Rules of Play: Game Design Fundamentals

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GAMES AS SYSTEMS OF CONFLICT

competition and cooperation

systemic cooperation

player cooperation

game goals

victory and loss conditions

level playing field

*Conflict arises naturally from the interaction in a game. The player is actively pursuing some goal. Obstacles prevent him from easily achieving this goal. Conflict is an intrinsic element of all games. It can be direct or indirect, violent or nonviolent, but it is always present in every game.— **Chris Crawford, The Art of Computer Game Design***

Introducing Conflict

What does it mean to consider games as **Systems of Conflict?** First of all, we agree with Chris Crawford. Conflict is an intrinsic element of every game. Conflict, a game as a contest of powers, is a core component of our very definition of the term "game." While conflict outside of games can sometimes be destructive, in games we find the wonderful paradox of a *staged* conflict, resulting in meaningful play.

Game conflict emerges from the unique circumstances of a game. The magic circle imbues games with special meanings. One of the most important meanings to emerge is the game's victory conditions. Winning the game might only have value within the magic circle, yet players pursue it. By virtue of their participation in the game, they have taken on as *meaningful* the game's presumptions and proscriptions, including everything associated with winning. The struggle among the players to achieve the goal of a game and become winners is the competitive activity that drives a game's system of conflict.

The fact that this activity is a *struggle* derives from the intrinsic challenge presented by the conflict of a game. As we know from our study of the lusory attitude, games are constructed so that their goals are difficult to achieve. The conflict of a game arises as the game players struggle toward achieving the goal, often in opposition to each other, sometimes struggling together or in parallel.

What are the shapes of conflict that occur in games? Struggle in a game can take many forms:

• *Single player vs. single player:* a Chess game or Boxing match

• *Group vs group:* Basketball, Soccer, and other team sports

• *One against many:* Tag or Mother May I?

• *Every player for themselves:* a footrace or the strategic board game Risk

• *Single player competing against a game system:* Solitaire or Tetris

• *Individual players competing side by side against the game:* casino Blackjack

• *A group of players cooperating against a game:* Lord of the Rings Board Game

Many games mix and match these forms, such as a wrestling meet, in which individuals compete against each other in pairs, but their scores are added up and applied to the team as a whole. Some games can accommodate more than one of these game modes, such as the arcade game Double Dragon, in which one player can compete against the program, or two players can cooperate against it. Still others have competitive structures that change over time, such as the television show *Survivor*, in which players are initially divided into two competitive teams, eventually becoming a single group from which a single winner emerges.

Conflict in a game can be direct or indirect. In an arm wrestling match, players are pitted directly against each other, trying to pin the other player's arm while avoiding being pinned themselves. The back and forth movements of the players' locked hands is a direct meter of the struggle, indicating how near or how far either one of them is from achieving the winning conditions of the conflict. In a figure skating contest, the conflict is indirect. Competitors each have their own turn to perform and be judged. They cannot directly interfere with each other's success, and winning the competition means receiving the highest score from the judges.

Still other games mix direct and indirect conflict. In a real-time strategy game such as multiplayer Starcraft, players compete against each other, though they are not always directly interacting. Players have to think offensively and defensively, building their resources and defenses, anticipating the actions of other players. As a game proceeds, the solo activities of each player evolve into direct conflict, as the units controlled by the players come into contact. Further, there is more than one way to configure the conflict in Starcraft: the game lets players set up team vs. team games, one player vs. many players, human players vs. computer opponents, and so on.

Conflict Case Studies

As these examples illustrate, more than one form of conflict can exist within the scope of a single game design. Next we take a detailed look at three different games, focusing on the ways each one configures competition and cooperation between players. All three games are arcade games from the 1980s: Centipede, Joust, and Gauntlet. Each game weaves its own surprisingly complex fabric of player conflict.

Centipede

Our first example is the arcade game Centipede, in which the player uses a trackball controller and fire button to move a character at the bottom of the screen and shoot at objects coming down from the top. Centipede might seem at first glance to have a simple and straightforward structure of conflict. But in fact, the formal system provides many ways for players to struggle and pursue goals.

- As a single-player experience, you compete against the program. The game compiles an ongoing "score" based on your performance, and the presumed goal of the game is to achieve the highest score.

- There are many ways that you might pursue goals related to the high score goal of the game. You might have a general idea of what constitutes a "good score," which you try to achieve. Or you might try to surpass your previous game's score, or attain a new personal best score.

- You might set other goals besides those involving your score. For example, you might try to play for a certain amount of time, get to a certain level in the game, or destroy every enemy of a particular type that appears. Several of these goals might co-exist with each other and with the score-oriented goals.

- Centipede can be played as a two-player game. Both players alternate play, switching places when the current player loses a life. If you compete against another player in this way, the quantifiable outcome of the game (your score) has new meaning. It is no longer only an indicator of your personal success but becomes a way to compare your performance to that of the other player. Two-player Centipede is a zero-sum competition, where one player wins and the other player loses. In this sense, the actual game scores are important only insofar as they are used to determine the winner. The numeric scores of the players are

translated into binary win/lose values.

