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# On Creative Dialectics

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# ON CREATIVE DIALECTICS

## OR WHY ISN'T THERE A SEAM ON THE COLORWHEEL?

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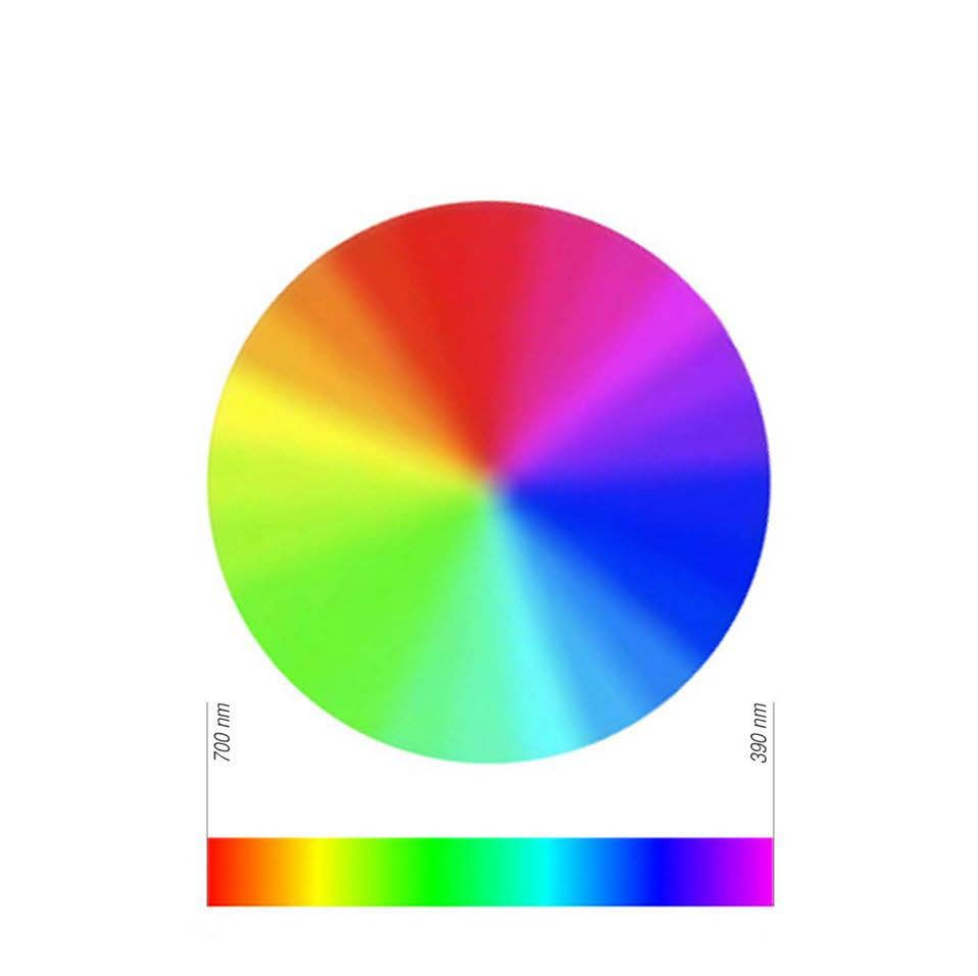
Hegel once described dialectics as "the grasping of opposites in their unity".[1] Oppositions, it can be argued, provide the comparisons that make our experiences intelligible. Our understanding of the world is predicated on differentiation and comparison. We must compare *this* to *that* to know the identity of either or to assign relative value to both. This or that, and the excluded middle between… but what of the unbounded space beyond as well; beyond the binary oppositions, beyond the laws of non-contradiction, beyond the affordances and constraints of *this* or *that?*

The progression of history can be critically understood as a creative process; as a creative dialectic. A proposition is made, then

negated, differentiated and unmade, from which a new synthetic unity emerges. And it repeats again, over and over again. With each iteration the boundary conditions are set as opposing terms that afford and constrain possibilities. *This* is *this* because *this* is not *that*, and *that* is *that* because *that* is not *this*, each negating the other in order to clear a space for its own identity.

