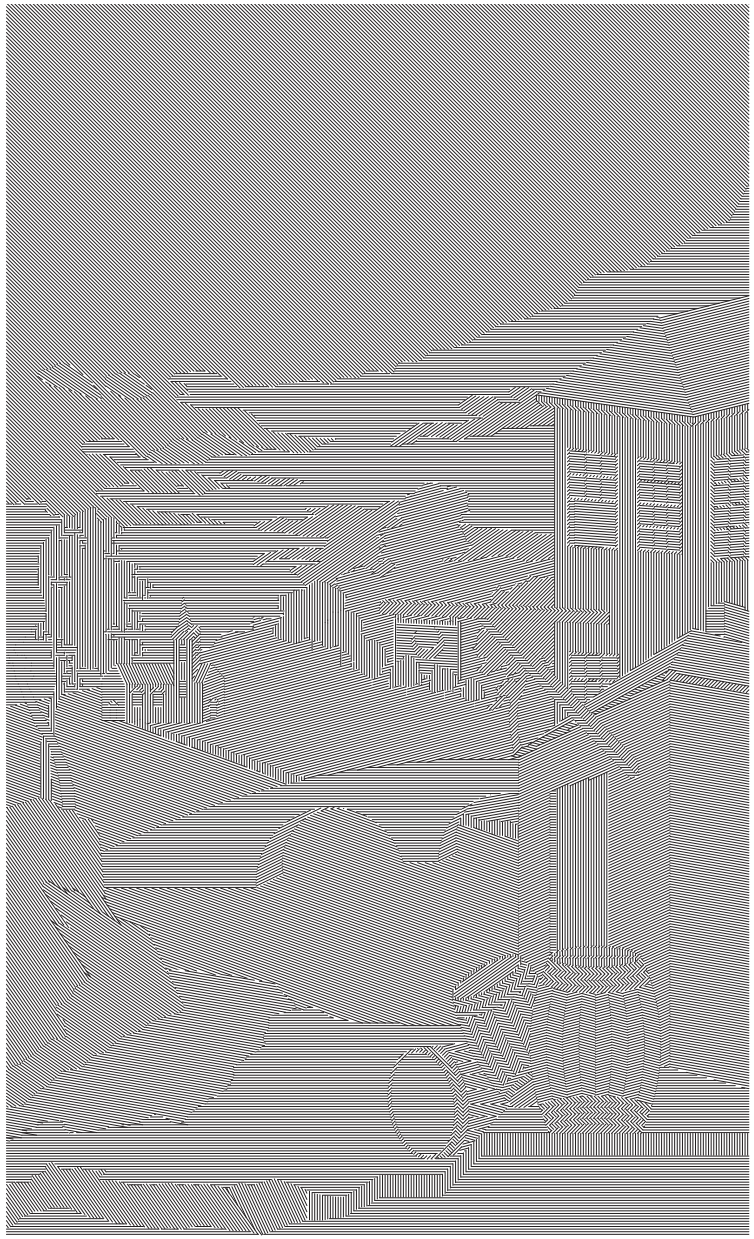
Whoever makes a DESIGN without the knowledge of PERSPECTIVE will be liable to such absurdities as are shown in this frontispiece.[1]



William Hogarth, *Satire on False Perspective*, 1754. Redrawn by: authors.

1. William Hogarth, *Satire on False Perspective*, 1754.

Acknowledgments

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Norman Kelley

Hermes as trickery and translation. Dosso Dossi, *Jupiter, Mercury and "Virtus"*, 1530.

Norman Kelley

Sic. Building Syndrome

by Jaffer Kolb

"I disapprove of what you say, but I will defend to the death your right to say it," Voltaire once famously did not say. "Think for yourselves and let others enjoy the privilege to do so," what he actually said (or something to that effect, translation permitting), is far less compelling than his now-ubiquitous misquotation. The real story, in which early-twentieth century biographer Evelyn Beatrice Hall coined the phrase long attributed to the Enlightenment writer, is common to many popular distortions: from George Washington's mal-utterance, "I cannot tell a lie," to Marie Antoinette's non-proclamation to "Let them eat cake."

This volume is, in its essence, about *trickery*; the eyecon is a maneuver that plays with modes of seeing and interpretation through exploring the relationships between certain kinds of images. But is tricking an event with only one act? Tricking implies time: fool me once, and so on— once the trick is revealed, are we simply left with its armature? Comfortably seated within our Western worldview, we might look all the way back—beyond the Jungian trickster archetype—to Hermes as our beloved proto-trickster. Hermes, god of foolery, was also the messenger god; both remits were rendered plausible by his liminal status as a "go-between"— between the worlds of gods of men; humans and animals; earth and sky. In other words, we might think of him as an agent of perpetual translation: as both the voice and its subversion. Norman Kelley want us to understand this book as a compendium of cons, but that belies the complexity of their work. To mine the richness of these projects, we might use the relationship between trickery and mediation to bind them back within architecture's ontological straightjacket: the effectiveness of their work relies on a game of willful misquotation built on the suppleness of translation.

Abstractly, misquotation is caught in a double-bind: if we disregard mistakes, then its intentional act may be seen as "embellishment," or perhaps more scientifically, an iteration, contingent on balancing verisimilitude with novelty. Such an iteration is a rhetorical device. Like translation, it requires a certain imagination to interpret through distilling: reducing in some cases, augmenting in others, but ultimately treating the idea of a fact (speech act; drawing) as essence rather than form.

Norman Kelley

In *A Map of Misreading*, non-cartographer Harold Bloom describes influence as dependent not on reading texts, but solely the relationship between texts. Such relationships build chains of relative dis- and re-placements: irony, synecdoche, metonymy, hyperbole, and metalepsis. Somewhere between production and reproduction, Norman Kelley explores something simultaneously known and also perpetually new. Familiarity resists known tropes such as "nostalgia" and "postmodernity," resting instead in a comfort zone, where architectural discourse is revealed as a language both classical and radical. If we treat the landscape following as a map of mis-representing, we may borrow from Bloom's catalogue of misprision. Riddles become synechdocal; delineations metonymic; observers hyperbolic; geometries metaphoric; and scenarios metaleptic.

These acts are all bound by principles of substitution—like translation, displacement introduces an epistemological Trojan horse. A known phenomenon is interpreted through a system of objects and ideas embedded within its own histories, cultures, and networks of knowledge. Herein such devices find their resonance as harbingers of meaning. An act of substitution re-temporalizes an object—as meaning becomes contingent on time, place, and context. When Jonathan Crary outlined his narrative on nineteenth-century visuality, he showed how an axiom of modernity used tactics of proliferation—imitations, copies, and counterfeits—to challenge regimes of visualizing through the delicate subversion of familiarity.

Many of the exercises included in the following pages continue this ambiguity of response into form *itself*: there is a will to disturb, a drive to subtly manipulate. Such aspirations depend on the firmness of legibility to operate—the obstinate sphere, studies on reversibility, experiments with approximation. Trickery assumes diversion from a known narrative. The misquotation belies expectation. In language, we might reduce trickery to a lie, or a joke to its punchline. In architecture, such devices are expressed through drawing: trickery as illusion, a joke as revelation. Returning to Crary, we might think of the conflict between geometrical and physiological optics, in which the latter exposes the idiosyncrasies of the eye. If those systems transitioned sequentially in the nineteenth century, now geometrical optics are subject to those idiosyncrasies, as the two systems collapse on one another. The implied shape of space inverts constantly, shifting figures and grounds, staging deceptions of depth, and near imperceptibly distorting platonic form.

Blame the architects for such a linguistic reading. Hopefully by chance, they have produced a dictionary of architectural vocabulary not as a series of words, but rather as a series of word-acts. Such games use representational strategies as instruments. They imagine players instead of spectators. Indeed such subject-fictions pervade Norman Kelley's design work. Their chairs are mysteriously devoid of sitters; their dandelion balloons are of ambiguous and unreadable scale. Figuration becomes the translation; the game itself becomes the end-game. As a result, while the drawing may reveal itself as a trick, it is emphasis on that experience of trickery that gives the work depth. By intentionally misquoting a visual language with which we have become familiar through historical imagery and intuitive recognition, Norman Kelley creates space through interpretation. Their drawings demand a closer look: the act of reading enhances space, pushing the spectator deeper into the two-dimensional surface until we reach a more complex world. They call it an "eyecon," but paradoxically it isn't the eye they trick, it is more the abstract process of perception itself.

Original eyecon. Joachim von Sandrart, *Xeuxis and Parrhasius*, 1688.

Confidence decoy. India Jane Company, *Wooden Duck Decoy* (date unknown).

Introduction

I can then take these imagined objects (jug, apple, table) and draw them upon a two-dimensional surface (upon a piece of paper). That is, I can represent that which I imagined fixed in a frame. Drawn on a two-dimensional piece of paper what I had imagined is an illusion, yet it is also a realization, that is, the reality of a drawing on a sheet of paper.[1]

—John Hejduk, "The Flatness of Depth" from *Mask of Medusa*

The theatrical set director George Martin Battersby reminds us that, of all the tall tales that make up Pliny the Elder's *Natural History*, is a chapter on painting. The story Pliny recounts is of a fifth-century BC competition between two painters, Zeuxis and Parrhasius. In the story, Zeuxis pulls back a curtain to reveal a painting so real that even birds peck at its painted grapes. However, when Zeuxis tries to push aside the curtain covering Parrhasius's painting, the fabric turns out to be the painting itself.[2] If Pliny's account is true, Parrhasius's deception is one of the first successful instances of an *eyecon*. Art historians refer to this as a *trompe l'oeil*, or a trick-of-the-eye, in which a two-dimensional object deceives the observer into believing it is the object itself. For a contemporary set of eyes this form of illusion-making is not cause for turning one's head, but this sort of painterly achievement was once considered proof of the highest craft in the classical world. On interior walls of Roman villas, frescoes opened out to reveal false gardens. Later on, Renaissance figures would continue to break free from the picture plane with painted scenes spilling into actual interiors. By the seventeenth century, the effect, now a trick, would fall out of favor.[3] The eyecon, no longer valued for its craftiness, met its fate because it symbolized vanity and power: it was a visual sham created by the cognoscenti to alienate and embarrass the non-elites.

The term *eyecon*, however, does not date back to Pliny. In fact, it finds its origins in a far less antiquated way. An eyecon, picked from Hillel Schwarz's *The Culture of the Copy*, is used to refer to a North American hunting tradition of crafting wooden bird decoys, dating back as recently as the nineteenth century. These eyecons, or "confidence decoys" as they were sometimes called, were not replicas of the species being hunted (there were those, too) but rather, replicas of other species placed among those decoys—so as to float a familiar scene, i.e., fake

Drawn and modified from *The Projective Cast and Its Three Geometries* by Robin Evans, 1995.

mallards to lure a real heron.[4] Imagine the preparation. Not only was the hunted target placed in focus, but so too was its immediate context. It is here that our treatise begins to take shape. For it is in this less than prosaic anecdote that we position ourselves to rediscover the value of visuality in architecture and to prey on its observers.

