6 Game Design Considerations

Most game design is imitative; that is, a designer typically looks to existing, successful games, adopts proven mechanics, and alters mainly theme, setting, and story (if any). Innovation tends to be incremental, the designer seeking to improve or add a new aspect to existing mechanics. In part, this is because of the conservatism of publishers, who (mostly wrongly) believe they are minimizing financial risk by minimizing design risk; in part, it is because few designers have the confidence and desire to innovate in more fundamental ways.

Thus, most designers, most of the time, do not think about where uncertainty lies in their games; they are working within a well-known genre, and the mechanics they adopt have already been shown to produce results that please players. The uncertainties the genre creates are already tuned.

From time to time, however, a designer is faced with a challenge that can't be met simply by stealing systems from another game: an unusual topic, a different demographic, a novel technology, a goal other than entertainment. And at times, even when adopting well-known systems, modest changes to mechanics can make a game feel flat, for reasons that may not be immediately evident.

In cases like these, it is helpful to take a careful look at the game and identify where its uncertainty lies. What uncertainties does the player face? Are they sufficient to make the game challenging, at a level of challenge that is appropriate for the audience? Are they the kinds of uncertainties that are likely to appeal to the game's intended audience? And perhaps most important, would the game be strengthened by introducing a different form of uncertainty, or reducing or eliminating an existing form?

Lack of Uncertainty

Just as writers sometimes dream stories, I sometimes dream games. One night, I dreamed of a Eurostyle game in which night elves and humans both grew crops and stored them in Persephone's granary, drawing on the granary in times of need, the elves working at night and the humans in the day, in a both competitive and cooperative fashion. As an experiment, I put together a playable copy of *Night Grain*.[1] It turns out that my subconscious is not a very good game designer. *Night Grain's* fatal flaw is that it is a game of perfect information and symmetrical positions. The result is that players adopt identical strategies, the correct move is almost always blindingly obvious, and it is, in a word, dull.

How could it be improved? Evidently, it needs a greater source of uncertainty. Hidden information of one kind or another is an obvious approach; a random element is another. Of course, since it is intended to be a Eurostyle game, any random element would have to alter the opportunities for all players rather than make the outcome luck-dependent, in the fashion of *Medici* (where commodities are drawn from a bag but all have a chance to bid

on them) rather than in the fashion of *Risk*. Another approach would be to introduce a stronger element of player uncertainty, allowing players to more directly affect each other; or of analytic uncertainty, complexifying the simple track system of the current game.

As another example, *Deep Realms* (uncredited, 2011) was a game that attempted to bring the dynamics of Japanese-style RPGs to Facebook. Japanese RPGs are characterized by strong stories and characters, married to complicated but turn-based combat systems. Their main sources of uncertainty are in the narrative—the desire to unlock the next element of the story is a major draw for players—and a degree of analytic complexity in the combat system, which is not deep but does require different tactics against different opponents.

Deep Realms copied the basic combat dynamics of the genre but simplified them somewhat, with the idea that social games appeal to a more casual audience than console titles; and while it had a sort of story, it was somewhat perfunctory, and not nearly as well-written as, say, the story of *Final Fantasy X*. And, to be sure, *Deep Realms* had nothing like the gorgeously rendered cinematics of that game.

In short, the uncertainties it posed to players were far weaker than those of the genre it was copying; and it suffered from the main flaw of the genre (boring and repetitive combat between story moments). Unsurprisingly, it was not commercially successful (and has been shut down by the developers).

In both games, the uncertainties pose no real challenge to players, and, in both cases, the game would be improved either by strengthening existing sources of uncertainty, or introducing new ones.

Excessive Uncertainty

Excessive uncertainty is equally often a problem. Warning signs of excessive uncertainty include players unable to figure out what to do; games whose path and outcome seem out of control and unrelated to player actions; and "analysis paralysis," the phenomenon of games delayed by lengthy player pondering.

One example is Disney *Epic Mickey* (Jones, 2010). It is a 3D platformer in which, as is typical in such games, the camera's position is usually controlled by the game itself as you navigate the gameworld. While *Epic Mickey* allows you to alter the position of the camera with the controller's D-pad, the camera moves quite slowly when you do. And, of course, as in most platformers, quick timing and response is necessary to navigate obstacles and defeat enemies. The problem is that the camera's motions are quite unpredictable from a player's perspective, and the game will often move the camera in a way that makes it difficult to avoid dying—in mid-jump, for instance. In other words, the camera functions in a way that players find highly uncertain, making for a frustratingly difficult game. Positively reviewed in most other regards, the game was consistently dinged for poor camera control.

The fix here would obviously be to polish the controls more highly: to make them behave consistently and, ideally, almost invisibly to the player, removing this source of uncertainty.

