Part I
LEGO® AND CREATIVITY

Constructing Creativity

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My toddler concentrates mightily, his tiny brow furrowed, his tongue poking ever so slightly out of the corner of his mouth. He fails to acknowledge my entry to the playroom, nor does he notice when I sit next to him cross-legged on the floor. His eyes lock on to each LEGO® DUPLO® square in turn as he deliberately presses them into a single layer on a flat green board. After several minutes, he looks up, startles as he notices me, and then breaks into a grin. "Mommy," he says, "I made you a pie!"

The pie is his first LEGO creation, and my heart swells with parental pride, but I would be lying if I said that such pride had not been leavened with a tiny scoop of self-congratulation. My spouse and I had ensured that one of his first toys was LEGO DUPLO because we believe, like many parents I know, that playing with LEGO encourages creativity. And look! It works! The moment of self-congratulation passes as my son encourages me to eat the pie, because as I dutifully pretend to nom away on raspberries (red bricks), blueberries (blue bricks), and bananas (you get the pattern), I wonder why the belief that LEGO contributes to creativity is so pervasive.

Originality and Creativity

We should pause here to distinguish between originality and creativity. True originality is rare, whether in art, science, or LEGO, because to

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be truly original means to have done something that no one has ever done before, and that no one could have anticipated.[1] Most LEGO creations will not meet that condition, for with the exception of serious hobbyists who undertake massive builds, most players who make original creations are making creations that are commonplace. My son's DUPLO pie is not original, but it is creative, in the sense that constructing it was a new idea to him, and it is in this sense that we can ask whether playing with LEGO truly contributes to creativity.

On the one hand, LEGO allegedly encourages creativity by inviting us to build whatever we can imagine; on the other hand, actual LEGO play often involves following someone else's instructions or building meticulous scale models of real-world objects. Many LEGO enthusiasts, especially adult LEGO enthusiasts, enjoy building sets, and then displaying them. In such cases, the point is not to use the bricks in new ways; the point is to carefully follow the instructions so that every piece winds up in its proper place. Following the instructions might be challenging, but it is hardly creative to follow an exacting plan laid out by someone else.

Perhaps being creative with LEGO just means setting aside the instructions and striking off solo to build one's own creations. The system of play developed by the LEGO Group is commonly hailed as having the potential to contribute mightily to a child's creative development because even though many bricks are sold as sets, all of the bricks interlock, so they can be reused over and over. Moreover, the high quality of the ABS thermoplastic used in LEGO bricks ensures that the bricks can survive generations of use; my son's pie was made of DUPLOs that used to belong to his father. LEGO Batman® snaps into place happily alongside the original LEGO astronauts, and he may even borrow their space helmets; the only limits on Batman's adventures lie in the imagination of the child.

Yet even original LEGO creations must follow the constraints that result from the physical forms of the bricks. We might think of creativity as requiring significant artistic freedom to create whatever we want, and while the LEGO bricks facilitate stacking, the interlocking studs-and-bricks constrain what is possible. Working with LEGO requires working with edges and corners; it is no surprise that many large-scale creations are pieces that are well-suited to being built out of rigid plastic: cars, boats, buildings, and so forth.

Moreover, LEGO purists insist that only products produced by the LEGO Group should be used in an authentically original LEGO creation. Painting or remolding or placing stickers on the bricks counts

against the spirit of LEGO creation.[2] Though a fan could exercise creativity while remolding LEGO, according to this line of thought, she would not be building with LEGO creatively. Rather, doing so would be creatively using LEGO as raw materials, as one might repurpose any other piece of plastic. As a result, while we often hear that playing with LEGO encourages creativity, the implicit rules of fan culture, as well as the material constraints imposed by the bricks themselves, limit significantly what may be created.

Herein lies the paradox of creativity: how can the freedom required for true creativity be compatible with a toy that *comes with incredibly detailed instructions for creating specific objects*, let alone with a fan culture that constrains what counts as a legitimately creative use of LEGO? Confronted with this paradox, I am cynically tempted to assume that I am nothing more than a dupe of marketing. "Creativity" perhaps means nothing more than "buy this toy, o conscientious parent; you will certainly get a lot of use out of it, and trust us, you will have more fun if you buy lots and lots of bricks."

Madmen, Oddballs, and Visionaries

The LEGO Movie embodies this paradox, presenting three conflicting models of creative LEGO play, illustrated by the Master Builders, Finn's father, and Emmet. *The LEGO Movie* winks knowingly at pop culture and LEGO fandom, so that I have to believe that the movie's creators were deliberately playing around with conflicting popular conceptions of creativity: creativity as *madness*, creativity as *thinking outside the box*, and creativity as *vision*.