Pliny's account of the painted curtain, albeit an overused motif in the arts, is characteristic of a game our treatise is certainly invested in playing—though it is not the endgame. That would be too easy. To reason that this game is simply about optical tricks, or an ironic visual language bent on "nothing is as it seems," is to miss the point entirely. The game is not merely about deception. Instead, this game derives both its pleasure and its discipline by actualizing visual relationships between the observer and that which she observes through familiar, yet questionable, rules. Like the wooden mallard, whereby a familiar scenario is reconstructed and then a shift indexed to conjure a new narrative, our eyecons aspire to catalyze the ordinary into something extraordinary. It is an architectural performance from which familiar techniques and histories are recuperated, assessed for value, and then elevated. As Dave Hickey observes from optical art, it is a game, which, "replaces the elite, intellectual pleasure of *getting it* with the egalitarian fun-house pleasure of disorientation, of trying to understand something that you cannot. It refuses to assign the observer relative levels of visual mastery. Instead it makes us one in our anxious failure."[5] The delight of looking closely is its only hook. In architecture, this transitive idea, which Hickey refers to as "disorientation" is not a thing in itself, but a translation between things—and it is referred to as projection.

At its most stripped down, architecture may be limited to a fundamental spectrum in which three variables exist: *drawing*, *building*, and *vision*. The architectural historian and geometer Robin Evans tell us that out of thinking and imagination comes *drawing*. Drawing is then used to construct a *building*. And finally, that building is relayed to our eyes via projection, otherwise known as *vision*.[6] In our eyes, however, vision (i.e., projection) takes precedent over drawing and building, or image and object. The sequence has been modified: vision, drawing, and finally, building. And while architecture can most easily be thought of as existing between two worlds—a culture of drawing and the practice of building—it is the optical conceit often left to do the heavy intellectual lifting. Whether it is as simple as Bramante's desire to make an abbreviated nave appear

longer, or as grand as Robert Barker's knack for travel (and time) replacement with 360-degree panoramic views, it is fair to presume that vision is architecture's enabler. And most importantly, it enables the observer—you—to act as the intermediary between image and imagination, building and drawing, reality and representation. Your eyes are the gatekeepers, or so this architecture would like you to believe.

Of the senses used when reading architecture, vision is the most illusive. Let it run loose and it will surely make a mess. Vision blurs, vision attenuates, and vision will often lie to the observer. Like a sly paradox, vision has the means to invert expectation. It seems only fitting then that we often sidestep vision's illusory qualities when communicating architecture. In doing so, it opens up a myriad of alternative practices (i.e., philosophy, computation) to muddy the water. Instead of trusting in our eyes, we settle for more tactile, even earnest, sets of qualifications (i.e., sustainability, structure). Despite the many hoops (and trends) through which we might interpret architecture, vision remains architecture's most fundamental lens. Architecture has simply forgotten the merits of its basic valuation. Since the perspectival revolution of the Renaissance, when Leon Battista Alberti's innovations on linear perspective forever altered the history of vision, architecture has been interrogating new kinds of seeing and signification. Today, there is a resurgence towards augmented reality in both photography and cinema, each of which has renewed the interests, and problems, of the fifteenth-century Italian visualists.[7] The methods by which we now choose to represent real form (architectural or otherwise) have aimed too high. The anachronous optical mediums that once toyed with our perceptions and exposed the affectations of our normal eyes, such as entasis and oblique lines of sight, have lost their playfulness in favor of a more positivist attitude. Visual intuition has given way to an objective reality that is far too objective: far too obsessed with reimagining the real as opposed to inverting it towards more provocative fictions.

To propose a treatise in service of a projective style of vision, or cunning sight, requires the reader (*aka* observer) to embrace optical illusions, or visual error as we prefer to call them, as existing twofold: a coupling of intuition and method. To begin. When observing the eyecon, you are required to submit to the dirty little secret that most architects (ourselves included) have unlimited faith in the power of the second item on the spectrum: *drawing*. Perhaps it is silly, but as Robin Evans points out yet again, we are drawn to drawing hoping it will divulge the mystery of our calling and unlock disciplinary, even personal, secrets. This is not the drawing that precedes building, but rather, the drawing that follows vision. We recognize that *vision*, *drawing*, and *building* will only work for so long. In due course we envision an architecture that is free from such stiff categorizations. That clear, to play the game, we must start somewhere.

This treatise is a compendium of drawings produced since we began referring to our collaboration as Norman Kelley, sometime in the winter of 2012, or perhaps earlier. Each of the drawings which follow have been freed from the constraints of the respective projects for which they were originally conceived. This happens in two ways. First, the drawings are organized into what we consider to be a visual lexicon consisting of four chapters on Riddles, Geometries, Observers, and Scenarios. Second, the drawings are further wrestled from their original contexts through the aid of a fast and frugal one-liner. While magicians hide their techniques behind the illusion of their tricks, the one-liner allows for partial access into another narrative, positioning the drawing's disciplinary context as well as its illusory aspirations. With each chapter we aim to register, as well as misalign, our vocabulary to architecture's established standards and conventions. The drawings and the one-liners should not be viewed simply as techniques. Instead, they should be thought of as incentives—a spur to inflate the application of vision in architecture. By taking advantage of our individual eyes' ability to be deceived, this treatise conditions its reader to pay attention and re-presents an architecture in which optics still has value.

Look closely.

1. John Hejduk, *Mask of Medusa: Works 1947–1983* (New York: Rizzoli, 1989), 102.

2. Martin Battersby, *Trompe L'oeil: The Eye Deceived* (New York: St Martin's, 1974), 9.

3. Hillel Schwartz, *The Culture of the Copy: Striking Likenesses, Unreasonable Facsimiles* (New York: Zone, 1996), 174–209.

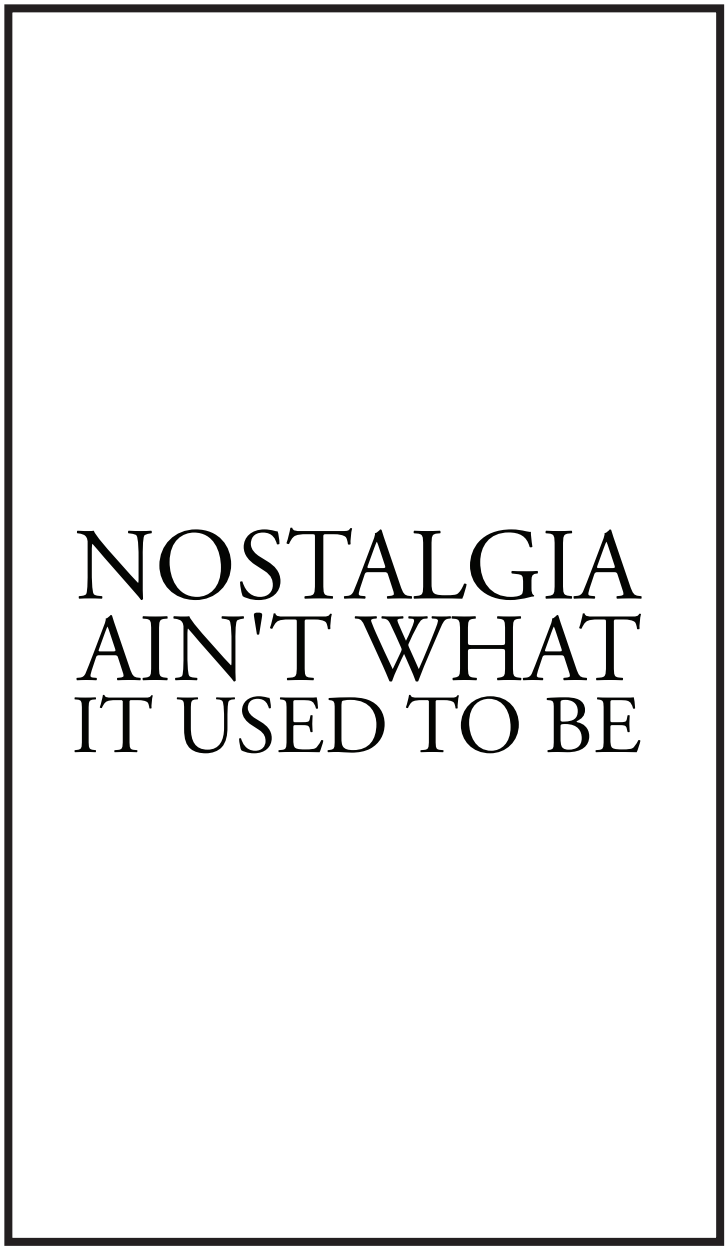
4. Ibid., 207.

5. Dave Hickey, "Trying to See What We Can Never Know," in *Optic Nerve: Perceptual Art of the 1960s*, ed. Joe Houston (New York: Merrell Publishers, 2001), 11–13.

6. Robin Evans, *The Projective Cast: Architecture and Its Three Geometries* (Cambridge, MA: MIT Press, 1995), xxvii.

7. Jonathan Crary, *Techniques of the Observer* (Cambridge, MA: MIT Press, 1990), 13.

Riddles, Geometries, Observers, and Scenarios



Peter De Vries, *Tents of Wickedness*, 1959.

