference between states), and perceived differences between two identical states (too little difference between states, or many confusing or extraneous details). *"What would have to be changed for you to* <intended interpretation of asset>*?"* **Aesthetics:** For each asset ask the respondent what he/she thinks of the way it looks**.** "What do you think of the design of the <asset name>? Do you think it looks (or sounds etc.) cool, or don't you like it? Why?" Repeat until all assets have been tested.
DATA	**Data List:** • List of the affordances the respondent perceived. • List of the affordances the respondent **did not** perceive. • List of the constraints the respondent perceived. • List of the constraints the respondent **did not** perceive. • List of the feedback the respondent perceived. • List of the feedback the respondent **did not** perceive. • List of the secondary uses of the asset the respondent perceived. • List of the secondary uses of the asset the respondent **did not** perceive. • The respondent's assessment of the aesthetic qualities of the asset. • Photos and sketches of ideas.
ANALYSIS	**Problem severity:** After the test is performed review the data and try to answer the following questions: Do the most apparent uses coincide with the priorities outlined before test-start?

	How critical is the interaction with the asset? Can the design of the asset be improved? Sometimes ambiguity may be desired, as long as the player don't get stuck and frustrated.
RESULT	**Suggested fixes:** If the player could get stuck or progression could be seriously slowed down unless the interaction is performed properly, the asset or the challenge of which the asset forms a part must be re-designed or its use clarified through contextualizing.
FOLLOW-UP	**Further testing:** The results should be summarized in the asset template. If the test indicate problems with a certain type of interaction possibility a rules test or GUI test might be required. **New ideas and solutions:** Remember to let the asset-producers know what the results of the test was, so that critical information of functionality is not lost. This can be done by implementing and continually updating the asset template as part of the production pipeline.