Quite a lot of philosophical writing focuses on the experience of being creative as a kind of madness. The imagery is violent: we are seized by the Muse, or possessed by the Gods. The artist becomes a passive conduit as the madness works through him to produce something wholly novel.

In the Platonic dialogue *Ion*, Socrates likens the creativity of lyric poets, or rhapsodes, to divine possession or madness. When rhapsodes perform in front of an audience, the breath of the gods literally inspires ("breathes into") the poets so that they become a conduit for the brilliance of the Muse.[3] Centuries later, Kant argues that creativity resides in the free play of the imagination, consisting of the capacity to produce wholly original ideas. Yet, according to Kant, creativity remains mysterious to even the creative genius.[4] Likewise, Coleridge's preface

to *Kubla Khan* describes creativity as coming unbidden to an artist, possessing him, and leaving him bewildered, as if coming down from a drug high, marveling at the work he has created.

In *The LEGO Movie*, the Master Builders depict the *madness* model of creativity, represented as unfettered recombination. The Master Builders work to thwart the nefarious President Business, who plans to fix all of the worlds of the LEGO universe in place with the Kragle (Krazy Glue) so that they may never again be taken apart and recombined to make new things. President Business is the bad guy; he stifles creativity because he wishes to have all of his LEGO worlds neat and tidy. Pirates sail on the ocean; citizens stay in the cityscape; the Old West never need fear an invasion by laser guns and spaceships.

The creations of the Master Builders transcend mere instructions. In psychedelic Cloud Cuckoo Land, Unikitty builds mad rainbow-colored creations and insists that there are no rules (or consistency!). The heroine Wyldstyle repeatedly saves the day by constructing elaborate vehicles out of spare parts on the fly; the movie visualizes her as seeing the exact pieces she needs in piles of discarded city bricks meant to represent junk. She is an inspired genius, and when she exhorts the citizens of Bricksburg to rebel against President Business's plan, they do so with whatever bricks they have at hand. We next see a plucky citizen attempting to insert a croissant into a steering wheel.

The second conception of creativity developed in *The LEGO Movie* lies with the hero Emmet, who in the early scenes devotedly follows not just instructions for building but all rules. He is a conformist. Yet the movie also suggests that the roots of creativity lie in the simple act of *thinking outside the box*. Emmet is an oddball, the Special with nothing special about him. Emmet's first original creation is a double-decker couch, roundly mocked by his new Master Builder friends because it does nothing more than fill a much-needed gap in conceptual space. Emmet thought outside the box, but *badly*. Emmet is redeemed, however. Not only does his double-decker couch, which floats, rescue his friends from the destruction of Cloud Cuckoo Land, but he eventually manages to save the day not by designing a new spaceship but by building an ordinary Octan corporation transport. His most creative moment lies not in the development of something new but in recognizing that building an ordinary ship according to the instructions is the last thing that their enemies will expect. He uses the ship design creatively, even though it is not itself a creative design.

If these were the only conceptions of creativity open to us, then clearly LEGO's claim to creativity would be nothing more than clever

marketing. Madness has no aim, yet to develop one's own creation, whether it is something as simple as a DUPLO pie, as unimaginative as a double-decker couch, or as complex as Richter's Sitting Bull, with 1.75 million pieces, requires having a goal in mind, and some idea of how to accomplish it. The builder will adapt her plans as she works through the challenges that arise as she builds, of course; no plan completely survives first contact with the studs. But she will not be astonished or mystified at what she has produced. Moreover, merely *thinking outside the box* would not be sufficient reason to bother with LEGO, because the creativity demonstrated by Emmet in *using* his creations is completely divorced from the utter conformity he exhibits in *building* his creations.