But what of the space beyond? What of the possibilities not bound by the constraints of mutual exclusivity, so often established as binary positions set against one another? Both *between* and *beyond this* and *that* are territories of possibility, spaces where other creative dialectics might emerge.




"Why isn't there a seam on the colorwheel?"
32" x 32", 2012
We asked members of the Brown faculty from across disciplines to respond to this question.
This is what they had to say.

Imagine somewhere beyond the rainbow, beyond the colors, beyond the visible light available to the human eye. Between infrared and ultraviolet, "seeing discovers color". [2] It is in this space that we are given the experience of the visible world. But we can also imagine what might be discovered beyond this spectrum, beyond its constraints and its affordances, beyond the ends of a continuum that appear distinct, if not in opposition.

On the color wheel there is not a seam where there should be. By comparison, on a clock, one finds a "seam" between 12 and 1 that is the consequence of the manner in which the representation of time is presented. The linear progression of time is represented as a circle, cycling back around with every hour. On the color wheel, there is the same visual continuity where the "edges" of the visible spectrum meet, - between red and violet - as you find between any other contiguous positions on the color wheel. Those edges, seemingly so distinct when seen as a spectrum, meet and fold back around on themselves, establishing a boundary for our facilities of visual perception. But how might we look beyond the horizon of what can be seen?

In almost any circumstance, even when there are austere constraints, there are almost always other affordances to be considered, other possibilities to be discovered. There are always new questions to be asked and other design options to be recognized when the territory of possibility is extended; when we expand what can be known ( episteme) we expand what can be done (techne), and create new *conditions of possibility*. With enough time, and in an expanded territory, anything is possible. Creative dialectic, in its most basic formulation, can be characterized thus: as a dialectical process that transcends its own terms and expands the territory of possibility. Creative dialectics are processes that move beyond the edges of a given visible spectrum to see what is invisible beyond. Mihaly Csikszentmihalyi

describes creativity, " *as any act, idea, or product that changes an existing domain, or that transforms an existing domain into a new one*." [3]. The same can be said of creative dialectics.

Creative dialectics often play out through critique, which can advance and refine what is given, but often takes for granted the terms which have been established apriori. We can assign vectors to this kind of creative dialectic as a move in one of two directions: towards negation (negative critique) and towards synthesis (synthetic critique). The former aligns with convergent thinking, or the search for a correct position within given terms. The latter aligns with divergent thinking, as an open orientation to plural possibilities. [4] One can offer critique by negation, in a reductive or deductive manner, privileging this at the expense of that, making choices as an either/or binary, closing off possibility in favor of a "correct" answer. Either *this* or *that* might be true. But we can also make a synthetic critique by building upon what exists already, giving ourselves the dialectical option of non-exclusivity, of both/and, of eschewing laws of non-contradiction with a comfortable affordance for ambiguity between and beyond terms. Both *this* and *that* can be true, and neither may be fully privileged or sublated against the other.

As we close off possibilities to act in one way or the other, as ideas become fixed and find form, opportunity costs correlate to the limits and boundaries placed on the territory of possibility. This is the cost of making the potential real; of moving from a divergent stance to a convergent one. But, as we do, we risk failures of imagination as options are formulated in reductive terms, limited by negation to binary sets: either *this* or *that*. And too often, when we find ourselves in these circumstances of limited possibilities and constrained resources, we are forced into playing a zero sum game.

A zero sum game constrains the stakes so that everything that is won and everything that is lost equals out. In order for there to be a winner, there must be a loser. Aggregate wins and losses must produce a zero sum. Agents act to optimize outcomes in their interest in a manner that can be characterized as a dialectical relationship, each mutually defining the terms (and identity) of the other in relative opposition or affinity to their own. In a zero sum game, the stakes must necessarily be constrained within this competitive dialectical relation, from which meaning and value are negotiated and exchanged.

