

Will Wright

Models

■ The shelf in Will Wright's office

Photo
Author

“As A KID I spent far too much of my time making models!” says Will Wright, as he sits at a round table in the middle of his spacious office. The habit has not left him. The table is covered with an architectural construction toy that he is playing with. He clips the wall segments into the floor grid and patiently builds a multilevel structure with rooms and windows. The toy is his own invention, designed and prototyped in his spare time. There are models everywhere you look. A black military helicopter hangs from a fishing line, silhouetted against the brilliant blue California sky outside the window. The long bookshelves on the wall are littered with plastic construction toys formed into a dinosaur and a sphere, more helicopters, and memorabilia of Maxis products. There is a model of a DNA strand next to the electric scooter that Will uses to zoom around the building.

His life has intertwined these physical models with the more abstract modeling of software constructions. He thinks about everything that he encounters as a potential model, abstracting



- Model helicopter in Will Wright's office
- Raid on Bungling Bay (1983)
- First version of SimCity (1985)
- SimCity (2000)

behaviors into sets of rules and probabilities that can be modeled as a computer program. He spends his days guiding his team to write code, describing more and more sophisticated models of people and their social interactions. His games have the compelling qualities of soap operas, but rather than leaving you an inactive couch potato, they engage you in the action, becoming an addictive hobby as well as a game. In his spare time he develops robots with his teenage daughter and enters them into the local “robot war” competitions.

When I was a kid, I was very fascinated with the process of building models of little aircraft and tanks, but also as I built them, I was a big student of World War II history. It would bring me to understand and spark my interest in these different things that I was modeling. I started transitioning to models that actually had behavior, that were mechanical and would move around and do things, and I got very interested in home-brew robotics.

When the first personal computers came out in around 1980, I bought an early Apple II. The original idea was that I was going to use this to interface to my robots, and in fact I started doing that, but I got totally sucked into the software side of it, especially simulations. The idea occurred to me that you could build virtual models inside the computer, not only as models of the static structure, but also as models of the process; these models could have behaviors and dynamics. At that point I decided what I wanted to do. I wanted to learn to build these models, and that's when I started pursuing it as a career and went from there into the game industry.

The first game I made was around 1983. It was called Raid on Bungling Bay. It was one of these stupid shoot-up things, flying a helicopter over these islands bombing everything. It was on the Commodore 64 and was published in 1984. There was a lot of piracy back then, so it didn't do that well in the States, but in Japan it was one of the first American games put on the Nintendo, the very first Nintendo system, and there it sold about a million units. When I was designing that game, part of it involved me creating this landscape that you would fly over and bomb. It was a landscape of islands with roads and factories and things, and I created an editor for doing that, where I could scroll around and put down the roads and things. I found that I was having more fun designing and building these

islands than I was bombing them in the game, so I took that editor and I kept working on it.

I started reading some of the theories about urban dynamics from Jay Forrester.¹⁶ I started programming traffic models and then growth models into my editor. All of a sudden the subject of city planning and urban dynamics became utterly fascinating to me, because I had this little guinea pig on the screen in front of me, so that I could test out theories. I could actually program in the theory and see what would grow out of it, what would happen. I began to think that other people would enjoy doing this. If they had a little toy city to interact with and build, I thought that they would enjoy it as much as I would, and that's where the idea for SimCity started.

Will developed his first version of SimCity in 1985, to run on a Commodore 64. The publishers kept saying, “When’s the game going to be finished?” They were expecting a more definite win-or-lose ending to it, like all games had at that time. He kept trying to tell them, “No, it’s more of a toy, and less of a game,” so they lost interest in it and never published it. In 1987 Will met Jeff Braun at a pizza party and got talking about ideas for games. Soon they were poring over the Commodore 64 and Jeff was falling for SimCity. This was the start of a long and fruitful partnership, as Will’s talent for game design was perfectly complementary to the entrepreneurial energy that Jeff contributed. They started their own company to publish SimCity for home computers and called it Maxis. Jeff provided the space, setting up the office in his apartment. He was tireless in his development of the business and in 1989 made a copublishing deal with Broderbund. Sales started slowly, as the game was much more intellectual than anything else on the market, but a breakthrough came when *Time* wrote a full-page article about it, and it was soon the hit of the industry. SimCity did very well for Maxis; it paid for a lot of mistakes as they were growing the company:

We did a lot of other Sim games. The next game I worked on was SimEarth, modeling the earth for the last four billion years. It was inspired by the work of James Lovelock, who wrote about the Gaia hypothesis,¹⁷ and in fact he worked with us as an advisor on the game.