- Aspects of the single-player competition can be combined with aspects of the two-player competition. You might have lost to your opponent, but you might also have gotten your best score ever, in which case you won in your own self-competition, even while losing to the other player in the zero-sum conflict of the two-player game.

- The fact that players can enter their initials into a high score list creates a different kind of competition: you compete against previous players, whom you probably have never met. This competition is more indirect: you compare your score with their scores, and if you are one of the top eight players, you get to enter your initials into the game for other players to see, bumping off the player at the bottom of the list. However, you might later be bumped off as well. Here, your numeric score is translated into a scaled rank: either your score wasn't high enough to put you on the list, or you entered the list at a specific rank.

- There are other competition scenarios as well. For example, you might play as a single player and set the goal of making it onto the high score list. In this case, you turn the game into a system of competition with a binary win/loss condition: either you make it onto the high score list or you don't.

- You might have an ongoing rivalry with a friend about who can achieve the higher score on Centipede. The two of you are not good enough to get on the high score list, but you can still keep track of your relative scores. Your score in this scenario is translated into a rank between you and your friend, a rank that changes as one of you bests the other's higher score.

Joust

Who knew so many different forms of conflict were lurking under the surface of a simple arcade game? Our next example adds even more. In Joust, two players maneuver bird-mounted knights, attacking enemies controlled by the program. Both players can play the game simultaneously, instead of alternating turns. This structure opens up whole new forms of competition.

- Joust can be a single-player game. Individual players receive a score and there is a list of player high scores, including separate rankings for daily high scores and "all time" high scores. Most of the forms of competition in Centipede also occur in Joust.

- Two players could compete to see who gains the higher score over the course of a game. Because players do not alternate turns but compete simultaneously, the scores of **o** both players are visible at all times, heightening the drama of this form of competition.

- The simultaneous two-player structure opens other possibilities for conflict. Two Joust players can attack each other if they wish. One way to play the game is as a fighting game, where players directly attack each other, killing their opponent with a successful attack. The goal of the competition in this case is to kill your opponent more times than you are killed. Playing the game in this way turns Joust into a zero-sum game. Numerical scores do not matter, only who is left alive at the end.

Joust

- It is also possible for two players to refrain from attacking each other and instead work together to defeat the computer-generated enemies, strategically coordinating their actions. In this case, the two players compete together against the computer. They might set a goal of reaching the highest level or for playing as long as possible.

- Even if players cooperate, they might still compete in other ways. For example, two players coordinating their actions against the computer might compete to get the higher score.

- Often, these different kinds of competition overlap. The game design of Joust makes it easy for a player to kill another player: if they collide, the one that is in a higher position destroys the other one. Even cooperating players sometimes accidentally kill each other, an event that usually affects the competitive flow of the game. After an accidental killing, one player might become resentful and aggressive and the game might transition into the "fighting game" version of Joust. Or the accidental killer might let his opponent kill him one time, just to balance things out. The game might also just continue as usual.

- Competitive tensions persist throughout the game. Because both players are operating on the screen at the same time, there may be competition about where and how they should play, even if they are not actively trying to kill each other. For example, two players might both wish to occupy a certain section of the screen or attack a specific group of enemy characters. An accidental player-killing (or the threat of one) can enter the game as a result, opening up additional competitive complexities.

Gauntlet

In Joust, the two-player simultaneous structure adds new layers to the possibilities of game conflict. In Gauntlet, our third arcade game example, up to four players can play at once. The players take fixed roles (Warrior, Valkerie, Thief, or Wizard) as members of a team. Together the team explores the game spaces, fights computer-generated enemies, and gathers resources that boost their abilities to let them explore further.

• Like Joust and Centipede, Gauntlet can be played by a single player. Gauntlet players also receive a score; if the score is high enough, players record high scores and player initials. All of the single-player and high score list forms of competition apply to Gauntlet as well.

• Unlike Joust, Gauntlet players can only attack computer-generated opponents—their attacks do not affect the other players. As a result, Gauntlet lacks the "fighting game" as a possible form of conflict. Instead, the players consistently work together, usually with the goal of seeing how many levels of the game they can explore.

• Because Gauntlet players receive a score, players might also compete to see who has the highest score at the end of the game. As with Joust, the scores are displayed throughout the game, allowing players to constantly check their relative scores.

• Whenever players clear a level of the game, the game pauses to display the relative points of each player and their overall performance in the game, showing, for example, which player received the most treasure in the last level. These moments highlight score-based and stat-based competition between players, encouraging them to compare their performances against each other and invent competition around the many kinds of statistics in the game.

Gauntlet

• During the actual play of a game, another form of competition takes place over in-game resources. As players progress in the game, a number representing their health is slowly reduced. When a character touches an enemy, health is lowered even more. However, there are many "food" items scattered throughout the game that raise a character's health. Players sometimes compete directly for food, trying to be first to reach the item. Players might also discuss who among them needs the food most and let that player acquire the item. The same is true for other special objects in the game, such as keys and magic potions. These forms of resource-based competition are heightened by the statistic comparisons between levels: at these moments, players take stock of how resources have been distributed among the group and can accuse each other of being "unfair" or "greedy."