Most of us have some vague intuition that justice is predicated on everything "equaling out" in the aggregate; that our burdens and our privileges are constrained, and that the privilege of one must result in the burden of another. And although this is certainly sometimes the case (and in these cases the best possible strategy may be a zero sum game) it becomes ethically problematic when it is assumed that this always or often produces the best possible outcomes and that competition always trumps communication and cooperation as the best possible strategy for addressing inequalities. It becomes a critical problem when failures of imagination inhibit us from recognizing affordances for other possibilities, and we assume that this is the only kind of game we might play and the only way we might play it.

There are opportunity costs to playing zero sum games, especially when it becomes the default strategy for how we frame difficult questions and address grand challenges. These strategies limit how we negotiate dialectical constructs of identity, power, and justice. If creative problem solving benefits from expanded territories of possibility, from diverse and differentiated positions in dialectical conversation with each other, then what are the costs of playing a reductive zero sum game, particularly when it becomes a primary condition for normative ethics?

When the zero sum game is strictly applied to identity and our relations to each other, a problem arises that might be characterized as *the problem of the Other who others another Other*. When identities are constructed and constrained oppositionally, mutually determined by means of dialectical negation, as positions against other ideologies, institutions, and individuals, we find ourselves playing a zero sum game. Zero sum games always presuppose an *Other*. Zero sum activism tends to play out as solidarity with those with whom we have an affinity, with those we identify with, against those we do not; against those agents or behaviors that we consider unjust. Protest is always a struggle against an Other, a resistance against the individuals, institutions, and ideologies that oppose our intuitions of justice. Positive sum activism eschews these reductive constructs and negative critiques. Positive sum activism, attempts to move beyond the constraints produced by this othering, with the question of how we can design better experiences for everyone. Justice, at its best, is a positive sum game.

To some degree (how much is open to debate) this differentiation, this othering, is always a necessary precondition for constituting our own sense of identity in opposition to and affinity with the positions and identities of others. Who the "Other" in question may be is easy enough to ascertain simply by asking who needs to be excluded in order for us to be who we are. What is it we struggle against? What is at stake in that struggle? Who and what must be negated, excluded, or diminished for us to be who we are? But we can also move in the other dialectical direction by inquiring as to whether a synthetic critique is also possible. When we construct our identity strictly in terms of who we are not, as a negative critique, we not only limit the territory of possibility for others, we limit creative possibilities available to ourselves, and we constrain our ability to play and win non-zero sum games.

Non-zero sum games do not necessarily limit what can be won and what can be lost, and as such can open up space *beyond* the given terms. This expanded creative dialectic gives us choice not just *between* win and lose, but also *beyond win and lose,* as a win/win or lose/lose. It expands the meaning and value of these terms. This strategy challenges us to consider not just how to get what we want, but why we want what we want, which is to say, what makes it meaningful to win or lose.The terms need not be mutually constrained. Both zero sum games and non-zero sum games can be valid strategies given appropriate conditions. However, the ethical turn we should consider is in the choice of which game to play first and which strategy to privilege over the other.

Stephen Pinker writes in, "The Better Angels of our Nature: How Violence Has Declined", that "morality is a consequence of the interchangeability of perspectives and the opportunity the world provides for positive-sum games." [5] Positive sum games are an enlightened strategy for producing just outcomes because they expand the creative dialectic, providing affordances for new possibilities for all agents rather than reducing the situation to a competitive game and making apriori assumptions about the scarcity of resources and the identities of the agents involved. Agents playing a positive sum game must creatively reframe problems, recognizing affordances for shared value and meaning that might otherwise be missed, considering the needs of all stakeholders, and attempting to better understand the motivating forces in play and the outcomes they produce.

Positive sum activism, which benefits from and draws on engagement with design practice, can be defined as activism that proceeds from the notion that the grand challenges of the 21 $^{st}$ century cannot be solved through solidarity with one group over another, cannot be fully understood through negative/reductive critiques, or won by zero sum games. Positive sum activism is

based on the premise that win/wins are far more just, sustainable, and ubiquitous than our normative paradigms of justice might lead us to believe. Positive sum activism can produce a more just world and address *the problem of the Other who others another Other*. But positive sum activism also places a high value on our capacity to act creatively and empathetically in order to solve problems and expand the territory of possibility.