- SimCity (1989) ■
- SimEarth (1991) ■
- SimAnt (1993) ■
- The Sims (2000) ■



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The next game I did was called SimAnt; it was actually based on the work of Edward O. Wilson, who is the premier myrmecologist in the world. He had just published this very large book called *The Ants*¹⁸ that won the Pulitzer Prize that year. Ants have always fascinated me because of their emergent behavior. Any single ant is really stupid, and you sit there and try to understand what makes it tick. If you put a bunch of these little stupid components together, you get a colony-level intelligence that's remarkable, rivaling that of a dog or something. It's really remarkable, and it's like an intelligence that you can deconstruct. Ten- and fifteen-year-olds really got into SimAnt; it was really successful with that group. Most adults didn't play it long enough to realize the depth of ant behavior and mistook it for a game about battling ants.

For about six months after SimAnt, Will Wright started formulating ideas that were more about social models of interactions among people and would emerge eventually as *The Sims*. There was a lot of pressure from the market for a new version of SimCity, but Will was more excited about his new direction, so he asked a colleague who had collaborated with him on SimEarth to take on the sequel. In due course a prototype for the next generation of SimCity was delivered, but it was designed from a bad perspective and included some unstable code from SimEarth. The reluctant Will was forced to drop everything else and take over the project, so for the next year and a half he worked on SimCity 2000. He introduced an isometric perspective that made the landscape three-dimensional and augmented the interface without altering the successful elements of the first game. It was released for DOS in 1994, and quickly became the best-selling game on the market:

When we did SimCity, a lot of people started sending us letters about the game, wishing that we would add x, y, and z. I had this huge stack of letters in my office, and I read all of them, to find out what people wanted. At the same time the technology had progressed quite a bit from the original SimCity, so I started looking at what we could do with the model, how we could make the game more compelling, more visceral. The major difference was that there was three-dimensional terrain. It had much more of a 3D feel. We had deeper

levels of infrastructure: we had three different types of road rather than just one road. We had a whole national model around it—there was a context for your city and the neighboring cities.

With the successful sequel yielding a stable income stream for Maxis, Will was interested in expanding beyond the Sim series. One of his new ideas was for an open-ended adventure game combined with a flight simulator. It was called The Hindenberg Project and was based on the famous airship that exploded in 1937. He assembled ten theories about the cause of the accident and made the players discover which theory applied to their game. This involved a new type of probability model but also built on the model of landscape inherent to SimCity. The concept ran afoul of the politics of the Nazi era, as the Nazi logo was on the tail of the airship, and even if they had removed the logo, people would have associated the ship with the Nazi era.

Even though this experiment did not move forward, it gave Will and Jeff a hunger for expansion and diversity that led them down the path toward taking Maxis public. The first step was to seed the company with some venture capital. The next was to bring in a top manager with a business background and Disney experience. They moved into the sixth floor of a new corporate office block in Walnut Creek, a fast-growing satellite town in the San Francisco Bay area. Maxis went public in the middle of 1995, raising \$35 million from the offering, and reported \$6 million income for their first public year. From the outside they looked strong, but the treadmill of being beholden to the shareholders and to Wall Street was starting to cause some anxiety on the inside. Jeff Braun wanted a break from the intensity of eight years of growing the company and started to phase himself out of day-to-day operations. Sales of SimCity 2000 were starting to decline. What were they going to do next?