1. Paraprosdokian

definition of PARAPROSDOKIAN

A figure of speech in which the latter part of a sentence or phrase is surprising or unexpected in a way that causes the reader or listener to reframe or reinterpret the first part. It is regularly used for humorous or dramatic effect, sometimes producing an anticlimax.[1]

examples of PARAPROSDOKIAN

a. I had a wonderful evening—but this wasn't it.[2]

b. You can always count on the Americans to do the right thing after they have tried everything else.[3]

c. I'm not addicted to gambling. I'm addicted to sitting in a semi-circle.[4]

application of PARAPROSDOKIAN

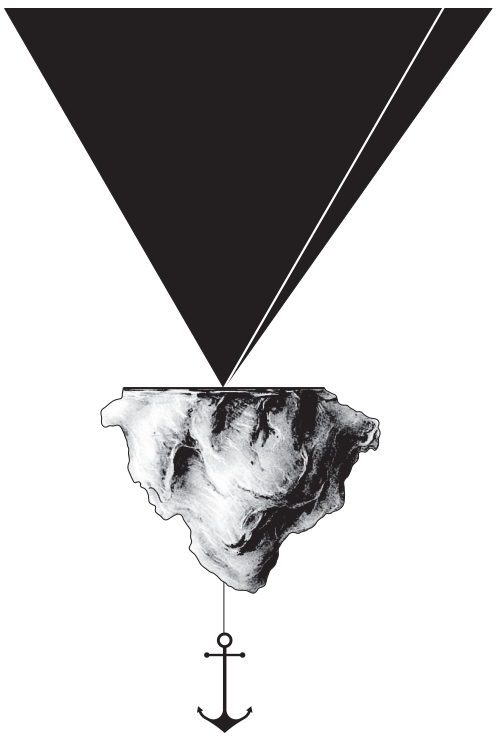
In architecture, a paraprosdokian is an object or image with the propensity to undercut itself. In a single instance, it is capable of presenting both positive and negative, careless and attentive, attributes. Not unlike the classical definition of contradiction, the paraprosdokian consists of a logical incompatibility between two or more propositions. It is axiomatic, in that it projects a premise from which expectation is undermined, reconstituted, and extended, beyond the lens of familiarity. Like a magician's second act, the paraprosdokian is a quick form of defamiliarization, suited for setting a tone that is entirely bombastic and self-deprecating.

1. Ernest Ament and Ross Scaife, A Glossary of Rhetorical Terms with Examples (Lexington: University of Kentucky, 2010).

2. Groucho Marx.

3. Winston Churchill.

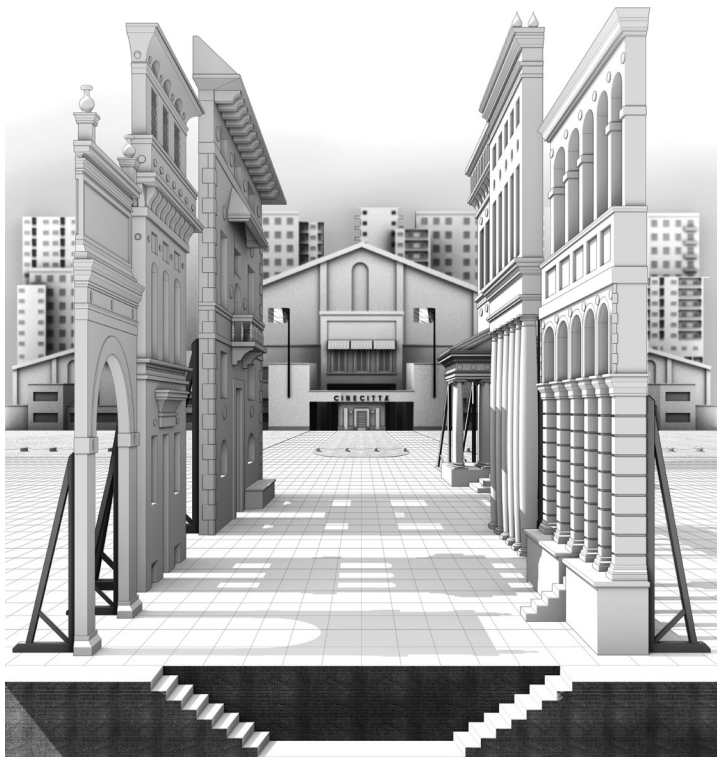
4. Mitch Hedberg.



Allegory of the Inverted Pyramid, mixed-media elevation, 2013.

More than meets the ground

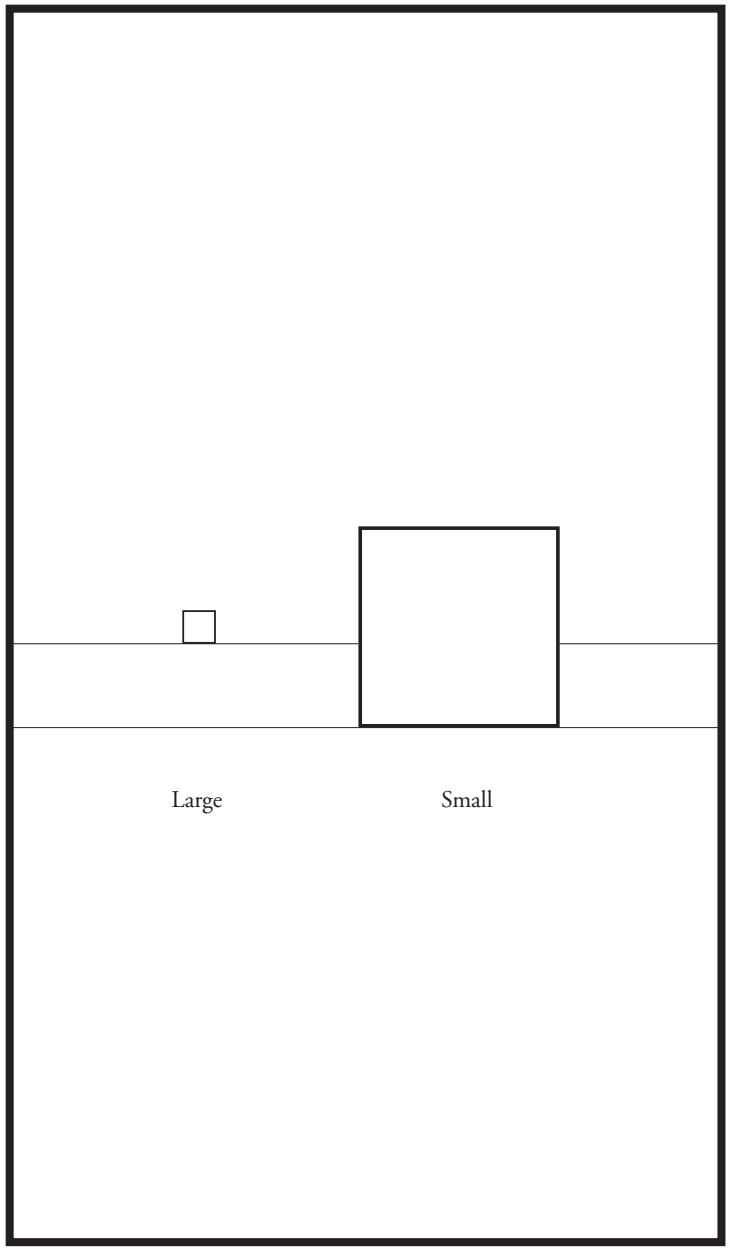
A pyramid is presented frontally, though it favors one of its four sides more than the others. The pyramid defies gravity by presenting itself upside down, or rather, positioned on its apex. Its form is alarming. Its form is precarious. For all we know, the pyramid will not stand like this for long. Now, zoom out. Review not only the pyramid, but its datum as well. Like an iceberg, the black line is more massive than it initially suggests. The pyramid is weighed down by an anchor. It is no longer a pyramid. It is simply an upside-down triangle.



Prop Elevations #1, forced perspective in elevation, 2014.

A tragic scene for a tragic entrance

The drawing splices foreground imagery from Sebastiano Serlio's Design for a Tragic Scene (1545) with Gino Peresutti's design for the entrance to Cinecittà (1940s), Italy's famous film studio, to produce an image that embodies the tragic culture of the Italian film industry under a fascist regime. The drawing was commissioned by Ignacio G. Galán for the 2014 Venice Biennale as part of his exhibition, Cinecittà Occupata.



A juxtaposition of two differently scaled squares viewed in perspective.

Norman Kelley

2. False Positive

definition of FALSE POSITIVE

A form of proof that establishes the truth or validity of a proposition by showing that the proposition's being false would imply a contradiction.[5] Also referred to as a "proof by contradiction," a false positive borrows its definition from statistical testing.

examples of FALSE POSITIVE

a. Front is back.

b. There are no straight lines. Only curves with degrees of zero.

c. Right! Turn left.

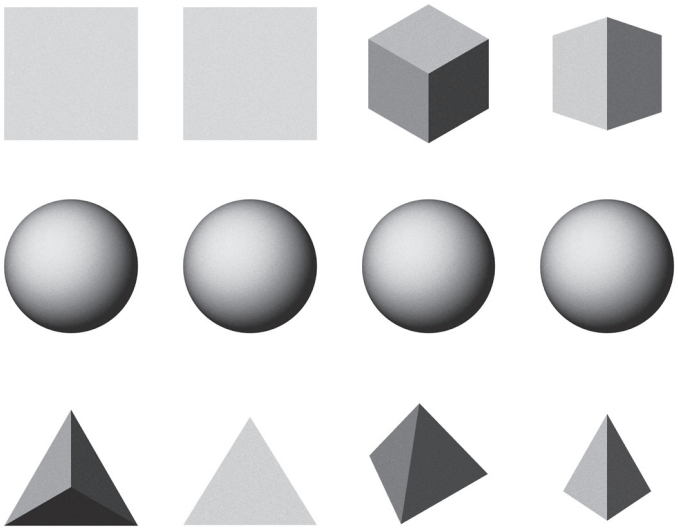
applications of FALSE POSITIVE

To prove a position, we consider its opposite. In response to this earnest methodology, Paul Feyerabend considered the false positive, "a trick that presents an event (or idea) which dissolves the circumstances that made it happen."[6] In part, a comedy of errors. In the interest of variety and an overall aversion toward overly dogmatic design recipes, the false positive is argued through paradox—a system of multiple meanings, both true and false; some are specific, some are broad, some come dangerously close to triteness, and others approach ideology. The false positive dismisses the modernist tone of rejection and exclusivity in favor of accommodation, where buildings are comprised of a multitude of paradoxes, i.e., inside and outside, movement, and immobility. The false positive exploits uncertainty.

5. G.H. Hardy, A Mathematician's Apology (Cambridge University Press, 1992), 94.

6. Paul Feyerabend, Against Method (New York: Verso Books, 1975), 9.

Norman Kelley



Cube, sphere, and pyramid in mixed projections.