Fortunately, the madness model has been challenged by psychologists and philosophers who have a more workmanlike focus on creativity. Even in ancient Greece, the philosopher Aristotle argued against his teacher Plato that poets did indeed possess a skilled art, and were not merely the subjects of divine whims. According to Aristotle, the poets have the skill to produce rhythmic and rhymed verse directly calculated to provide catharsis of negative emotions. It may sound obvious, but Aristotle's point is that provoking catharsis is an identifiable, repeatable process. It can be taught; it can be mastered. So much for waiting for divine inspiration![5]

Much more recently, the psychologist Robert Weisburg goes so far as to call the creative genius a myth. No genius is born; all are fired in the crucible of hard work. Simon Blackburn quotes with approval Thomas Edison's quip that genius is 1 percent inspiration and 99 percent perspiration, as well as Thomas Huxley's wry remark concerning Darwin's brilliant theory of evolution: "how extremely stupid not to have thought of that."[6] Scientists and engineers can be creative, but their genius sometimes lies in nothing more than having done the work necessary to be able to see the path for which everyone else is searching. Even Coleridge himself wrote drafts of *Kubla Khan*, and drew his inspiration from books that he read rather than the drugs he consumed. His preface is nothing more than conscious self-posturing, to advance the myth of the genius at the expense of the truth.[7] Creativity lies not in madness but in extraordinary *vision*.

In *The LEGO Movie*, the vision model of creativity is represented by Finn's father. Toward the end of the movie, we learn that Emmet's adventures are the work of the imagination of eight-year-old Finn, who is furtively playing with his dad's LEGO creations, immense vistas that correspond to the vibrant LEGO worlds visited by Emmet.

The movie implies that his uptight dad, who wears a coat and tie that eerily match those of the evil President Business, should recover his spirit of creativity and play by breaking down his meticulous yet static vistas and permitting Finn's free-for-all LEGO construction.

It's tempting to interpret the movie as implying that Finn's father isn't creative at all, merely following instructions, and that his future redemption lies in committing to unfettered recombination. Yet that's too quick.[8] The elaborate vistas, arguably consisting of millions of bricks, lie far beyond even the most expensive and intricate LEGO kits. No set of instructions could have guided Finn's father as he painstakingly constructed the roiling ocean in Pirate world. If you were to encounter one of these displays at Brickfest or Brickfair, you would never think: what a waste! If only he'd had the vision to put a croissant on a steering wheel!

The movie criticizes Finn's father, in other words, not for his lack of creativity but for the lack of joy and spontaneity in his creations. He wants to glue the bricks so they can never be enjoyed as building blocks again. Some philosophers have argued that even if we set aside the madness model, any theory of authentic creativity must account for the subjective experience of being creative.[9] Being creative does not feel like running mechanically through a series of algorithms; it feels like flying without a net, dangerous and thrilling and pregnant with expectation. All creative experiences share this feeling, for it is this feeling that separates working through a problem mechanically, as a computer might, and working through a problem as a fully creative being.

We might think that the subjective experience of creativity requires the cessation of conscious thought. Like Emmet, we must empty our minds if we are to become truly creative. Yet when solving a scientific or engineering problem, or even constructing an intricate LEGO display, we cannot afford the luxury of emptying our conscious minds.

Fortunately for science and LEGO, recent research indicates that the subjective experience of creativity does not require our conscious mind to be disconnected or idle. When guitarists are asked to engage their conscious minds by counting while they simultaneously are instructed to improvise a jazz composition, their creations are judged to be more creative than those of guitarists who were simply asked to improvise without also engaging their conscious minds. Artists who are instructed to count the occurrences of the word "time" in songs that they listen to while sketching produce drawings that are judged to be more creative than those who had no additional cognitive load. We

do not need to empty our conscious minds in order to be creative, but instead, we need our conscious minds to be focused.[10]

This tantalizingly suggests that states of creativity bear striking similarities to flow states, intense states of concentration in which time seems to slow or stop. A baseball player in a flow state might experience the baseball as moving slowly and growing to the size of a pancake. For a brief flicker, he feels invincible; he knows that no matter the curve of the pitch, the ball will soar over the center field wall. In a flow state, we become like the master butcher Cook Ding from Daoist tales. Ding's skill at carving oxen is so great that he has never had to sharpen his knife, because he expertly slides his knife into the hollows at the joints. Yet at difficult points, Ding describes himself as focused, sizing up the situation, and proceeding carefully.[11]

According to the psychologist Mihaly Csikszentmihalyi, we may find these flow states anywhere, but particularly in areas where we meet a highly difficult challenge with a high level of skill. We do not reliably achieve a flow state by disengaging our minds, but by engaging them so fully that we become fully absorbed in the task at hand. It is pure concentration, not pure dissociation; we can think of it as concentrating so deeply that we lose even the feeling that we are consciously concentrating. In those moments, we may become truly creative.