Will embarked on developing a game called SimCopter, where the players could fly a Schweizer 300 helicopter around a city that was exported from SimCity. “You are flying this rescue helicopter around a city, and you’re rescuing people and putting out fires and chasing criminals.” The idea was fun, but time

pressure was increasing, and the resources at Maxis were being spread impossibly thin. The new management insisted on shipping four games by the end of 1996: SimTunes, SimCopter, SimPark, and Full Tilt Pinball. The stress levels for the developers shot up, and although they did manage to ship something resembling a finished product for all four games, nobody was happy about all the corners that were cut. Will was particularly disappointed, as he felt that the design for SimCopter was coming along nicely, but it had to be released before it was ready. Poor sales for all four games proved the point.

The situation only got worse in 1997. Maxis tried the acquisition route, buying a small game company from Texas called Cinematronics to develop dungeon adventure games such as *Crucible*. They also tried children's software, a sports brand, and even full-motion video, with a game called *Crystal Skull* featuring a star from the TV show "Miami Vice." There was an atmosphere of frenetic experiment without enough resources to make any single effort successful, and morale plummeted. In midyear they reported losses for the previous year of nearly \$2 million. In desperation, the management turned to Will to develop another version of *SimCity*, hoping that an upgrade with three-dimensional graphics would provide a road to recovery, as 3D graphics were the newest fad in the industry at that time. Unfortunately, when Will analyzed the available technology, he discovered that 3D was not yet ready for the microscopic details of cities and landscape that were essential to *SimCity*. The management did not want to hear this bad news and insisted that they go forward with a 3D implementation, leading to the display of an embarrassingly inept version of *SimCity 3000* at a trade show. They knew that they would ruin the reputation of the Maxis brand if this version were to be released.

Enter Electronic Arts, the dominant interactive entertainment company in the industry. EA had been making overtures to Maxis for some time, as they were looking for ways to improve their offering in the PC market, but Maxis executives thought of them as competitors rather than saviors. By mid 1997 the prospects for Maxis were desperate enough for this attitude to change, and



negotiations started. Electronic Arts acquired Maxis for \$125 million in stock, but Will was very worried about the deal. He knew that there would be layoffs, and his experience with professional management had so far been a bitter disappointment. EA appointed Luc Barthelet, a straight-thinking and straight-talking Frenchman, to run Maxis as general manager. Luc took a fresh look at the people, resulting in the removal of almost all the top-level management and sales staff. He took a fresh look at the portfolio and declared a focus on “top ten products,” causing quite a few of the development staff who were committed to second-tier products to leave. He cut back to a few development teams and divested Cinematronics, leaving a core development staff of the highest caliber.

He brought Lucy Bradshaw with him to focus on SimCity 3000, and together they took a long, hard look at the progress so far. They canceled the problematic 3D requirement and focused on improving the game-play experience from SimCity 2000, building on Will Wright’s successful formula, enhancing the maps and zoom features, as well as adding more sophisticated parameters. They showed the game to a positive reception in 1998, and with the EA purse behind them, they were able to wait until it was satisfactorily finished in every detail before releasing it in February 1999. It was soon at the top of the charts.

■ Sims wallpaper

Image
Courtesy of
Electronic Arts

The Sims

LUC BARTHELET REALIZED that Will Wright was probably the best game designer in the world but that his talent was being frittered away, without adequate focus or staff. As soon as SimCity 3000 was safely under Lucy’s leadership, he started a search for the best possible talent to work with Will, and set him up with an open-ended brief to create the next innovative leap forward. Will had been eager to develop a new game that was about people and social interactions, based on contemporary life. He explains:



■ Lucy Bradshaw
■ Luc Barthelet

Most games are striving to get as far away from contemporary life as possible, wanting to be fantasy, science fiction, or military, or whatever. If you go to a bookstore and look at what the books are about, you have a few books over here about military history, and you have a few over here that are fantasy books, but the majority of the books center around contemporary life. It's the same with prime-time television. You go into a software store and it's the exact opposite; there's almost nothing about contemporary life.