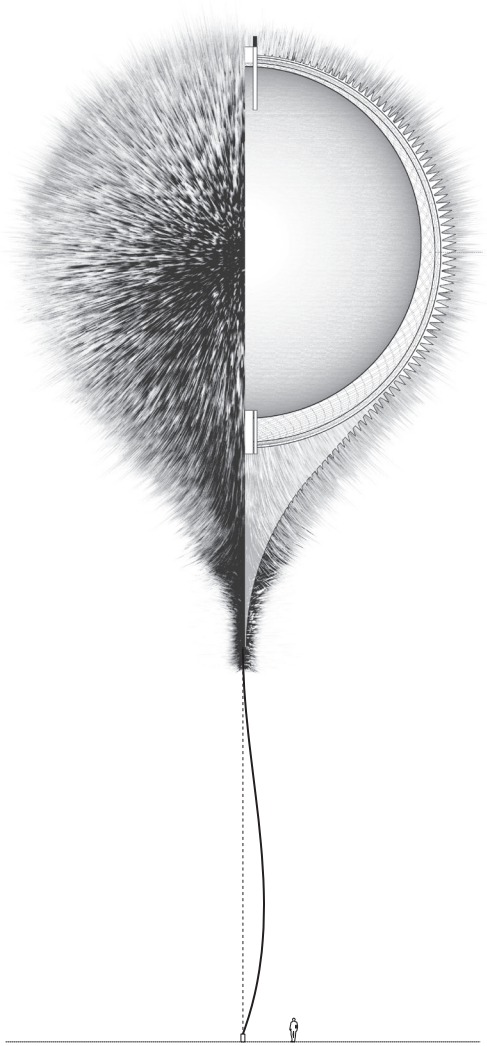
Norman Kelley

Sphere in oblique parallel projection.

The obstinate sphere

Architecture's affinity for the sphere (see: Botta, Boullee, Ledoux, Fuller, Gropius, Koolhaas, Niemeyer, Rossi, et al.) has long reflected the difficulty in situating an ideal geometry within most given contexts. Its infinite symmetry means that the sphere likes to roll and therefore must always be truncated, so it may sit still. Moreover, it scales too easily and averts optical displacement—parallax, even—and hence must be tiled. Its natural state is to avoid change, rather than to yield to the trends of visuality. Yet in its cavalier struggle to remain true to its primitive attributes, it exhibits an attitude unprecedented in other rational geometries. Even at the moment when it appears that the sphere has given itself over to projection (as in the case of the oblique parallel projection), it sidesteps change thanks to morphology. The resulting figure is no longer a sphere, but an ellipsoid.

Norman Kelley

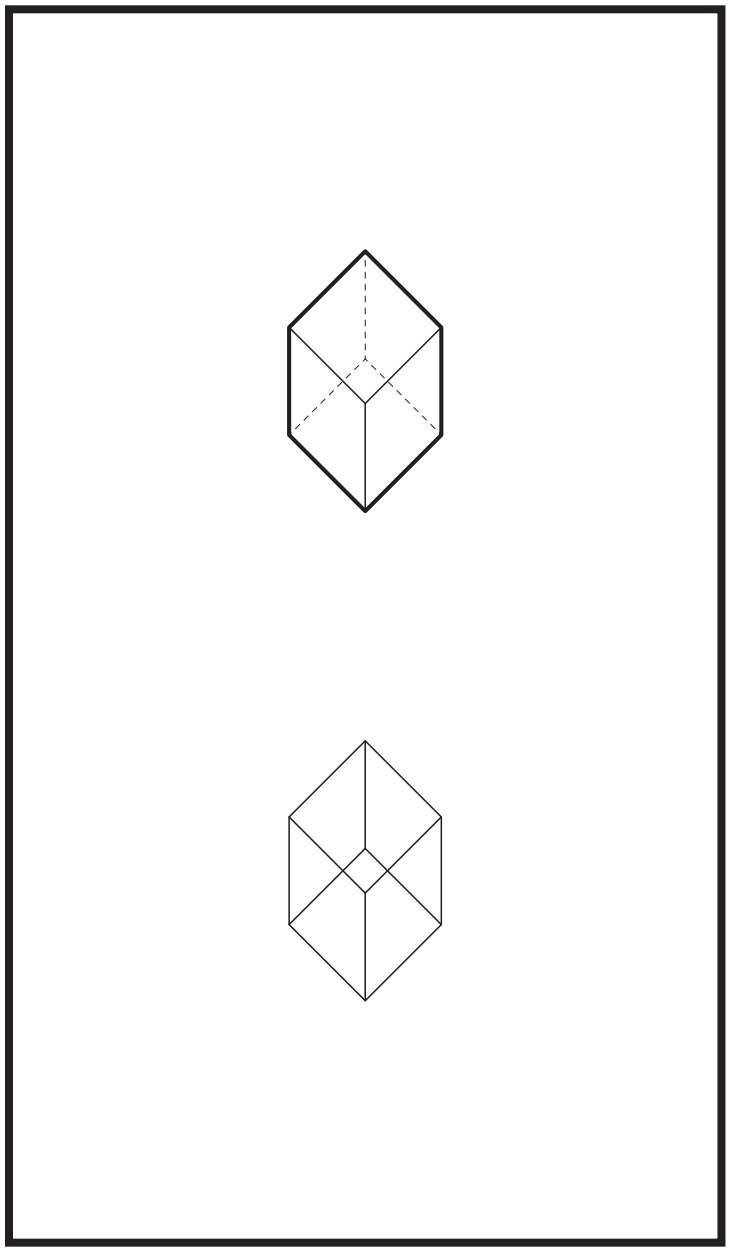


NAWT (Normal-Axis Wind Turbine) Balloon, cut-away elevation, 2012.

Nuance and whimsy are not the enemies of efficiency![7]

Typically, wind turbines harness energy by way of a single axis. There are exactly two types: the Vertical Axis and Horizontal Axis. This new type, the Normal Axis Wind Turbine, harnesses energy by way of nearly infinite axes—those that are perpendicular, or "normal", to the balloon's surface. These micro-turbines are arrayed, like quills, about the spherical form. And though each micro-turbine produces only a tiny fraction of the energy generated by conventional wind turbines, here they are able to nest tightly together while minimally disrupting each other's efficiencies. Furthermore, the balloon's height and cluster patterns can be adjusted to increase energy output as needed.

7. Sarah Jazmine Fugate.



Variation on a Necker Cube by Louis Albert Necker, 1832, redrawn by authros.

3. Reversibility

definition of REVERSIBILITY

A change in the position, order, or relationship of things so that they are the opposite of what they had been: space formed not only forward from the plane but also backward in depth.[7]

examples of REVERSIBILITY

a. Necker Cube, Louis Albert Necker, 1832.

b. Structural Constellation Drawings, Josef Albers, 1955.

c. *Proun 19D*, El Lissitzky, 1920–21.

application of REVERSIBILITY

The act by which an object or image exhibits reversibility might suggest an indifference to legible visual readings, but in fact it engenders the opposite. A conscious decision to pursue two simultaneous appearances is the product of fine reversibility. The ability to intimidate while in retreat produces the most analog form of movement. This is entropic at best. As Yves Alain-Bois writes on the work of El Lissitzky, "He wanted to invent a space in which orientation is deliberately abolished: the viewer should no longer have a base of operations, but must be made continually to choose the coordinates of his or her visual field, which thereby become variable."[8] Although the technique finds its contemporary origins in Russian Suprematism, it can be presumed that Renaissance painters like Masaccio were exploring its perceptual applications as early as the fifteenth century.

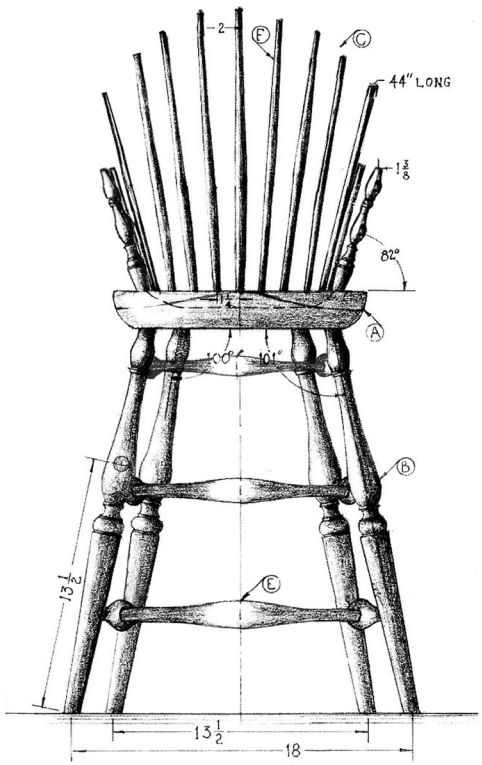
7. Yves Alain-Bois, "Radical Reversibility," Art in America, April (1988): 174.

8. Ibid., 174.

The Introvert, reversible elevation of a portico, 2014.

A threshold energized by spending time alone

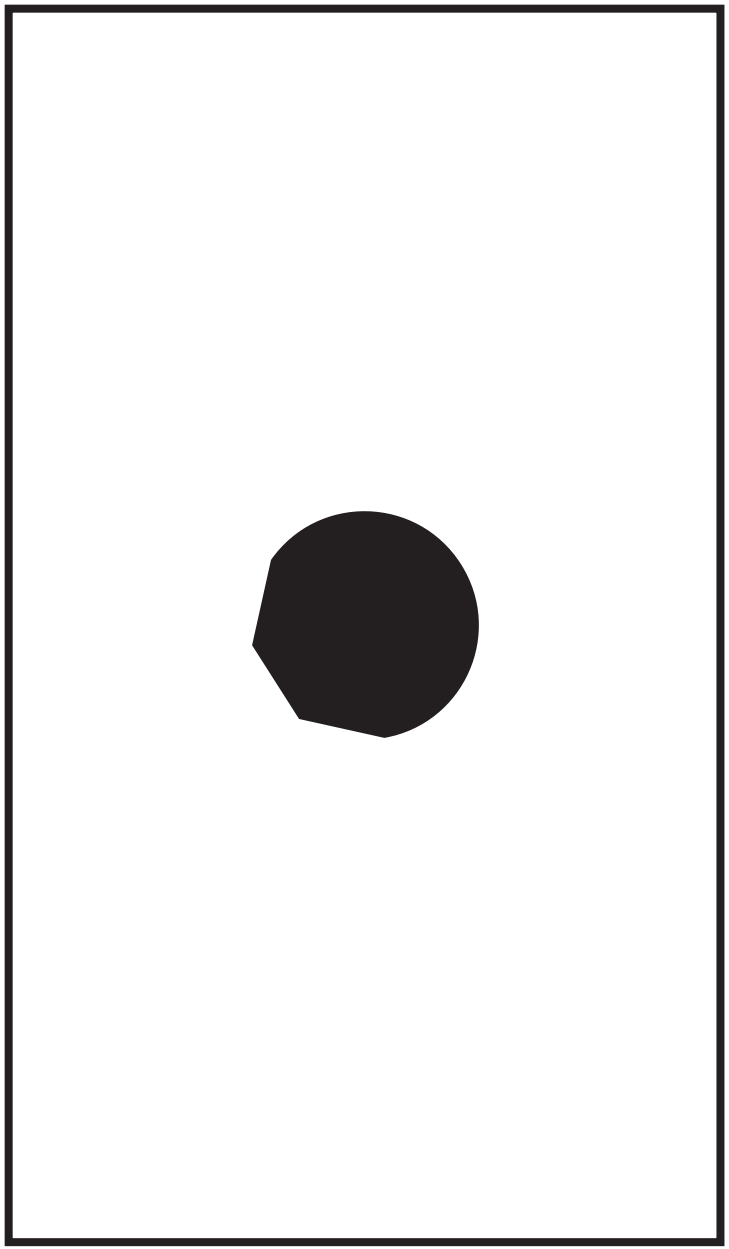
The drawing depicts Francesco Borromini's forced perspective portico (1632) at Palazzo Spada from the rear. From this view, where all of the portico's frontal ornament has been concealed and its background removed, the scene produces both positive and negative depth. The drawing was published in *Log* 31: New Ancients, as part of the essay "Five Self-Portraits."