• A final form of competition unique to Gauntlet involves players spending money on a

game. In many arcade games, prestige comes from being able to play for a long time on a single quarter. But unlike Joust and Centipede, Gauntlet lets players extend their current game via cash additions. Players can put quarters into the game during play to add to their characters' health or to resurrect their characters after they have died. This means that as long as players want to continue spending money, they can keep on playing, exploring more game levels. The escalating difficulty of the game ensures that players will need to spend more and more money as they play. This can turn Gauntlet into a completely different kind of conflict, one in which players compete to demonstrate their tolerance for putting money into the game, a form of conspicuous consumption much like high-stakes gambling. Conversely, players might compete to see who can play the longest before having to spend more money to continue, because skillful players will avoid being killed. In this case, spending less money for the same amount of time would be the goal.

There are obviously many, many more models of competition in games. However, even within these three similar examples there is a wealth of ways that conflict can manifest. The point of these examples is to demonstrate how the design of a game leads to forms of conflict. In each case, formal decisions about the game's structure directly shape the nature of conflict emerging from the game. For each game, the following kinds of questions determine the essential formal structures:

• How many players can play?

• Do they play simultaneously or do they alternate playing the game?

• Is there a high score list?

• Are players given constant feedback about their relative scores?

• Does the game pause to allow players to directly compare their scores and other game statistics?

• Are there computer-generated opponents and obstacles that players face together or do the players serve as opponents for each other?

• Does the structure of the game allow players to have direct conflict with each other?

• Are there resources for which players can compete?

• Can players spend money to continue the game or enhance their play?

The forms of conflict we observed follow directly from the way that each game answers these design questions. Take Gauntlet: if players were allowed to damage each other through attacks, the game would lose its enforced cooperative spirit, and inter-player fighting might become common. If players could not continue their game by paying another quarter, competition for in-game resources would be much fiercer, as players would vie against each other to stay alive until the game ended. What is surprising in all three examples is just how rich and multi-layered conflict can be in a game. This richness comes from the fact that players can derive and construct their own forms of conflict in a game. Some of the goals we

outlined are explicitly defined by the game rules. Others are emergent forms of competition that arise from the player's active engagement with and manipulation of the game structure.

Back in *Defining Games*, in discussing whether or not Sim City was a game, we concluded that it was a borderline case. Although Sim City does not formally define goals with quantitative outcomes, it does provide a space within which players form their own goals and arrive at their own outcomes. As the investigation of Centipede, Joust, and Gauntlet demonstrates, in many ways all games can function like Sim City, with players inventing their own goals and layering these goals on top of those defined directly by the rules of a game.

A game's space of possibility is a space of possible conflict. Part of playing a game involves selecting game goals as a means of navigating and exploring forms and degrees of conflict. What is the best form of conflict to provide your players? As with other aspects of games, there is no single formula that will work best for all players in all contexts. However, providing a rich space of possibility that supports a range of conflict increases the potential variety of players and the ways that they might find your game meaningful.

Competition and Cooperation

So far, we have spoken somewhat loosely about competition and cooperation as they relate to the conflict in a game. But what do these terms really mean? Competition occurs when players struggle against each other within the artificial conflict of a game. Perhaps our clearest model of competition comes from game theory: the zero-sum game. In a zero-sum game, one player's winnings equal another player's losses. If one player is the victor in a two-player zero-sum game, the other player will necessarily lose. Winning is always equally balanced by losing, making the end sum zero.

A common criticism leveled against games is that they are all competitive, and that competition is somehow undesirable. Framed in this way, competition is something to avoid in order to ensure a positive play experience. Bernard DeKoven, game designer and author of *The Well-Played Game*, states this position eloquently:

> It is clear to me now, that the result of such a union [playing to win] is separation, always separation. It divides us into winners and losers, those who have achieved and those who have failed. The division then leads us into further division. It becomes difficult, now that some of us have won and some of us have lost, to find a game that we are all willing to play well together. It was never our focus at all. Though what we have always cherished most is the game in which we are playing well together, winning takes precedence.[1]

DeKoven's point is that when the winning and losing of competition enters into the conflict of a game, it becomes the paramount concern of the game's participants, eclipsing everything else the game has to offer. With all due respect, we disagree. It seems quite clear to us that competitive games can offer genuinely meaningful experiences. Sometimes that meaning can stem from the joy of play itself (DeKoven's "playing well together"), but certainly much meaning derives from the competitive struggle of a game, from trying to become a winner

while avoiding a loss.

The competitive striving toward a goal is fundamental in giving shape to the structure of a game and the way that the game creates meaning. The idea, for example, that in meaningful play a player's actions are *integrated* into the larger context of a game is dependent on the competitive nature of games. Without a goal toward which players strive, it is very difficult for a player to measure his or her progress through the system of a game. Without a measure of progress to give a player feedback on the meaning of his or her decisions, meaningful play is not possible. Remember the "horrible" game The Grid in **Games as Emergent Systems?** That game had no goal, and no way for players to compete with each other. There was nothing to motivate players to move their pieces *this* way instead of *that* way. Meaningful play was impossible.