In a 1994 interview in *Wired* magazine, Will said:

I'm hoping to strike out in a slightly different direction. I'm interested in the process and strategies for design. The architect Christopher Alexander, in his book *Pattern Language*,²⁰ formalized a lot of spatial relationships into a grammar for design. I'd really like to work toward a grammar for complex systems and present someone with tools for designing complex things. I have in mind a game I want to call "Doll House." It gives grown-ups some tools to design what is basically a doll house, but a doll house for adults may not be very marketable?¹⁹

How wonderful for Will to be able to focus on this idea that had been in his mind for so long, and to have such a good team to move it forward. By this time the concept had matured beyond the doll house metaphor into *The Sims*, a game that would build on the processes and strategies that people use in everyday life. *The Sims* is about social interactions among people. You create characters and make them do things. It is like writing your own soap opera, setting up situations for stress, or conflict, or love, and then playing them out. As you move up the levels of the game, you can move from mundane shopping trips and visits to the bathroom, to design clothes for your characters and places for them to live. It soon becomes a hobby:

When *SimCopter* completed, I started building a product team around *The Sims* and pursuing that idea in earnest. *The Sims* has had a level of success that is just amazing. At some point we realized that it was the best-selling personal computer game in history. We were reaching a much broader demographic, across gender, across age, across computer experience. We had a lot of very casual players who did not normally play computer games.

A frequent vector for The Sims to spread would be that the hardcore gamer, usually male, would bring home the game and play it, and their spouse, or their sister or girlfriend, would watch them, and then say, “That looks interesting,” and they would start playing it. There was also a very wide age range from ten-year-olds to fifty or sixty. A lot of grandparents would play it with their grandkids. We were actually hitting a group of people that ten years before would not have been online—they would not have been subscribing to CompuServe—but by then they had Net access.

The original idea for The Sims was to make a doll’s house that boys would want to play with and a strategy game that girls would want to play. The intersection of those two gives you a strategy game happening in a doll’s house.

We noticed that when we were designing The Sims, a certain degree of abstraction in the game is very beneficial. You don’t actually get very close to the characters. You can’t quite see their facial expressions, but everybody in their mind is imagining the facial expressions on the characters.

In computer game design, you’re dealing with two processors. You’ve got the processor in front of you on the computer and you’ve got the processor in your head, and so the game itself is actually running on both. There are certain things that the computer is very good at, but there are other things that the human imagination is better at.

The Sims probably has more sex than most games out there. It’s PG sex and it’s more kind of titillation than realization, but The Sims is basically in a social space, and it’s about the way these people relate, and they get married, and they can have kids. They can hang out in the hot tub together, and they can play in bed.

A lot of players will do experiments on the Sims, to the point of torturing them, or seeing what it takes to kill them, or seeing how upset they can get them. It turns out that the people that are doing these clinical experiments on the Sims, on their psychology, turn out to be more female than male.

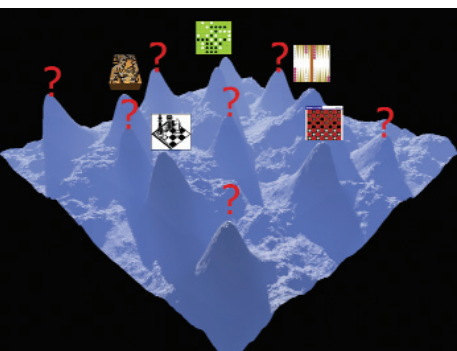
A lot of games that allow user customizability only do so in a very difficult granule, like the first-person shooters. You can write mods for them, but it basically involves C code and knowing how to program. With The Sims we have all these levels that you can customize. At the simplest level, you can make a new costume, and all you need is a paint program. At the next level above that you can make a new object and it’s a bit more involved.



- Doll's house play kit
- A degree of abstraction
- PG Sex
- Customized Experiments

The Sims was released in 2000, and since then Will has developed an online version. The ease with which people can create unique versions of people, their objects, and environments, made it an ideal game for an online community. The game itself is interesting and compelling, but the community that built up around it brought it to the next level. People can upload their designs, share them, and have databases online where they collect things that they have created.

The collections are made more interesting by the intelligence of the inanimate objects in the game. Inspired by the work of Christopher Alexander, Will embedded the behavioral rules for good architecture into the elements that make up a house, so that a balcony is an appropriate width for example. This makes designing a house in the game both easier and more successful, so that the open-ended quality of the game is not entirely without the wisdom of experience. The bylaws of architectural structure and object behavior are built into the individual items. Another way of thinking about this is that the objects in the game are designed to be intelligent, so that they can attract both the players and the characters in the game. This releases the characters to concentrate more on their emotionally driven behavior, such as falling in love or violent disagreements.