Continuous-Bow High Chair, front elevation, Wrong Chairs Collection, 2014.

Look at me when I am talking to you

The crest rail of this particular Continuous-bow high chair has been removed. The chair no longer maintains its continuous descriptor, but rather entices the viewer to walk toward and around the chair to find its front. In addition, its structure has been increased to heighten the reversible effect. The chair is part of the Wrong Chairs collection.



Inexact circle or hexagon.

Norman Kelley

4. Approximation

definition of APPROXIMATION

Almost correct or exact; close in value or amount but not precise.[1]

examples of APPROXIMATION

a. Generic product (*not brand name*)

b. Meshes (not NURBS)

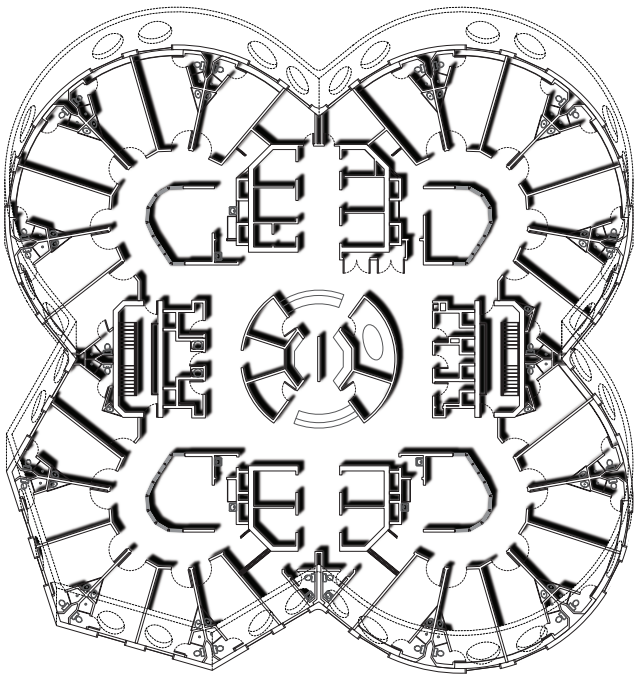
c. 8-bit video games (not >16-bits)

applications of APPROXIMATION

An approximation is typically reserved for excusable mistakes, poor material tolerances, and crude geometry. In other words, an approximation is a form of derision, and often used to reflect on something accurate, like precise curvature. Assuming a relaxed status, approximation can also yield nuanced readings within a highly articulated context. For example, when something appears "almost" smooth it typically means that it has been approximated. Approximation is fast and economical. While it is not always a substitute for smoothness or fineness, its characteristics are made most apparent when it is in the company of more sophisticated peers. Similar to a spite house, or a building constructed or modified to irritate neighbors, an approximated image or object can spark distaste.

1. "approximate." *Merriam-Webster.com*. Merriam-Webster, 2015. Web. 1 March 2015.

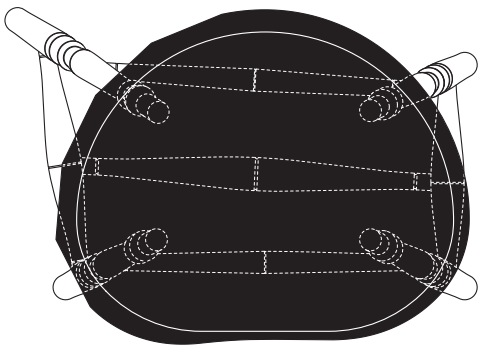
Norman Kelley



Approximate Commemoration, plan, redrawn from Prentice Women's Hospital, Bertrand Goldberg, 1972.

You should have left it alone

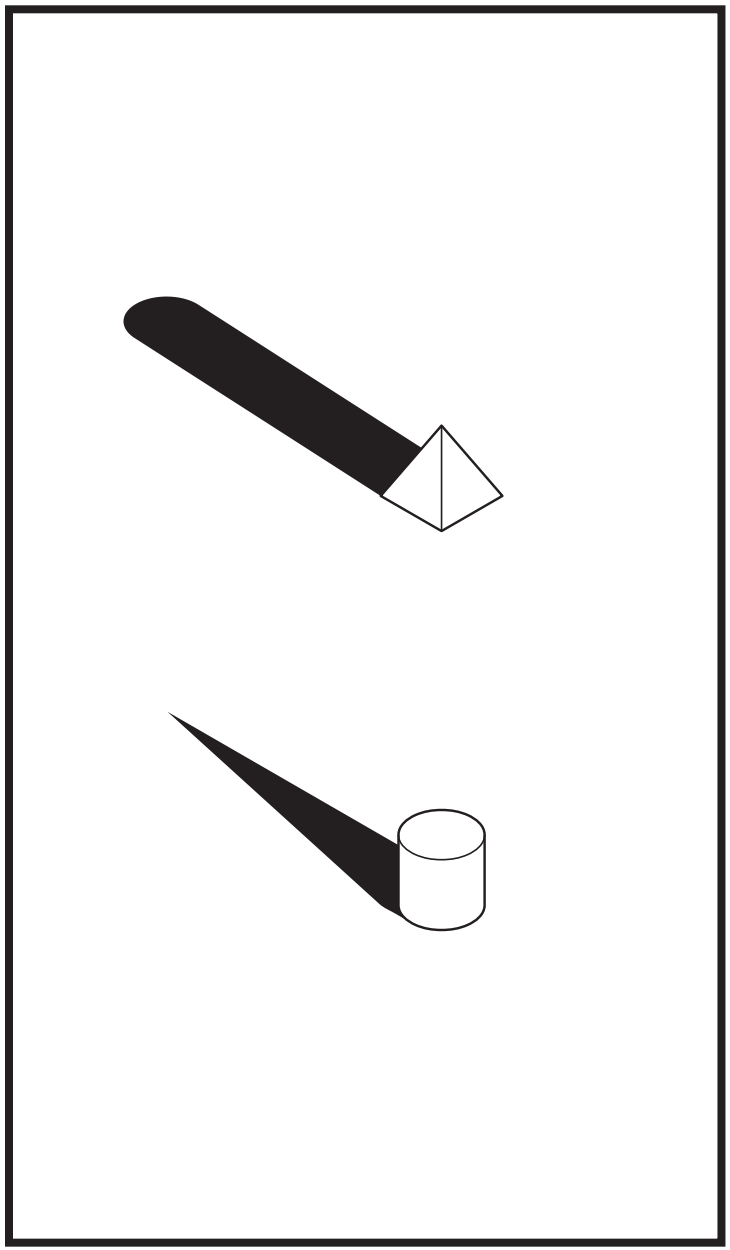
The call of any restoration project is to return something of considerable wear to its original glory. In this case, the ambition was to project a more miserable future for Bertrand Goldberg's design for Prentice Women's Hospital (1975) by slowly removing that which made its form so canonical. The approximated circular geometry is reduced to four straight lines.



Tall Stool, plan, Wrong Chairs Collection, 2014.

Do not be distracted by the leg

By extending one of its hind legs several degrees farther out than its three counterparts, the Tall Stool produces a seemingly imbalanced composition. Once occupied, the observer is no longer distracted by the deviant leg and discovers that the seat is hard to the touch on its right side, and smooth on its left—a tactile approximation.



Pyramid with cylindrical shadow; cylinder with pyramidal shadow.

Norman Kelley

5. Shadowplay

definition of SHADOWPLAY

An approximate, rough, or alternative representation of an object's cast geometry as values, or different shades of white and black used to translate light and shadows into shading.

examples of SHADOWPLAY

a. Hand-shadow puppets.

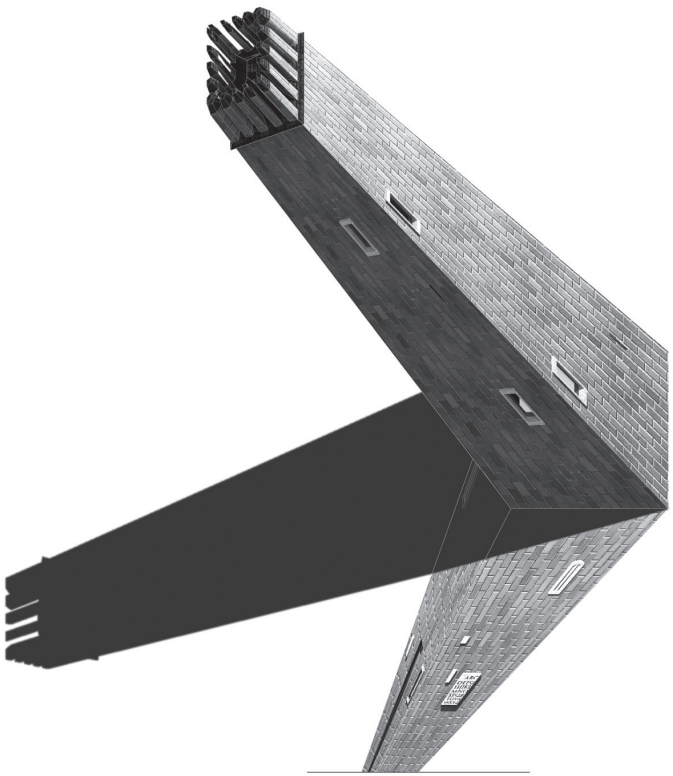
b. Shadow gap, or space between two surfaces.

c. *Camera degli Sposi*, Andrea Mantegna, 1465–74.

applications of SHADOWPLAY

In descriptive geometry, a simple shadow projection is a protocol to generate a view of an object in space from another view, from which rays are cast from the object onto itself and onto a ground plane. It is a secondary image formation process that combines illumination and three-dimensional geometry to float a realistic scene. Shadowplay, however, involves a slightly different shadow protocol. This ludic projection maintains the original object's position while relaxing the shadow's final registration. Projection rays may be cast from an alternative object to produce a secondary reading of the existing object or in other cases, like hand-shadow puppets, low-resolution geometry may translate to high-resolution profiles.