Why is it that we tend to approach discourses of justice in ways that necessarily require someone to lose in order for someone to win? More often than not, when we challenge ourselves to look at problems in creative ways, thinking beyond constraints, designing better affordances for behaviors, and approaching challenges as opportunities to design a better experience for everyone, we find that we can create more for everyone, especially when that design process is iterated and critiqued over many generations. History, after all, is an iterative process.

The value and meaning at stake in any creative dialectic, our attitudes toward scarcity and abundance and the problem of the Other who others another Other are a product of how we understand and approach both the material affordances and constraints of the physical world, and how those affordances and constraints construct our ideas about the value and meaning in play. Creative dialectics produce value and meaning in a dialectical relationship between ideas and material.

We are, and for all our history have been, homo faber - humans as makers - who take the stuff of the world and make it useful, meaningful, and valuable by applying our creative faculties to it. We experience it, and try to learn about it, and we apply this knowledge to how we design the world around us to be experienced by us. We apply thought to form, and because thought is constrained differently than the material stuff of the world, we are able to expand the territory of possibility through our faculty of

imagination.

This kind of dialectic has antecedents in the Western metaphysical tradition. On the one side, you have the positions of Idealists, who place thought as primary in determining our notions of reality (e.g. the allegory of the cave). When we make an appeal that this or that as a constructed reality (identity for example), we are making an appeal to Idealism. On the other, you have a Materialist position, privileging the stuff of the material world as ontologically grounding. From Plato and Aristotle to this day, you find this creative dialectic built into the institutional structures of the academy, with the former tending to find expression in the Humanities, and the latter tending to ground the Sciences. The cross-disciplinary nature of design makes it an especially appealing vehicle for making practical use of these dialectical forces, opening up new territories of possibility between and beyond them.

The ways in which we approach constraints and affordances, of both idea and material, determine how we play the game. Built into this choice, and into our notions of identity and justice, are always already certain apriori assumptions about scarcity and abundance. If the world is to creatively manage the grand challenges it faces in the coming decades, especially environmental challenges in the face of growing population, it will be necessary to move beyond zero sum games alone, and the constraints they impose. It is highly probable that over the course of the next century, new possibilities will emerge, manifested in technologies that not only avert Malthusian-like catastrophes, but produce unprecedented abundance for the billions of people who call this planet home.

Briefly consider three speculative post-scarcity futures with regard to three material resources: energy, water, and space. Each of these brings with it many interesting design questions. Within this century, it is likely that we will design technologies that will allow

us to get most of our energy needs, either directly or indirectly, from the sun. The earth receives more energy from the sun in one hour than the world uses in an entire year. [6] One can imagine, that as we shift to a *light economy*, we will also find other ways of meeting the material needs of everyone on the planet. We will likely find technical solutions for transforming one of the planets most abundant substances – water – into a clean, accessible, and potable resource for every person on the planet.

Even space is not strictly contingent on geography. Space operates both as a feature of territory and as the map that make that territory meaningful. Space is both a conceptual construct and a physical feature of the material world. Because of this, distinct spaces can be functionally co-extensive. Perhaps the most interesting example of this is the infinitely extendable territory of online space, which overlaps and intertwines with the physical spaces we all occupy. This already has had important implications for how we think about and design blended built environments, how we might move beyond the constraints they impose, and how our attention shapes our reality. The design of the built environment shapes our experiences in fundamental ways, establishing the stage upon which we play our games.

An brief introduction to Creative Dialectics for STEAMstudio

Creative dialectics are processes that concretize the abstraction of thought. But, they are also practices that allow us to experience the world and give structure to insights, insights which emerge aposterori (i.e. from experience). Design strategies of all kinds are creative processes by which ideas become instantiated in the material stuff of the physical world; materials that are shaped and directed toward some given purpose, making objects and experiences meaningful and useful. But creative dialectics are also modes of inquiry, ways of asking questions about how and why, critiquing and testing, translating questions into functional representations… an experience leads to an insight, perhaps then a germ of an idea, that can be represented and shared, benefiting from the critical insights of others, integrating those critical insights into future iterations, perhaps sketches, perhaps models, perhaps text, that can be critiqued again, iterated over and over, moving through multiple modes of representation towards the reified artifact. This manner of critiquing ideas through multivalent modes

of representation brings them into the world of shared experience as a creative dialectic. With each iteration a negative and a synthetic critique may be applied, always guided by those sacred questions of "how" and "why". Each iteration is an opportunity to ask a new question about some feature of the project and how it fits into context.