Our opinion is that all games are competitive. All games involve a conflict, whether that conflict occurs directly between players or whether players work together against the challenging activity presented by the game system. Without a clearly defined goal, games generally become less formalized play activities. However, just because all games are competitive does not mean that they are not cooperative as well. Although we can assert with confidence that *all games are competitive*, it is equally true that *all games are cooperative.* Are these two statements contradictory? Can all games be both competitive and cooperative? The idea that games are both competitive and cooperative is only contradictory if the two terms are mutually exclusive, which they are not. The root of the word "compete" is the Latin *con petire*, which means "to seek together."[2]

In what ways are all games cooperative? Recall the magic circle and the lusory attitude, and the way that these aspects of a game create meaning. To play a game is to submit your behavior to the rules of the game, to enter into the time and space that the game demarcates, to traffic in the special meanings that the game offers up. To play a game is to participate in the discourse of the game with the other players. Players can play Basketball together because they both speak the "language" of Basketball. When two players hit the courts for a game of one-on-one, that is exactly what they are doing.

Therefore, to play a game is to cooperatively take on the artificial meanings of the game, to communicate to the other players through the artificial discourse that the game makes possible.

Terminological Aside: Two Forms of Cooperation

We use the term "cooperation" here in a slightly different way than at the beginning of this chapter. Saying that all games are cooperative refers to the mechanisms that underlie all games, and the way these structures ensure a shared discourse and cooperative spirit among players. We call this form of cooperation *systemic cooperation* because it occurs in all games at a fundamental level.

However, when we said that the Lord of the Rings Board Game, in which players work together to defeat the game system, was cooperative, we used the word in its more common sense. Unlike a directly competitive, zero-sum game such as Chess,

players in Lord of the Rings win or lose as a group. We call this form of cooperation *player cooperation* because it describes specific player relationships that do not occur in all games.

The two uses of the word are not ultimately dissimilar. Player cooperation is really just a literalized manifestation of systemic cooperation. Systemic cooperation, as a phenomenon intrinsic to all games, occurs "under the hood" of the experienced game structure, whereas player cooperation happens at a higher level, incorporated more consciously into a player's understanding of a game.

In this sense, the very act of playing a game is an act of cooperation. It is only through the shared efforts of the players that a game's fragile magic circle takes shape and is sustained over the course of play. There is a wonderful paradox here. Within the magic circle set aside for the game, within the arena spelled out by the rules, a conflict takes place. The players cooperatively form the space of the game, in order to create a competition for their own amusement. Game conflict is like a duel between actors in a play: it is an elaborately staged competitive artifice, enjoyed in part because of its artificiality. There is genuine conflict in a game, but only within a larger cooperative frame sustained by the participation of the players.

New Games

In the earlier critique of Bernard DeKoven's ideas about the negative aspects of competition, we were not quite playing fair. It is true that DeKoven questions traditional forms of competitive play. It is also true that we do not agree with all of his ideas on the subject. But DeKoven's concepts have to be understood within the larger context of his important work on games. In his book *The Well-Played Game*, DeKoven argues for a new understanding of play, governed by a shift in emphasis away from competition. Instead, DeKoven is an advocate for more improvisational games in which players take on the role of game designers.

DeKoven was not alone in his ideas. He was one of the early members of the *New Games Movement*, a group of game designers and play advocates that had a tremendous impact on the culture of games. Founded by Stewart Brand (the same man who started *The Whole Earth Catalog)* in the late 1960s, the New Games Movement was an organization dedicated to the promotion of play and its positive impact on society. During the late 1960s and 1970s, the New Games Movement organized a number of large-scale public game "tournaments" in the San Francisco Bay Area and other parts of the world. Part art happening, part community action, and part playground carnival, New Games Movement Tournaments embodied a uniquely game-centric, community-based politics of a scale that has not been seen since.

The New Games Movement had a large impact on physical education and the integration of games and play into schools. If you grew up playing with a parachute or huge rubber "Earth Ball" in your elementary school gym class, it is probably due to the direct or indirect influence of the New Games Movement. The New Games Movement published two books *(The New Games Book* and *More New Games)* that cataloged their playful game designs. How does the New Games Movement fit into an understanding of games as systems of conflict? The New Games Movement confronted the idea of competition and cooperation head on, creating games and ways of thinking about game design that challenged

conventional notions of games as conflict.