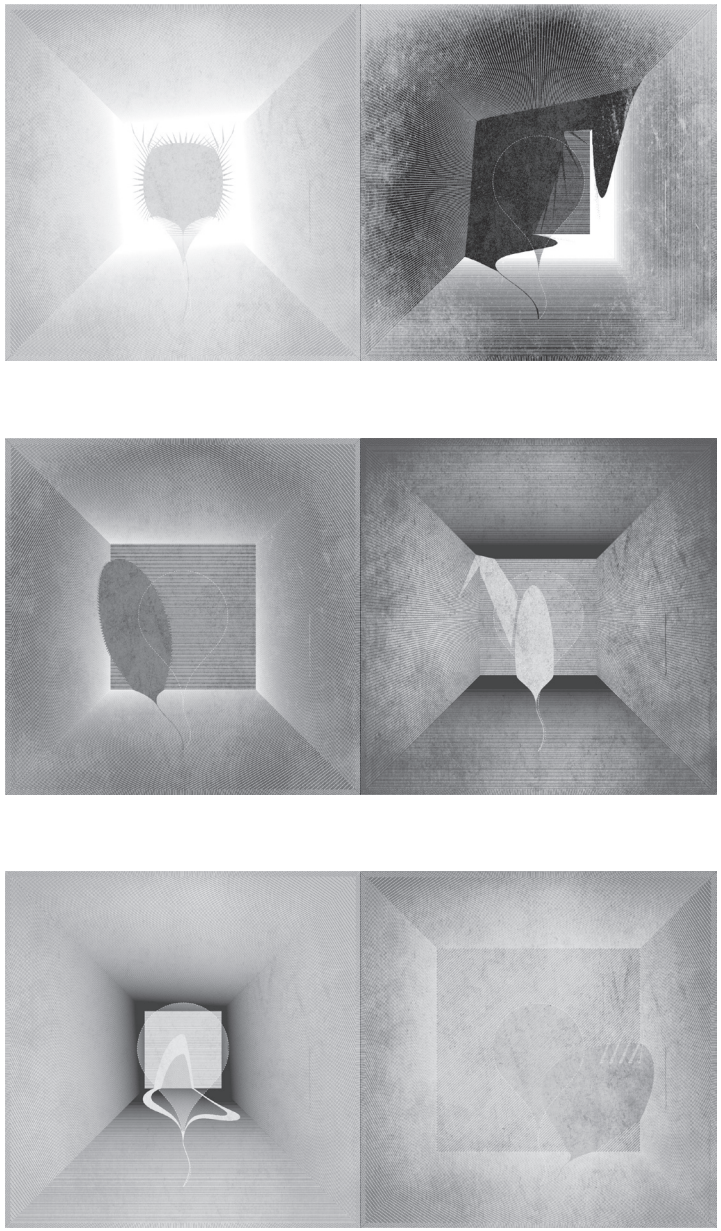
Norman Kelley



The Nativist, castle in two one-point perspectives, 2014.

The castle surrendered forward

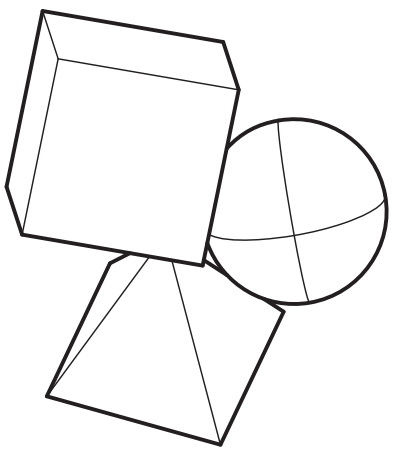
The drawing is derived from Piero della Francesca's The Resurrection (1463–65), where the artist suggests two focal points through the use of two vanishing points (the first at the center of Christ's head and the second at the center of a sarcophagus). By forcing a single object to negotiate two independent vanishing points and observing it in elevation, the observer is left with an object that is both tied and torn to its picture plane. Here, the shadow reflects the object's primary vanishing point and overlaps the second. The drawing was published in *Log* 31: New Ancients as part of the essay "Five Self-Portraits."



One or Nine, University of Illinois at Chicago figure exhibition, 2012.

Same balloon, different light

Six balloon profiles with mixed light sources and separate cast shadow profiles are illustrated in front of a forced perspective. The profiles are identical in size and orientation. Like a hand-shadow puppet, the shadows cast are meant to exhibit a simultaneous and secondary reading of the initial profile.



Collision (without intersection) between a cube, a pyramid, and a sphere.

6. Whole-to-Whole

definition of WHOLE-TO-WHOLE

A formation of components (not parts) arranged indiscriminately.

examples of WHOLE-TO-WHOLE

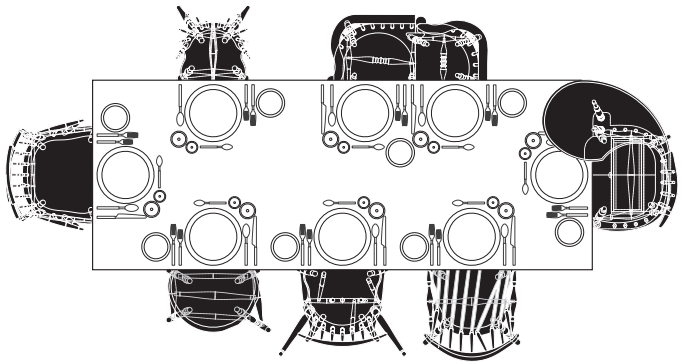
a. Banquete Chairs, Fernando and Humberto Campana, 2002.

b. Dominican Motherhouse, plan, Louis Kahn, 1965–69.

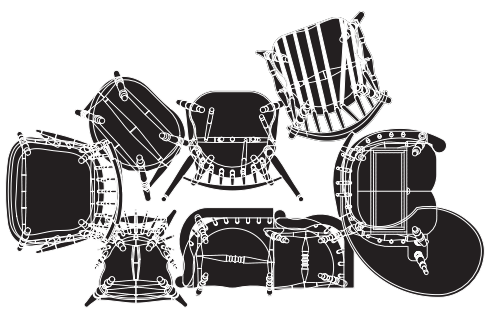
c. Yongsan Experiment, Joshua Prince-Ramus, date unknown.

applications of WHOLE-TO-WHOLE

In object-technology, the convention is to describe an entity by one or more parts, which are themselves instances of that entity. For example, an engine consists of a cylinder, a spark plug, valves, pistons, piston rings, and so forth. As the idiom reads, "the parts make up the whole," or "the whole cannot be reduced to the sum of its parts," or some other variation, in which the whole is rarely discussed without resolving to reduction. Whole-to-whole relationships sidestep reduction by arguing that wholes are primitive enough in their origin and, therefore, are irreducible. These whole-geometries tend to be overly familiar shapes, types, or styles. Using the whole as a point of departure, whole-to-whole relationships project new definitions and qualifications onto seemingly banal objects based on proximity. Components do not intersect one another, but rest on one another in two- and three-dimensions. Organization is determined by geometry and material weight.



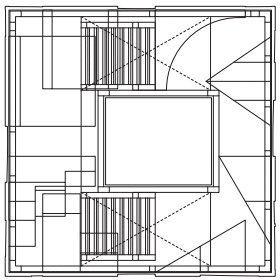
Wrong Chairs, composite plan (with table), 2014.

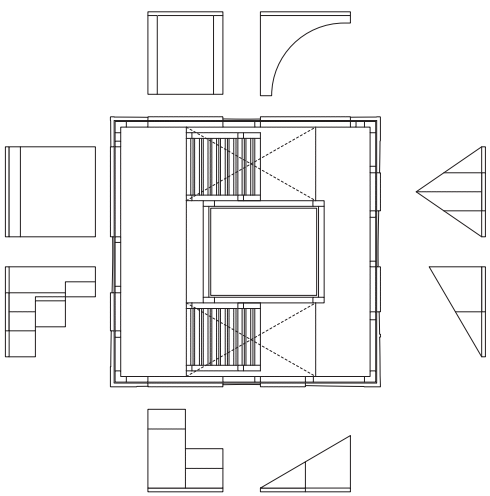


Wrong Chairs, composite plan (without table), 2014.

The dinner conversation had run dry

The Wrong Chairs collection consists of seven American Windsor chairs. The chairs were first exhibited around a dinner table to have them register as a set of misfits. At a later exhibition, the table would be removed to explore the set's potential to produce seven individual chairs.



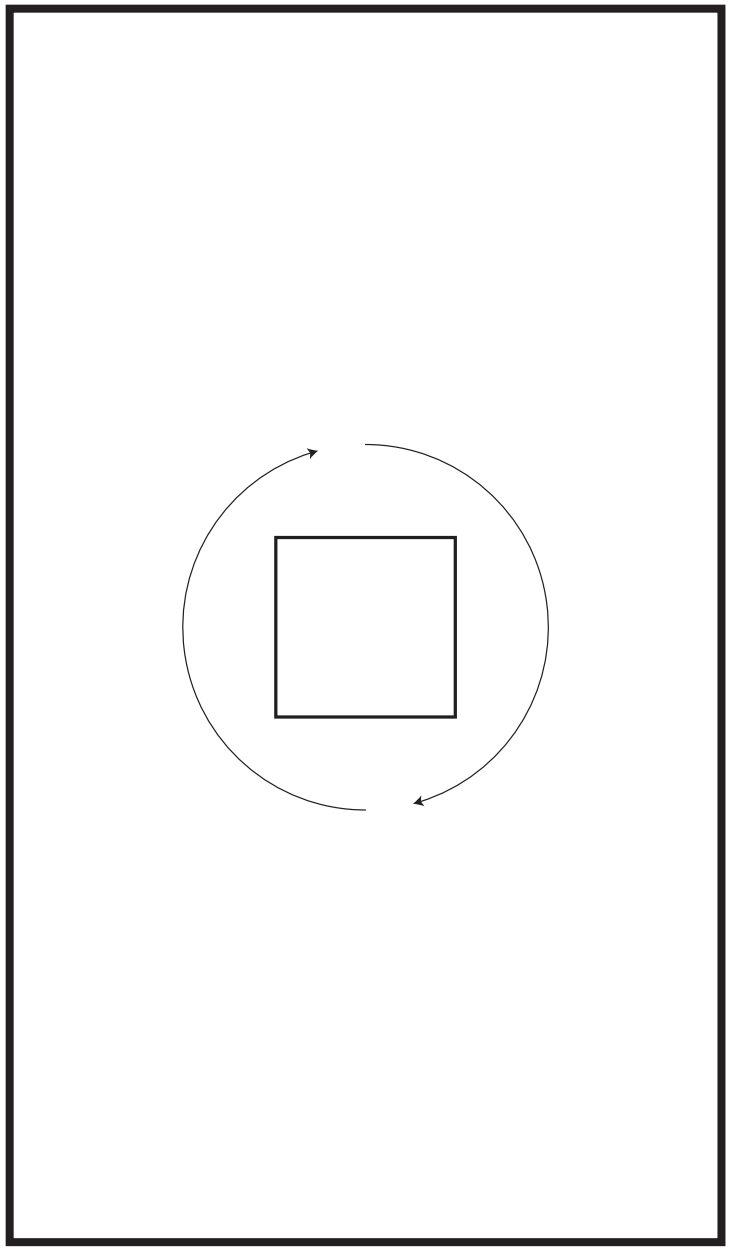


Shape Shape Evolution, exploded plan, Early Learning Play Foundation Playhouse, 2013.