■ A landscape of play

The Landscape of Play

WILL DESCRIBES GAMING as a landscape populated by mountain peaks. One peak is media-based role play, with a story line and a strong plot, for example adventure games such as *Myst*. A second peak is about skill and achievement, including sports games and first-person shooters. A third peak is about creative simulation, where people develop a hobby and build communities around their hobbies. Another peak is based on strategy, where simple decisions lead to entertaining consequences and situations. You can map the position of a particular game in this landscape and see the strength that it has relative to competitive titles:

The genres that are currently popular are peaks on that landscape. These are areas that prove to be fun, that someone found in all the possible game-space. What happens generally is that somebody discovers a peak, and it grows and grows. Maybe it's real-time strategy, then everybody else says, "Oh, there's a peak over there, let's go and design a game like that."

In fact, there are thousands of other peaks that nobody has explored. Occasionally you'll see an unusual, groundbreaking game jump out in the middle of nowhere, but it usually fails, not because the concept was bad, but because the execution wasn't good enough. The Sims was kind of waffling between simulation, strategy, and a role-playing game. It couldn't decide which peak to live on because really it was a new peak somewhere among the three. Most of the game sites eventually decided it was strategy, so they put it in strategy, even though it is a simulation, and even though it is very much about role playing.

A lot of games are built around a movie model, where there's a beginning, middle, and end; perhaps there's some dramatic climax, or you're defeating evil. The Sim games are more like a hobby where you kind of approach, and you have a shared interest with other people, and you can take the aspects that interest you most and really focus on those. With an electric train set, a lot of people build a model and are totally into the scenery, or making sure the mountains are perfect. Other people are into the switching logic on the track, or the village, or the actual trains that they collect, so you can come to a hobby like that with your own specific interests, and you can really focus on that, and customize the hobby to yourself.

I am interested in developing metrics to look at a community for a game, and figure out where it is positioned relative to this landscape. You can learn a lot if you watch a person playing the game and apply the metrics. You can predict what they would enjoy, and what advancement ladders they are aiming for in the game. You should be able to find content that would be interesting for that person, and download it into them transparently. It could even be a peer-to-peer transfer like Napster. Then as they play the game more and more, the game learns what they enjoy and offers new content, perhaps new characters in the game, new objects that they could buy, and new situations.

When people play these games, especially the open-ended games, they are in fact creating stories. Whatever happens to them in the

game is the story, so that the path that they take through this game is defining some kind of story arc. The computer could start helping to support that story if it could recognize the arc, based on the experience of watching a million people moving through the game. For example, it could see that you're buying a lot of spooky things and you're making a haunted house, and then it could start collaborating with you on that story. It might even test you in the game, so if your character walks into the next room, and it can't decide if you're doing a horror or a comedy, maybe it could put a cream pie and a chain saw in the room, and wait to see which one you pick up. I can imagine a system where the player becomes the game creator, and we're providing them the tools.

With The Sims online right now, that's one of the concepts that we're pursuing. In The Sims, you have a build mode. You can buy new objects, place them wherever you want, put up walls, and design a house. We're also doing a lot of incremental objects, at a fairly low level, that are game components that the user can place. These are things like dice, or one-way doors with secret buttons, or conveyor belts. They are things that in combination you can use to create a lot of different games. In some sense we are hoping that the build mode in The Sims becomes a kind of game creation system, and then the real competition in this online game will be who can make the best game using these components.

Designing Games

A STARTING POINT for designing a game is to engage players in deciding what their goals are. They may know in advance, if they've seen the game being played or heard about it from a friend. If it is a driving game with stock cars, they know that the goal is to win the race. With the Sim games, the options are much more open-ended and diverse. In SimCity, the game designer doesn't tell the player the exact goal. There is no instruction to build the biggest possible city in twenty years, or to make the residents happy. Each player decides what his or her goal is; that decision is as important as anything else that happens in the game. Players might say, "I want to see how big a city I can build," or "I

want to see if I can eliminate crime in my city,” and then they pursue that.