> Many people think of New Games as non-competitive. Of course this isn't the case. Most of the games in this book involve competition—it's what gives New Games its vitality . . . . The effort each player makes to overcome the resistance and achieve the goal is the heart of the game and what makes it enjoyable and gratifying. In most games, the resistance is supplied by your opponent trying to achieve her goal. Your opponent is therefore your partner in the game. The best games are those in which you can play your hardest and still count on our opponent to meet your effort—to compete with you.[3]

Although DeKoven may rail against competition in some of his writings, he also helped instill in New Games the more balanced notions of competition embodied in the quote above, taken from an essay he wrote for the *New Games Book.* DeKoven's main point is that in the context of a game, the struggle of players *against* each other is also a struggle *with* each other, as players meet the challenges that they provide for one another. In this way, New Games affirms the interdependent relationship between competition and cooperation, the systemic cooperation that is part of all games.

But the central focus of New Games wasn't game philosophy: it was the design and play of games themselves. The movement produced some extraordinary game designs. Take, for example, a game called Catch the Dragon's Tail:

> You'll need a good-sized area for this event, clear of sudden pits and immovable oaks. About eight to ten people line up, one behind the other. Now, everyone puts their arms around the waist of the person in front of them. (You can't be ticklish around dragons.) The last person in line tucks a handkerchief in the back of his belt. To work up steam, the dragon might let out a few roars—fearsome enough, we wager, to put Hydra to shame.
>
> At the signal, the dragon begins chasing its own tail, the object being for the person at the head of the line to snatch the handkerchief. The tricky part of this epic struggle is that the people at the front and the people at the back are clearly competing—but the folks in the middle aren't sure which way to go. When the head finally captures the tail, who's the defeated and who's the victor? Everyone! The head dons the handkerchief and becomes the new tail, while second from the front becomes the new head.[4]

Catch the Dragon's Tail purposefully blurs the lines between competition and cooperation. On the one hand, all of the players are cooperating to hold on to each other to become a single dragon. But at the same time, the front part of the dragon is chasing the rear part, with the people in the middle not given a clear role to play in the conflict. Catch the Dragon's Tail makes playfully explicit the ways that players must work together even as they compete within the limited space of a game. Catch the Dragon's Tail also embodies an important lesson for game design: all of our preconceptions about games can be questioned. Normally we might think that all players of a game must have a clearly defined goal, or that lines of competition must be sharply defined, or that a game with player cooperation cannot also have vigorous competition—but Catch the Dragon's Tail debunks all of these assumptions. If nothing else, game design is about playing with ideas, and even seemingly fundamental ideas about competition in games are subject to playful intervention.

The Goal of a Game

In addition to competition and cooperation, another essential component of a game as a

system of conflict is a *goal*. Goals are fundamental to games. In the explication of Centipede, Joust, and Gauntlet, goals figured into each form of conflict. At the outcome of a game, the goals are either reached or not reached, and this quantifiable outcome is part of our definition of games. Very often, it is a clear and quantifiable goal and outcome that distinguishes games from other play activities. Add a goal to informal play and usually you will have a game. Casual skiing for fun is a leisure play activity. But race your friend to the bottom of the mountain and suddenly you're taking part in a game.

A game's goal is defined by its rules and is tightly interwoven into the formal structure of the game as a whole. A game's goal is a central feature of its formal structure. When players come together to play a game, the goal is at the center of the magic circle, the pole that holds aloft the circular tent of the game while the players are inside the structure, at play with one other. The goal sustains their interest, their engagement, and their desire. Without a clear goal, meaningful game play is not possible; if players cannot judge how their actions are bringing them closer to or farther away from winning the game, they cannot properly understand the significance of their actions, and the game collapses into a jumbled heap of ambiguity.

A game's goal defines its endpoint; once it is reached, the game is over. In this sense, a game's goal is the death of play, the mark of the end, foretelling the moment the magic circle will disappear. There is a curious poetic quality to the struggle of game players as they make their way through the system of a game, playing to no end but the one provided by the game itself, even as their joyful pursuit of that end means the death of their pleasure. Until, of course, the next game begins.

Most games have an end in which one or more players achieve victory. However, in games such as Space Invaders, in which the game structure repeats itself with increasing challenge to the player, there is no single victorious endpoint. In this form of game, the goal is to play as long as possible or achieve the highest score. This formal structure heightens the sense of inevitable death. The player is living on borrowed time, staving off the inevitable end of a game that occurs when conditions of failure are met.

The space of possibility of a game is a plane stretched between two anchorage points: the beginning and the end of the game. The players journey from one end to another, making their way from the start to the finish. In a well-designed game that supports meaningful play, this journey between points should be taut and efficient, with every element contributing directly or indirectly to the larger experience.

In case this all sounds too goal-oriented, we must acknowledge that goals are not the only reason people play games. Play can be an end in itself, or a way to achieve social interaction, or affect cultural change. We address each of these motivations for play in later chapters. But seen as a formal system, the goal of a game needs to be recognized as a primary structure that shapes the game as a whole.

Beating Loop

It is easy enough to state that the goal of a game is an important part of the overall design. But it is often very difficult to figure out the exact victory and loss conditions for a particular game. One play pattern can lend itself to different winning conditions, each one shaping the game experience differently.