Shape Shape Evolution, closed plan, Early Learning Play Foundation Playhouse, 2013.

After the little ones had all gone home the shapes began to take their places

The familiar playhouse diagram has been turned inside out. The structure wraps an existing column with eight soft play shapes driven by primitive geometric profiles (squares, circles, and triangles). Once the play shapes have been removed, the structure becomes able to be occupied. As opposed to curating a single and static play environment, the mobile and light play shapes produce small-scale playgrounds throughout the playroom, all the while retaining relationships to their points of origin.



360-degree time lapse about a square.

Norman Kelley

7. Attention Span

definition of ATTENTION SPAN

A valuation of focus, or interval of time spent on a task without becoming distracted. The two most common types are: transient attention and selective sustained attention. Transient attention is a short response to a stimulus that may attract and distract attention; approx. eight seconds.[1] Selective sustained attention, or focused attention, is the level of attention that produces consistent results on a single task over time; approx. ten minutes.[2]

examples of ATTENTION SPAN

a. *Magic Eye* 3D Images, Magic Eye Inc., 1990.

b. *Photo Hunt*, Merit Entertainment, 2014.

c. *Number 5*, Jackson Pollock, 1948.

applications of ATTENTION SPAN

Attention span, as measured by sustained attention varies with age, type of activity, and intrinsic motivation. Most people are generally capable of longer attention spans when doing something that they find enjoyable, motivating, or if the person is able to perform the task fluently. In the case of interpreting images, the 1960s Optical Art movement took advantage of its subjects' ability to sustain attention by incorporating vision puzzles into images. The observer would be required to piece together a visual paradox to sustain attention. This differed starkly from Abstract Expressionist art which was less clear about its intentions.

1. Dianne Dukette and David Cornish, *The Essential 20: Twenty Components of an Excellent Health Care Team* (Pittsburgh: RoseDog Books, 2009), 72–73.

2. John Medina, "The 10-Minute Attention Span," *Brian Rules* (2014): accessed October 28, 2014, http://www.brainrules.net/attention/?scene=1.

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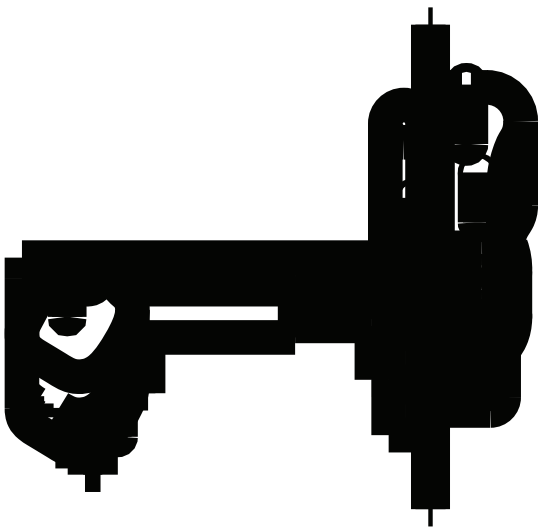
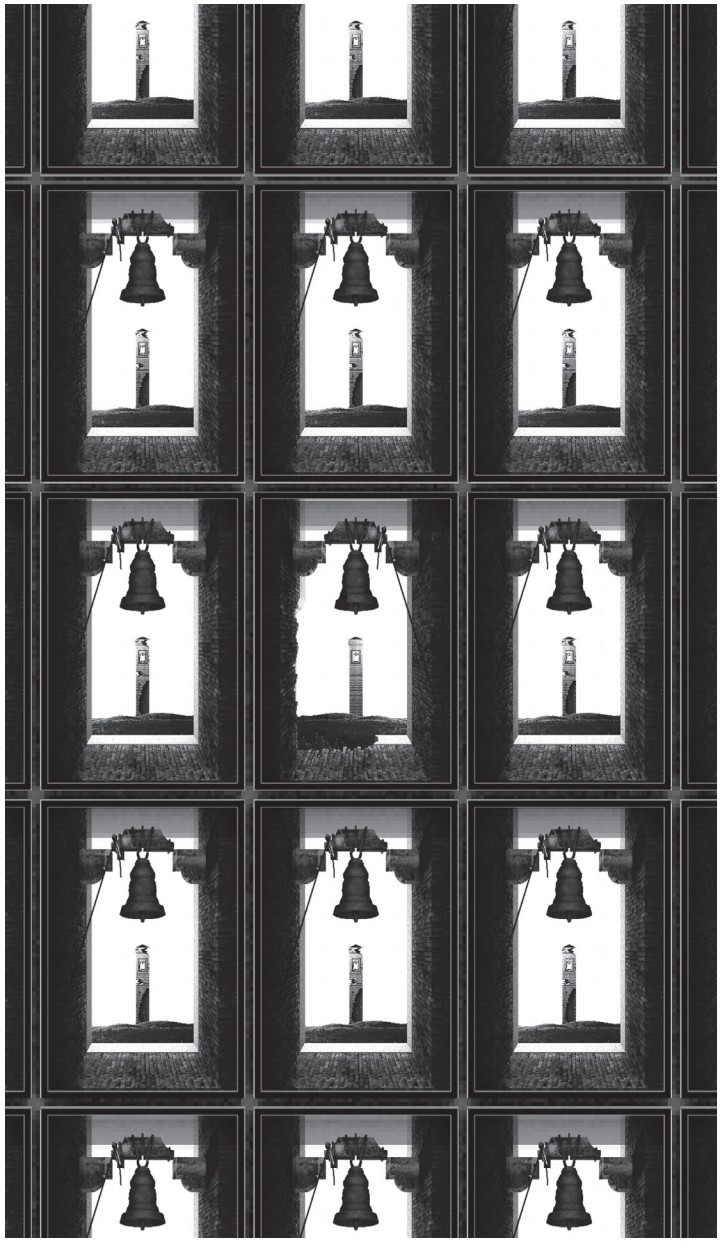


John Hejduk, *Wall House II Drawing*, 1970. Redrawn by: William Sedig.

Underneath this flabby exterior is an enormous lack of character[3]

John Hejduk's *Wall House II* Drawing (1970s) in oblique parallel projection is often remembered by its eponymous feature, or wall, which is meant to divide its program in half. By redrawing the canonical projection using fat lineweights, the wall disappears and flips the original registration of the building's intended orientation.

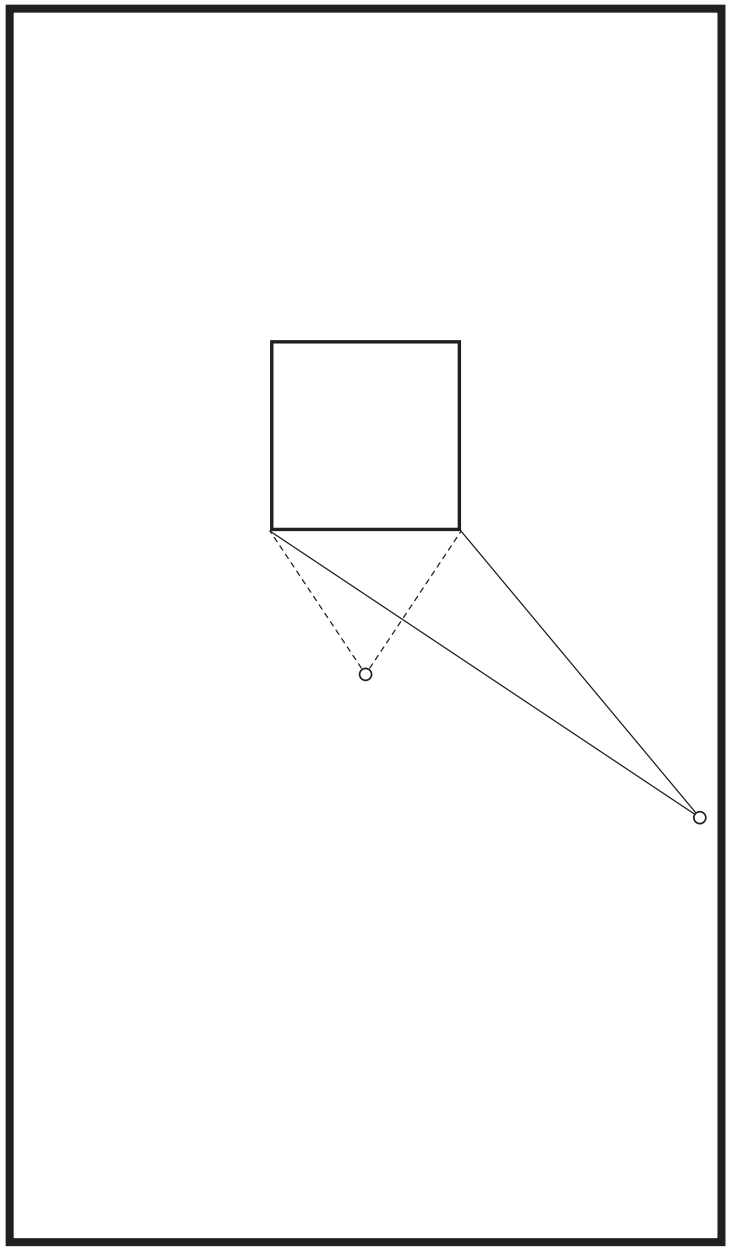
1. Oscar Levant, 1960.



The One That Got Away, 150 perspectives of a bell tower from a bell tower, *Possible Mediums* exhibition, 2014.

The one that got away

Borrowing from Roy Lichtenstein's series of Perfect/Imperfect paintings (1978–95) and the *Photo Hunt* bar game, the matrix of drawings invites the observer to examine a densely packed grid of seemingly identical images to identify a single nuance, if any.



Norman Kelley

Two vantage points: perpendicular and oblique.