The game designer also has basic choices about speed and scope at the beginning of each project. Will describes this as the “Granularity of the interaction, which is often how you are actually making a decision that’s going to alter the outcome.” The “choose your own adventure” books have very large granules, where you may make one choice in a chapter. The first-person shooters are the finest granules, where the software is sampling the input device sixty times a second.

There is also the significance of the space that the user is navigating while playing the game. Some games, like the Sims, have very open-ended spaces; others, like the shooters, have very constrained spaces. An analogy for the dramatic interest or challenge associated with that space is trying to climb a hill to get to a destination on top. Some hills have very smooth, gradually ramped sides that are easy to walk up, and others have cliffs that are very hard to climb. How quickly does the game get difficult? Is it smoothly ramping up in difficulty, or does it have dramatic moments with real significance to you?

The pleasure in playing a game is influenced by the structure of the feedback. When you first play a game, the very first thing you encounter is a five-second feedback loop between you and the computer, based on the control structure. The controls must be understandable to get you past that first potential barrier, and have to be fun to use or you will lose interest in the game. At each one of these interaction loops, you may succeed or fail. Once you succeed at the first feedback loop of five seconds, you can start playing at the next loop, which takes longer than a minute. Once you are successful at that one, then you can go to the next one, and so on:

Frequently the really important thing for the designer to concentrate on is not the success side of these interactions, but the failure side. If you can make failure a big part of the entertainment value of the game, people get a blast out of it. You look at kids playing with blocks; they build a tower and it falls over and they laugh, and they build it again and it falls over. At some point, if they build it and

they run out of blocks, they'll knock it over on purpose. This is designing the playability of the game.

Look at Pac-Man for example. With Pac-Man you come up to the machine, and you have buttons, and you start pressing the buttons. Very quickly you learn the mapping between the buttons and the movement of your character on the screen. If you haven't learned that, the rest of the game is going to be unplayable to you, but you learn it very quickly. Then you learn that these guys are chasing you and if they touch you, you die. Now you know how to move, and you know that these guys are going to eat you. Then you're starting to play the game a little bit longer and you're able to avoid the guys, and the next thing you notice is, "Well, I'm not going to progress anywhere until I eat all these dots." At each one of these stages success buys you access to the next level of game play. When you're playing the game, you're using all three of those overlaid. I'm moving the guy with my skill of pushing the buttons; at the same time I'm avoiding the bad guys trying to eat me, and thirdly I'm trying to eat all the dots while doing the first two things.

With a game like The Sims, the very first level is, "How do I make my character move around and interact with objects?" You learn that you click on an object, and it comes up with a menu and you select an item. Then once you know that you can move your character around and interact with objects, you start noticing that they have needs. They need to go to the bathroom, they need to eat, and they need to have social interaction with other characters. Each of those has a failure state; if they don't eat, they'll starve to death; if they don't go to the bathroom, they'll soil the carpet. At that point you start learning to keep all of the needs in the green. Once you've done that, you've actually bought some free time, so you can start pursuing the economics of the game. Every game has these overlapping loops of interaction. We're mapping these complex things into your instincts and your intuition.

Every game that Will Wright has created seems to have combined an academic and a metaphoric inspiration. SimCity was triggered by Jay Forrester's theories about urban dynamics and came to life with mixed metaphors of elaborate train sets and gardens:

Most people, when I tell them that SimCity is really about gardening, they understand it, but they've never thought about it. In fact you're



- Gardening analogy
- Train-set analogy

tilling the soil, you're planting the seeds, and wonderful things pop up, and you have to weed the garden. The process of playing SimCity really maps much more to a garden than it does to a train set.

The Sims combines the inspiration of Christopher Alexander's *Pattern Language* with the metaphor of the doll's house. Will uses the metaphors to help his thinking flow, and also believes that the result makes the players more comfortable with the process of playing the game, although they may not realize it at the time.