Resolving the Paradox

Viewed in this light, a LEGO builder encountering a thorny design problem might well enter a state of flow as she works through the possible configurations of bricks. Suppose she wants to avoid having any studs on top so that viewers of her creation see only flat surfaces. To do so will require the clever usage of specialized pieces originally designed for other purposes. She will need to call on her experience with LEGO pieces, her ability to visualize the internal layout of her creation, and her knowledge of how best to achieve the overall effect. It is no surprise that many adult fans of LEGO find working through these problems to be relaxing, as they bask in the afterglow of a flow state.

Yet our LEGO builder will not be able to solve the problem if she lacks the experience with the fundamentals. In *LEGO: A Love Story*, Jonathan Bender recounts the first fumbling steps when he returns to constructing LEGO creations after some time away. Techniques that seem obvious to experienced builders baffle him. Because he has not

regained his familiarity with the fundamentals, he cannot yet see the path to the problems he has set for himself.

The LEGO Movie's competing conceptions of creativity can be thus construed not as adversaries but as stages in the development of a creative builder. Everyone starts like Emmet, building from instructions and making small, novel modifications. As they become more skilled, they develop the vision, like Finn's father, to attempt larger, more complex projects: a cityscape, a mosaic portrait, a 100-stud-long spaceship (spaceship! Spaceship!). The true joy of LEGO, however, lies in following Wyldstyle and Unikitty, and building freely.

And so the resolution of the paradox snaps into place like a tiny LEGO windshield. Our initial error was to think that being creative meant having no idea of the purpose of our actions, building double-decker couches in the air, but we can see now that creativity also requires intense thoughtfulness, manipulating the resources at hand. Creativity lies in the joy of the mastery of the process.

To master the process, however, requires practice. What better way to practice than to learn how all of the little pieces fit together, building a database of moves that can be retrieved later? What better way to motivate someone to build that database than by providing them with a set of instructions that promises to result in a really cool spaceship? Following the instructions is as necessary in the initial stages of promoting creative construction as is doing basic math problems to the development of fractal geometry, or as practicing études is to the concert violinist.

Return to the playroom. My son is building a new LEGO creation. He soon informs me that he is making a DUPLO pot, so that he can cook some soup, which will undoubtedly require simmering tasty DUPLOs until they are tender. His tongue pokes out again as he loses himself in the flow, as he constructs his pot, and himself, brick by brick.

Notes

1. Margaret A. Boden is credited with this distinction. She calls what I've termed "creativity" "P-creativity," for "psychologically creative," which she contrasts with "historical creativity (H-creativity)," which results in something "new to the whole of human thought." See Margaret A. Boden, "Creativity and Artificial Intelligence: A Contradiction in Terms?" in Elliot Paul and Scott Barry Kaufman, eds., *The Philosophy of Creativity* (Oxford: Oxford University Press, 2014), 224–46.

2. See Jonathan Bender, *LEGO: A Love Story* (Hoboken: Wiley, 2010), 61.
3. See Plato, *Ion*, trans. Paul Woodruff, in *Plato: Complete Works*, ed. John Cooper (Indianapolis: Hackett, 1997), 937–49.
4. Kant's great work *The Critique of Judgment* (1790) discusses aesthetics and art at length, but a more accessible discussion of Kant and some of his insights can be found in Dustin Stokes, "The Role of Imagination in Creativity," in Elliot Paul and Scott Barry Kaufman, eds., *The Philosophy of Creativity* (Oxford: Oxford University Press, 2014), 157–84.
5. Christopher Shields provides an insightful discussion of Aristotle's *Poetics* in Chapter 10 of his *Aristotle* (New York: Routledge, 2007), 375–97.
6. Quoted in Blackburn, Simon, "Creativity and Not-So-Dumb Luck," in Elliot Paul and Scott Barry Kaufman, eds., *The Philosophy of Creativity* (Oxford: Oxford University Press, 2014), 157–84.
7. Ibid., 152–3.
8. After all, the adult fans of LEGO watching the film probably have a lot in common with Finn's father!
9. See Bence Nanay, "An Experiential Account of Creativity," in Elliot Paul and Scott Barry Kaufman, eds., *The Philosophy of Creativity* (Oxford: Oxford University Press, 2014), 17–38.
10. See Roy F. Baumeister et al., "Creativity and Consciousness: Evidence from Psychology Experiments," in Elliot Paul and Scott Barry Kaufman, eds., *The Philosophy of Creativity* (Oxford: Oxford University Press, 2014), 185–99.
11. Chuang-tzû, *The Inner Chapters*, trans. A.C. Graham (Indianapolis: Hackett, 2001), 63–4.