LOOP is an online single-player game about catching butterflies. In the development of LOOP, the core game play was invented before a decision had been made concerning victory and loss conditions. The game development began with the idea of drawing lines to loop butterflies, scoring points by looping special groups of them (such as butterflies of the same color). The first prototype demonstrated the game interactivity but the start and finish conditions of the game had not been defined. Many options for the victory conditions were discussed and were narrowed down to three scenarios:

1. The player has to catch a certain number of butterflies to finish a level.

2. The player has to clear the screen of all of the butterflies to finish a level.

3. There are no levels: the player has to keep on catching butterflies forever.

Each of these endpoints entailed different kinds of player experiences. For example, scenarios 1 and 2 presumed that the game proceeded as a series of discrete levels, whereas scenario 3 provided a single, continuous game, as in Tetris. There were other unsolved questions too: for example, in scenario 2, what would happen if a player were left with only one butterfly? And what was the loss condition? If the game did have levels, there needed to be victory and loss conditions for finishing a level; if it did not have discrete levels, there only needed to be a loss condition for the game as a whole. In considering the loss conditions, two primary schemes were proposed:

1. A player has a certain amount of time to attain the victory conditions.

2. Butterflies appear as the player proceeds. If too many appear, the game is over.

Many of these variations were playtested in different combinations. For the loss conditions, a time limit was selected, rather than the option of having the screen overrun with butterflies, because it gave the game a clearer sense of progression. In Tetris, it is clear that when the bricks pile up near the top of the screen, you are about to lose. In the prototype of LOOP, it was never quite clear when there were too many butterflies on the screen. A "meter" that kept track of the number of butterflies and displayed how close the game was to being overcrowded could have been added, but that seemed to unnecessarily complicate the game interface.

Having made a decision about the loss conditions (a timer), it was determined that the game would be given discrete levels, with the goal of each level to catch a certain number of butterflies. It was decided that the number of butterflies did not decline over the course of a level: every time you caught a group, the same number of butterflies immediately flew in from the side of the screen. There were several reasons for these decisions. First, there was a desire to create a game that seemed full of possibilities. If the goal of the game was to clear the screen, then the game would have gradually emptied out as the player proceeded through a level. The game would have felt less dynamic and alive: given any set of butterflies, there would have been a single best solution for clearing the screen—and as a level proceeded, the possibilities for different actions decreased. The solution to keep the number of butterflies constant kept the game exciting and full of alternate strategies.

Even though a level ended when a quota of butterflies had been captured, it was possible to exceed the level's victory conditions by going over the quota. You could, for example, strategically capture enough butterflies so that you only had to capture one more to reach your quota—and then snatch a large group of them for your final loop, putting you well above the quota. Butterflies captured beyond your quota earned you large bonus points. The best players managed their butterflies carefully, creeping up on the quota and then scoring a large group at the end that took them well over the quota amount. This kind of careful play was only made possible by the particular structures that had been designed into the game.

Digital games tend to proceed as a series of levels and have loss conditions that end the game, LOOP being one such example. Deciding what constitutes success in a level and what ends the game are absolutely crucial game design decisions. Too often, game designers take these decisions for granted, following design conventions instead of inventing new ones. What about a game in which there are multiple loss or win conditions? What if the goal of the game is to lose as quickly as possible, or run out of points? Just as Catch the Dragon's Tail played with traditional ideas of competition and cooperation, your games can play with traditional ideas of winning and losing as well.

The Level Playing Field of Conflict

Competition and cooperation, goals and struggle, victory and loss: how does it all add up? What are the general conditions of a game conflict? One core principle of conflict in games is that it is *fair*. Game conflict is impartial conflict: it is premised on the idea that all players have an equal chance at winning, that the game system is intrinsically equitable, that the game's contest takes place on a *level playing field*, which does not favor one side over the other. Anthropologist Roger Caillois points this out in speaking about competitive forms of play: "A whole group of games would seem to be competitive, that is to say, like a combat in which equality of chances is artificially created, in order that the adversaries should confront each other under ideal conditions, susceptible of giving precise and incontestable value to the winner's triumph."[5]

Why would a game strive so forcefully to create equality in this way? As our definition states, a game is an *artificial* conflict. The game structure creates an artificial arena, in which everything is removed except for the factors involved in the conflict. Chess is a context for intellectual strategic competition. In a gymnastics competition, only gymnastics skills matter.

In real life, the conflicts and struggles faced are never so clearly articulated and understood as in a game. The idea that players are entering into a fair conflict, where they won't be fooled or tricked by the game itself, is a key component of the lusory attitude. Even though games may have elements of uncertainty, the structure within which that uncertainty plays out is known in advance. The qualities of rules themselves make this so. As we know from **Defining Rules**, rules of a game limit player action, are explicit, unambiguous, binding, and shared by all players. Within the magic circle, players experience a kind of equality and fairness that is not present outside games.

Is it really true that games strive to create spaces of equality, where only the play of the game can determine the winner of a game? Are games so pure and separate from the real world that no other factors possibly enter into the play? Generally speaking, no. But in this chapter we are analyzing games on a formal level, removed from consideration of their relation to the outside world. And in a formal sense, yes, games are spaces of pure conflict, separate from the outside world.