Another example, in a very different way, is *Crusader Kings* (Bergqwist, 2004), particularly its treatment of marriage. You control a noble house over many centuries of the Middle Ages, and the game tracks hundreds of noblemen and women across Europe and the Middle East. Each character has widely divergent characteristics, and success in the game is critically dependent on finding a good mate for your monarch—that is, one with

positive traits that will be passed onto your heir, so that your monarch is always an effective governor and warrior. When I say "critically dependent," I mean this literally; at one point, I had an insane, wife-killing, incompetent and despised monarch, and watched as my vassals broke away, neighbors declared war, and my entire realm fell apart.

The difficulty is that finding the stats of a potential mate requires you to examine the court of their noble house and pore over the statistics displayed. Given the hundreds of characters tracked by the game, this becomes tedious and irritating; typically, you settle for good enough, with unpredictable effects on the game's path. The uncertainty here is irritatingly high. Not surprisingly, fans of the game produced a little application that scans the game's data and provides a nicely sorted list for you, showing available mates and their data.

This, unfortunately, reduces the uncertainty of the system perhaps too much; armed with the data, finding a good mate becomes easy in most circumstances, and success in the game becomes virtually assured. The optimal balance for the game is probably somewhere between its original design and the fanware addition: easier access to information than the game provides by default, but not the perfect information provided by the fanware.

Unsurprisingly, *Crusader Kings II* (Fåhraeus and King, 2012) recently released, does precisely this—providing some but not perfect information in a nicely formatted way.

Combining Sources of Uncertainty

Typically, when designers think about tuning gameplay, they think about tuning the difficulty of existing systems. In

a platformer, if the game seems too easy, you make the time window for player response narrower; if it seems too hard, you expand the time window or work to make the controls crisper and more responsive. In a Eurogame, if player choices seem too obvious, you might layer on another system to increase the analytic complexity; if analysis paralysis is a consistent issue, you might seek to simplify one or more mechanics, to tune the analytic complexity lower.

What designers rarely do is introduce a new and different form of uncertainty, because this is not an immediately obvious way to handle the problem. And yet, doing this can be quite powerful and lead to highly original work.

One example is *Spelunky* (Yu, 2009). At first glance, it appears to be merely a platformer, a long-standing and well-understood game style, well executed for its type but far from original. Almost immediately, however, it becomes apparent that this game is extraordinarily original and quite different from any platformer that came before. Conventional platformers, like *Super Mario Bros.*, have a set of unchanging levels, played in an unchanging sequence, each level laid out by a designer. *Spelunky*, like *NetHack*, creates its levels algorithmically, so that no two play sessions are ever identical. In other words, Yu took a game of pure performative uncertainty, added a strong element of randomness, and produced an extremely novel and fascinating game—with, to be sure, some of the problems to which Rogue-likes are prone, including highly variable difficulty depending on luck.

Another example, *Portal*^{2} (uncredited, 2008) is, in a sense, a first-person shooter, in that the player navigates a 3D space from a first-person viewpoint and interacts with the world primarily by firing a gun. However, the gun is used to create portals between two separate locations in the gameworld and, for

example, stepping into a portal on the floor causes you to "fall" out the other end of the portal, which may be flat against a wall, giving you a trajectory that may allow you to get to an otherwise unreachable space. It is, in fact, a puzzle game, in which traversing each level requires use of the portal gun in clever ways. To put it another way, *Portal* turns a game style that is normally dependent primarily on performative uncertainty into a game of solver's uncertainty.

And as a third example, the core mechanic in *Triple Town* (Cook, 2010) is "match three," a somewhat tired scheme used by a huge number of casual games. *Triple Town* is played on 6 × 6 grid. Each turn, the game feeds you an item; place three in a row, and they turn into a more valuable item at the third-placed location. There's some variability, in that what item you are served each turn is randomly determined, but you may "park" one item and pick it up later if you like.

If this is all there were to the game, it would be dull; the best strategy for maximizing your score is easily determined: Avoid blocking off areas of the grid when you match three, so that you can close-pack the grid with maximally scoring items. The only real variation in path would result from the random generation of items.

But there is a second element: Sometimes you are served a bear, which you must place. Bears do not "match-three"; instead, they move at random within the grid. Once bears are in play, your ability to place objects is constrained, in an unpredictable way; the location where you want to place may be occupied by a bear this turn, and since their movement is random, you can neither control nor predict their behavior. If a bear cannot move, that is, when you block one or a group of bears off by placing items so that there are no free squares in their vicinity,

the bear turns into a tombstone; and tombstones can be match-three'd, becoming more valuable churches.

In short, without bears, *Triple Town* would be a cut-and-dried, fairly dull game; but the addition of an element of random uncertainty transforms it into a far more engaging (and sometimes frustrating) game.

Combining different sources of uncertainty, or injecting a novel source of uncertainty into an otherwise well-understood genre, can create highly original games and should be one of the tools in any intelligent designer's toolbox.