New technology dictates limitations and opens opportunities for game designers. Computer graphics capabilities have dominated the industry in the past, but as the visual possibilities approach realistic appearance, the balancing qualities of motion and sound design will be more significant. Competition has been driven by the development of the technology for the highest frame rate, the graphics cards, and chips. We are now to the point where you can buy a \$200 or \$300 console with the processing power that only military flight simulators had twenty years ago. Now the weakest element is much less likely to be graphic and much more likely to be behavioral, so the behavioral technologies are going to be a big focus over the next ten years.

Will sees the augmentation of reality as a significant opportunity and possible next step for the industry:

The heads-up display thing just never went anywhere, and I think you have to actually try one out to realize why. In fact the immersion is less complete using these things than it is in a dark room, at a high frame rate, with DOOM on your computer in front of you.

Now I think that the augmented reality idea has potential. This is the idea that there are computer overlays on top of the real world. For example, I might be wearing a set of glasses that can project computer images, and mix them with the real world.

I can imagine something, probably more like fifteen or twenty years out, where you have two kids wearing these things, and they're out playing in the dirt. They're talking to each other, and all of a sudden, little army men appear in the dirt running around having battles. The kids are playing in the real world, but with this computer partner helping their imagination. So the two kids are saying, "I'm

going to have a fort here, my fort's over here; I just sent five guys down that hill." In fact both kids are seeing the five guys running down. It's a shared point of imagination for the two kids, so that their two imaginations run in sync. The computer in that sense is a third playmate. If you look at little girls playing with a dollhouse, that's pretty much what they're doing; they're saying, "This'll be the mummy, this'll be the daddy, let's have this happen," so they're both building up this whole other world through their imagination that's overlaid on the actual artifact of the doll house.

What can we learn about designing interactions from Will Wright? First we can learn about how to play. Games only survive if they are enjoyable, a characteristic that is sadly missing from so much interactive software. We can learn from Will's explanation of how to engage the imagination of the players and build in a series of experiences that make them successful a little bit at a time, while keeping the path toward another step visibly open. We can learn that the controls must be fun to use, so that you can immediately understand how to use them but can also feel yourself improving as you practice and gain skill. There needs to be a path from inexperienced to expert that allows you to gain fluency and the rewards of skill without having to stop on the way and start again. This usually involves controls that have a direct effect on the outcome, like a steering wheel or joystick, but could possibly be more cryptic and mysterious, like a typewritten instruction or numeric code, if the context of the game makes the indirect quality part of the play.

These questions of engagement, feedback, and controls are all about designing the game right. What about designing the right game? This is where Will's patient perseverance and thoughtful analysis are so unique. He shows us how to think strategically about how to position ourselves in the overall landscape of play and how our design should relate to the other designs that are around it. He shows us how inspiration from academic curiosity and research can inspire an idea of what the next right thing can be. Whether it's Jay Forrester's urban dynamics or James Lovelock's Gaia hypothesis, you can feel how these abstract ideas

inform his approach to the design, while at the same time giving him great pleasure in discovery. He ferrets out these authorities because he is fascinated by the subject matter, and uses his creativity to capture the qualities of ideas that will be relevant for his game.

He also shows us how to use a simple metaphoric idea to retain a focus on what is right. The ideas of gardening for SimCity and doll's houses for The Sims are used to test each new notion for the qualities that define the right game. Coming up with these simple ideas in the first place is in itself a form of synthesis that can feel like a creative leap, but is probably formed from a complex subconscious set of experiences and intuitions. The ability to do this well is a mark of a great designer.

We can also learn about the pleasures of designing code, the software that makes the game exist. Will reveals his delight in a good algorithm when he describes the beauty of unraveling many possibilities from the simplest of structures:

One of the real measures of a beautiful game design, I mean the aesthetics of the design itself, goes back to the question of emergence. You ask yourself, "What is the simplest possible system that I can build, that for you is going to decompress into the most elaborate set of possibilities?"

I'm compressing a large set of possibilities down into a few algorithms of computer code. When I hand you that computer code and you start running it, you can then decompress it in your play experience to this rich set of possibilities. If your experience is very unique relative to another player and very meaningful to you, but still based on this very simple rule structure that I built—that to me is aesthetic elegance in game design.