LOOP
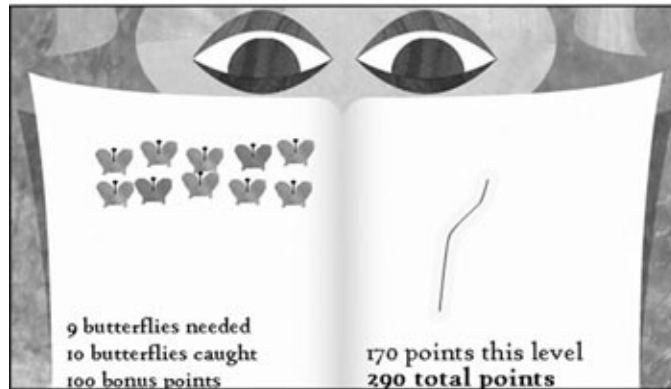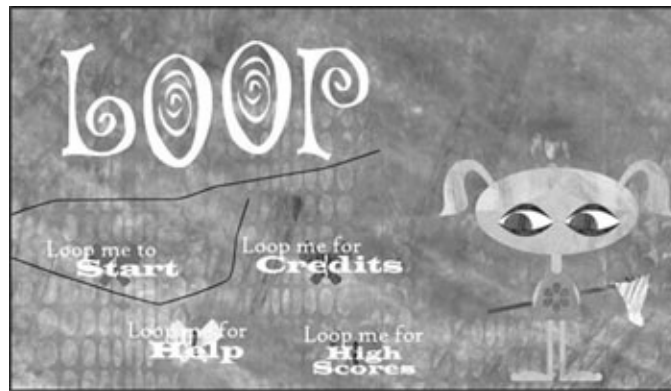
Given the artificial nature of games, is fairness possible? Does the magic circle offer a truly level playing field? Caillois thinks not:

> As carefully as one tries to bring it about, absolute equality does not seem to be realizable. Sometimes, as in checkers or chess, the fact of moving first is an advantage, for this priority permits the favored player to occupy key positions or to impose a special strategy. Conversely, in bidding games, such as bridge, the last bidder profits from the clues afforded by the bids of his opponents. Again, at croquet, to be last multiplies the player's resources. In sports contests, the exposure, the fact of having the sun in front or in back; the wind which aids or hinders one or the other side; the fact, in disputing for positions on a circular track, of finding oneself in the inside or outside lane constitutes a crucial test, a trump or disadvantage whose influence may be negated or modified by drawing lots at the beginning, then by strict alternation of favored positions.[6]

There is indeed a contradiction at work in the idea of equality within games. As Caillois points out, equality is something that is sought after in games, but somehow never quite achieved—at least, in the non-digital game examples he cites. What about digital games? In

some ways, they have an advantage when it comes to creating a level playing field. The constrained context of a computer system allows for greater control over the exact conditions of play. On the other hand, the complex automated nature of digital games can place players at some distance from the rules. Players can easily grow suspicious of an unfair network lag, a "cheating" AI, or a low processing speed "stutter." This kind of player distrust, whether or not it is based in reality, can ruin a game.

The magic circle is fragile, easily dispelled when players fail to invest faith in the game. If your players feel that your game is unfair, that it lacks a level playing field, it is unlikely that they will want to play. Within the magic circle, a game is suspended between the ideal notion of a level playing field and the reality of inevitable unfairness, a reality that creeps into every game, even while the magic circle's border holds it at bay. Perhaps games do not take place on an absolutely level playing field. But they are premised on the very real idea of fairness and equality. This struggle is part of what gives games their vitality.

All games participate in this conflict between fairness and unfairness, a struggle that reaches its climax in rule-breaking, a phenomena explored fully in the next schema. But even within a more limited game design context, establishing a sense of fairness is crucial to successful game play. The following case study looks at one example of this problem in detail.

Pig Redux

We first examined the game Pig in *Games as Systems of Uncertainty.* In Pig, the goal of the game is to score points by rolling a die and adding to your score until you reach 100 points. If you roll a 1, then you lose the points you earned that turn and pass the die. Otherwise, you keep rolling to try to increase your score. You can always decide to stop rolling, at which point you add your current total to your overall score and pass the die to the next player.

The game is very simple. But is it truly fair? Does the first player have an advantage? Because Pig is about accumulating a score, turn after turn, it does favor the first player: that person has an added chance of reaching 100 first. If there are five players and on the tenth turn the player that went first scores 100 points or more, that player wins. But some of the other players, who only got to play nine rounds, might have reached 100 if they had been allowed a tenth turn as well.

Pig embodies the classic game design problem of creating a level playing field. Ideally, every player should have an equal chance of winning. So what is the solution? There are a few possible game design adjustments. One solution is that the winner of the previous game gets to go first, as an added reward. But this does not solve the problem of deciding who goes first in the very first game. Should the winner be rewarded in this way? Doing so creates a positive feedback loop, which might unbalance the game. Should the player with the lowest score go first? Neither of these solutions create fairness for all players.