There is no single approach to creative practice. There is no single design strategy that is equally effective in all scenarios. And it is important to remind ourselves that these kinds of processes – these creative dialectics - are typically non-linear in practice, but creative dialectics and design strategies of all kinds can help us reach across domains and adopt appropriate practices for the specific circumstances that are being addressed.

Design Thinking, for example can be characterized as a creative dialectic; as the scientific method applied to creative process. Each iteration is an experiment, with its own hypothesis, methods, and modes of analysis and critique (e.g. negative or synthetic). Human Centered Design's high value on practices that elicit empathy such as storytelling and design research methods is an example of a creative strategy that benefits stakeholders by expanding the territory of possibilities. Human Centered Design can be directly applied to Positive Sum Activism when the "human" in Human Centered Design equation, which usually stands in for "consumer" or "end user", is expanded to include all stakeholders ( see Worker Centered Design). Good design should serve everyone, and it can.

Bricolage is yet another design strategy, a strategy that draws on the materials at hand to solve a problem or address a need. For the bricoleur, the idea is constrained by the material resources available. This strategy can expand the availability of resources simply by recognizing opportunities to solve problems that are outside of our apriori assumptions about the available resources

and their functional fixedness within a given context. Bricolage is a kind of *material alchemy*, where what the material does determines what the material is. The trick is in listening to what the material wants to be, considering its constraints and affordances, and applying those resources to the appropriate context. As Claude Levi Strauss put it,"The 'bricoleur' is adept at performing a large number of diverse tasks; but, unlike the engineer, he [or she] does not subordinate each of them to the availability of raw materials and tools conceived and procured for the purpose of the project. His [or her] universe of instruments is closed and the rules of his [or her] game are always to make do with "whatever is at hand," that is to say with a set of tools and materials which is always finite and is also heterogeneous because what it contains bears no relation to the current project, or indeed to any particular project, but is the contingent result of all the occasions there have been to renew or enrich the stock or to maintain it with the remains of previous constructions or destructions." [7]

These and the other creative dialectics explored above – convergent thinking and divergent thinking, negative critique and synthetic critique, zero-sum games and non-zero sum games, amongst others – are all examples of dialectical constructions that structure our concepts as they limit them. In moving beyond them, in seeking other diverse, sometime contradictory positions, and in concretizing those insights through various modes of representation across different domains, we open up vast new territories of possibility. We might describe this as a transdialectical move; a move beyond. Creative dialectics allow us to explore the spaces between and the spaces beyond, expanding the territory of possibility.

When our creative faculties are cultivated and applied, iterated and critiqued, no problem is insoluble. Creative dialectics allow us to peer beyond the horizon. They provide a way to see what cannot be

seen; to look beyond the gamut of colors, beyond the white light that is combination of all colors, and to know the wavelengths of an expanded spectrum; to glimpse what is further beyond.


[1] George Wilhelm Friedrich Hegel Science of Logic, Trans A. V. Miller. New York: Prometheus, 1991.

[2] Martin Heidegger Being and Time, Trans. John Macquarrie and Edward Robinson. New York: Harper and Row, 1962.

[3] Mihaly Csikszenttmihalyi Creativity: The Psychology of Discovery and Invention, New York: Harper Collins, 1996.

[4] R. Keith Sawyer The Science of Human Innovation: Explaining Creativity, New York: Oxford University Press, 2012.

[5] Steven Pinker The Better Angels of Our Nature: Why Violence Has Declined, New York: Penguin Publishing Group, 2012.

[6] Oliver Morton. "Solar energy: A New Day Dawning?: Silicon Valley Sunrise". Nature 443, 7 September 2006.

[7] Claude Levi-Strauss The Savage Mind, Chicago: University of Chicago Press, 1962.