Another solution is using a random die roll to determine player order. The player that rolled

the highest number goes first. Even though a great many games use this method, it is not necessarily the best solution to the problem. Will it feel fair to all of the players? For example, because play proceeds around the circle of players, the player that rolled the lowest number may end up as the second player, if that player is sitting next to the person that rolled the highest number. In any case, even if the order of players is randomly determined, the player moving first still has an advantage over the other players, and the inequality remains.

Yet another solution would be to play the game a number of times equal to the number of players at the table, rotating which player goes first. If there were ten players, they would play the game ten times. Each time, a different player would go first. Players would either add up their scores for a grand total or the player who won the most times would be named the overall winner. This solution works mathematically to equalize the game, but it suddenly transforms the casual experience of Pig into a structured tournament. What if you only want to play a game or two and not an entire series of games?

We borrowed the game of Pig from Reiner Knizia's book *Dice Games Properly Explained.*[7] Knizia notes this very inequality and suggests the following as a variation: when a player reaches 100, all of the rest of the players get to roll once more and finish the round. If more than one player ends up exceeding 100, the player with the highest score wins. This is better than any of the previously proposed adjustments, but even this well-designed solution is flawed. In Knizia's solution, it is best *not* to be the first player to reach 100, because all of the other players know exactly the score that they need to win, and they will push their luck in order to beat the player that is about to win. It is actually best if you roll last during the final round. Because the player that went first at the beginning of the game is mathematically more likely to be the first to reach 100, it ends up being a slight disadvantage to be the first player.

Even in a very simple game such as Pig, there is no perfect solution that offers absolute equality for all players. But luckily, players are not perfectly rational beings. They are human, and the best solution is not necessarily the best mathematical answer to the question of equality, but the one that *feels* right within the context of a game. Absolute equality, like pure randomness in a computer algorithm, may be a myth. But as long as the *feeling* of equality persists within the game, players will keep the faith and enter into the magic circles you design for them.

As a final thought, is fairness itself something that can be put at play in a game? We have suggested that other components of game conflict, such as competition and cooperation, or achieving game goals, could be challenged through innovative game designs such as Catch the Dragon's Tail. Does this extend to the level playing field of a game as well? Perhaps. But it is a very complicated question. In the next schema, **Breaking the Rules**, we do our best to answer it.

Further Reading

Homo Ludens, by Johann Huizinga *(see)*

>   *Recommended:*
>   Chapter 1: Nature and Significance of Play as a Cultural
>   Phenomenon

The New Games Book, by Andrew Fluegelman and Shoshana Tembeck *(see)*

>   *Recommended:*
>   "Creating the Play Community," Bernard DeKoven
>   "Theory of Game Change," Stewart Brand

Notes

1. Bernard DeKoven, *The Well-Played Game* (New York: Doubleday, 1978), p. 11.
2. Mihaly Csikszentmihalyi, *Flow: The Psychology of Optimal Experience* (New York: HarperCollins Publishers, 1991), p. 72–3.
3. Andrew Fluegelman and Shoshana Tembeck, *The New Games Book* (New York: Doubleday, 1976), p. 87–88.
4. Ibid. p. 47.
5. Roger Caillois, Man, *Play, and Games* (London: Thames and Hudson, 1962), p. 14.
6. Ibid. p. 14–15.
7. Reiner Knizia, *Dice Games Properly Explained* (Tadworth, Surrey: Right Way Books, 1992), p. 128–30.

Games as Systems of Conflict
SUMMARY

- **Conflict** is an intrinsic element of every game. The conflict in a game emerges from within the magic circle as players struggle to achieve the goals of a game.

- Game conflict comes in many forms. Conflict can be individual or team-based, cooperative or non-cooperative, direct or indirect. Many games mix and match forms of conflict within a single game structure.

- The forms of conflict occurring within a game are a direct outgrowth of its rules. One way of framing a game's space of possibility is that it is a space of possible forms of conflict. Players take part not just in the forms of conflict that the game design proscribes, but will also find their own forms as well.

- All games are **competitive** in that players struggle against each other or against a game system as they play. Without this sense of competition, meaningful play would be difficult because players would not be able to judge their progress through the space of possibility of a game.

- All games are **cooperative**, in that playing a game means engaging with the shared meanings of the game, "speaking the language" of the game with other players in order to play.

- **Systemic cooperation** refers to the fundamental, discursive cooperation that is intrinsic to all games. **Player cooperation** refers to games in which players all work together to

achieve the goal. Not all games exhibit player cooperation.

• The goal of a game is a fundamental element that shapes the game's formal structure. The goal is at once that toward which players strive, while also that which represents the end or symbolic death of a game.

• Shaping **victory and loss conditions** is an important component of game design. Victory and loss conditions directly shape the possible outcomes of a game.

• Game conflict is premised on a **level playing field** where all players have an equal chance of winning. A truly equitable game is virtually never possible in the real world, creating an intrinsic tension in regards to the fairness of any game. Players will generally refuse to play a game they perceive to be unfair.