8. Vantage Point

definition of VANTAGE POINT

A position that allows one a specific or optimized view of a place or situation. In perspective theory, vantage point, also referred to as a standing point, is determined by its relationship in space to both an object and a picture plane.

examples of VANTAGE POINT

a. *The School of Athens*, Raphael, 1509.

b. *The Holy Trinity*, Masaccio, 1425–27.

c. *Santa Maria presso San Satiro*, Donato Bramante, 1482.

applications of VANTAGE POINT

Single-point perspective images are determined assuming the vantage point is an actual point in space, usually located within the observer's cornea. Of course, this fact negates binocular vision, but in doing so cancels out human distortions between image and actual scene. In early Renaissance painting, the point is often positioned on-center with the composition, producing a wholly symmetrical view of a scene. Further explorations would begin to shift the point's position in space in an attempt to mask imagery through oblique vantage points (anamorphosis), heighten foreshortening through lowered vantage points (see: Andrea Mantegna), or position the vantage point and its subsequent observer outside the possible viewing area of a room (see: Raphael). In practice, the location of the vantage point is a tool as much as it is a judgment over how a scene is meant to be perceived.

Norman Kelley

Rod-Back Side Chair, front elevation, Wrong Chairs Collection, 2014.

Rod-Back Side Chair, side elevation, Wrong Chairs Collection, 2014.

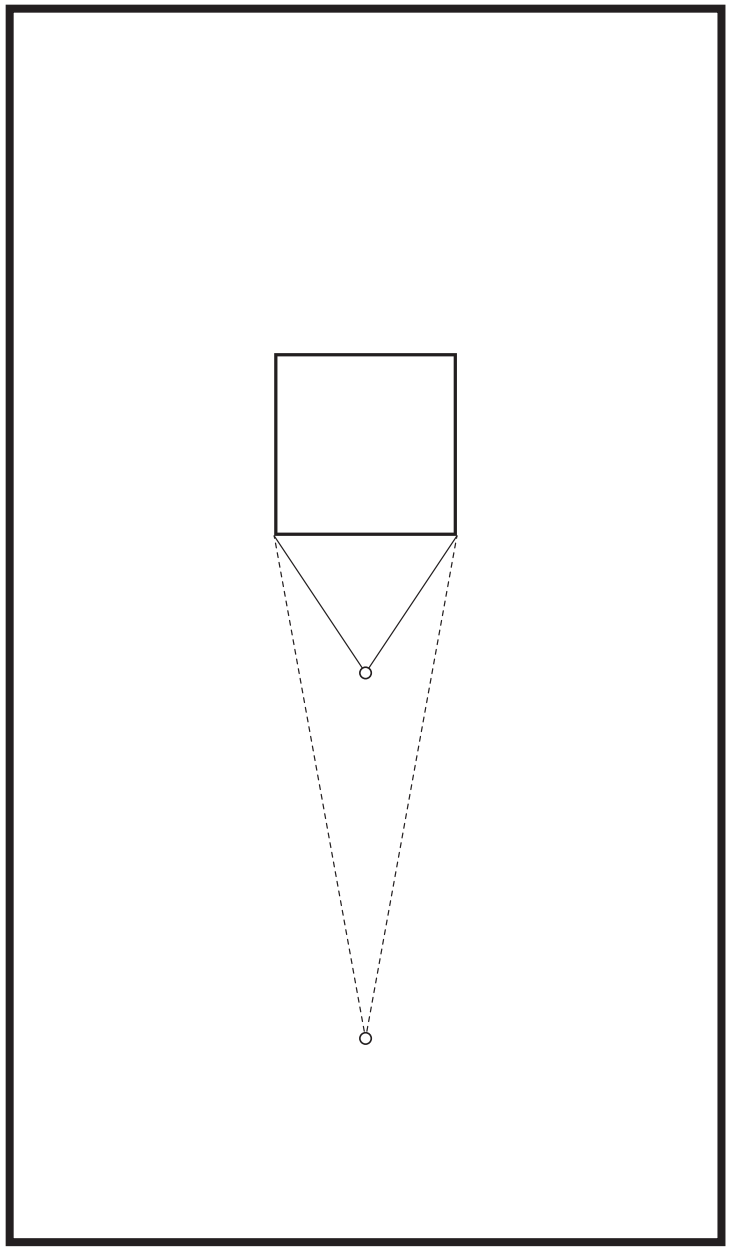
Nearly symmetrical

When standing perpendicular to the front elevation of the Rod-Back Side Chair, the object appears to be in the middle of producing near symmetry about its seat. As one walks around the chair, all chances at symmetry are collapsed. Borrowing from techniques founded in anamorphosis, whereby an oblique vantage point reconstructs a hidden image, the chair feigns symmetry through excessive structure and repetitive elements.

NAWT (Normal-Axis Wind Turbine) Balloon, perspective, 2012.

Opposite the bank she felt its weight

Start by looking at the woman in the foreground: she appears with one foot off the ground and her arm extended in the air, as if grasping at a line. At the other end of the delicate line is a fuzzy mass in the shape of a teardrop, part of a larger helical figure. Zoom out and appreciate the woman's surroundings. She is on one side of a river's bank, the balloon on its opposite side. One could just as easily imagine the two, together, on the same side.



Near and far vantage points.

Norman Kelley

9. Proximity

definition of PROXIMITY

Actual or apparent nearness in space between an observer and that which is observed.

examples of PROXIMITY

a. *Tremolo*, Agnes Martin, 1962.

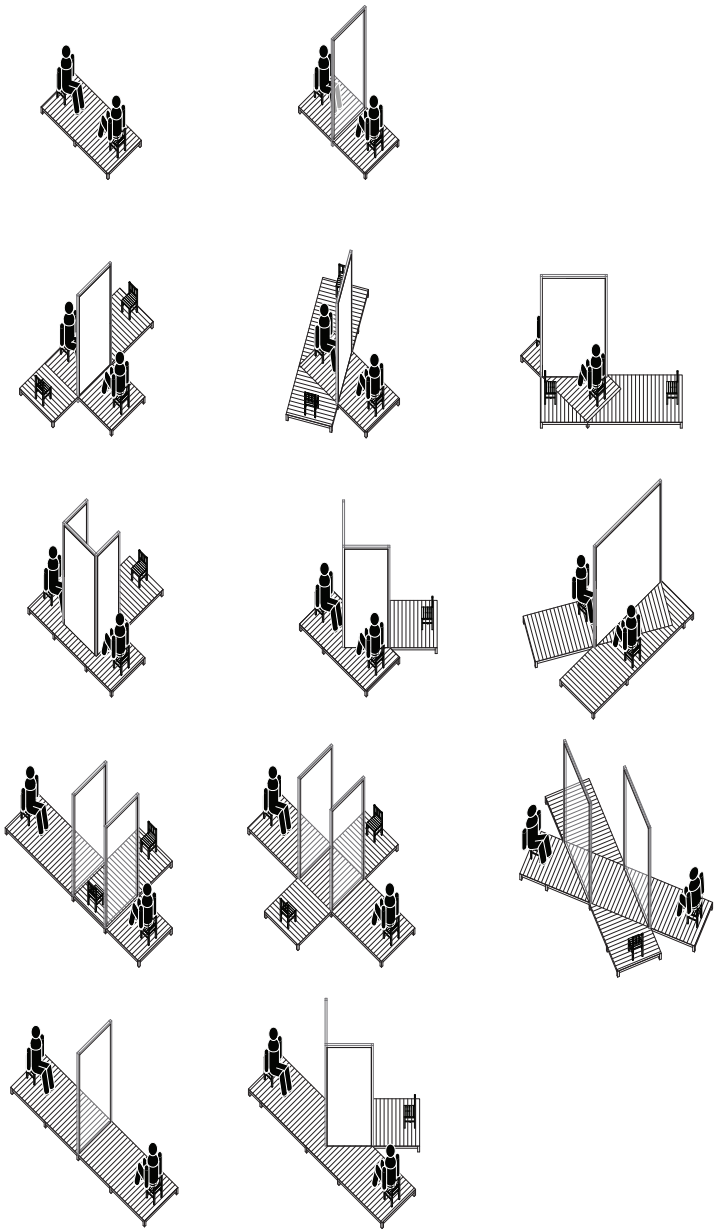
b. *The Artist Is Present*, Marina Abramović, 2010.

c. Frederick C. Robie House (mortar joints), Frank Lloyd Wright, 1909.

applications of PROXIMITY

How close we are in relationship to something determines our level of engagement, or willingness to become attuned to an object or image. One might presume that it is difficult to get to know something or someone if one is positioned far in space; at great distances details are blurred, and content is often reduced to a silhouette. It is only through close proximity that we bring things into focus and are capable of fully understanding an object's qualities. For example, face-to-face exchanges, whereby two bodies share a single axis, allow for more personal interactions. Features, expressions, and attitudes are visualized with greater detail as proximity heightens.

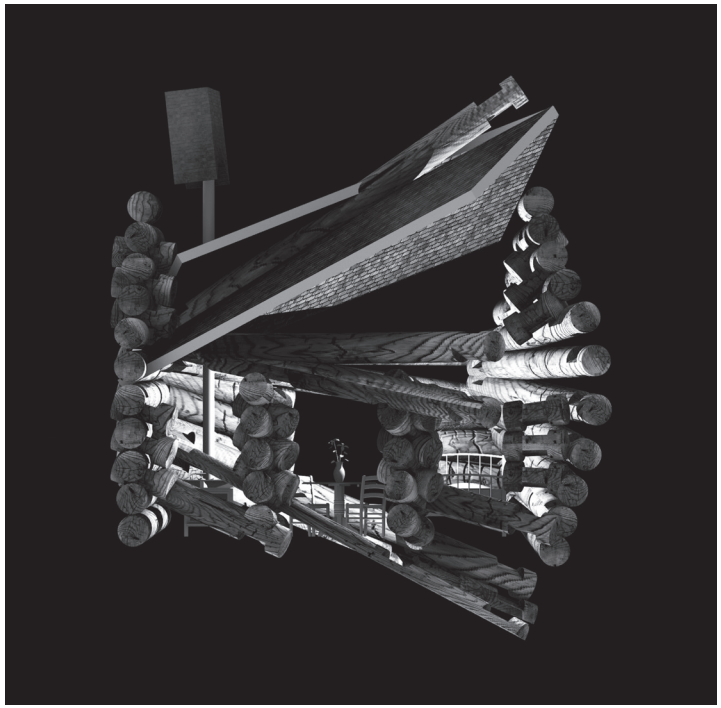
Norman Kelley



Folly of the Face, diametric view matrix, Architectural League of New York, 2012.

They sat patiently waiting for the music to be turned back on

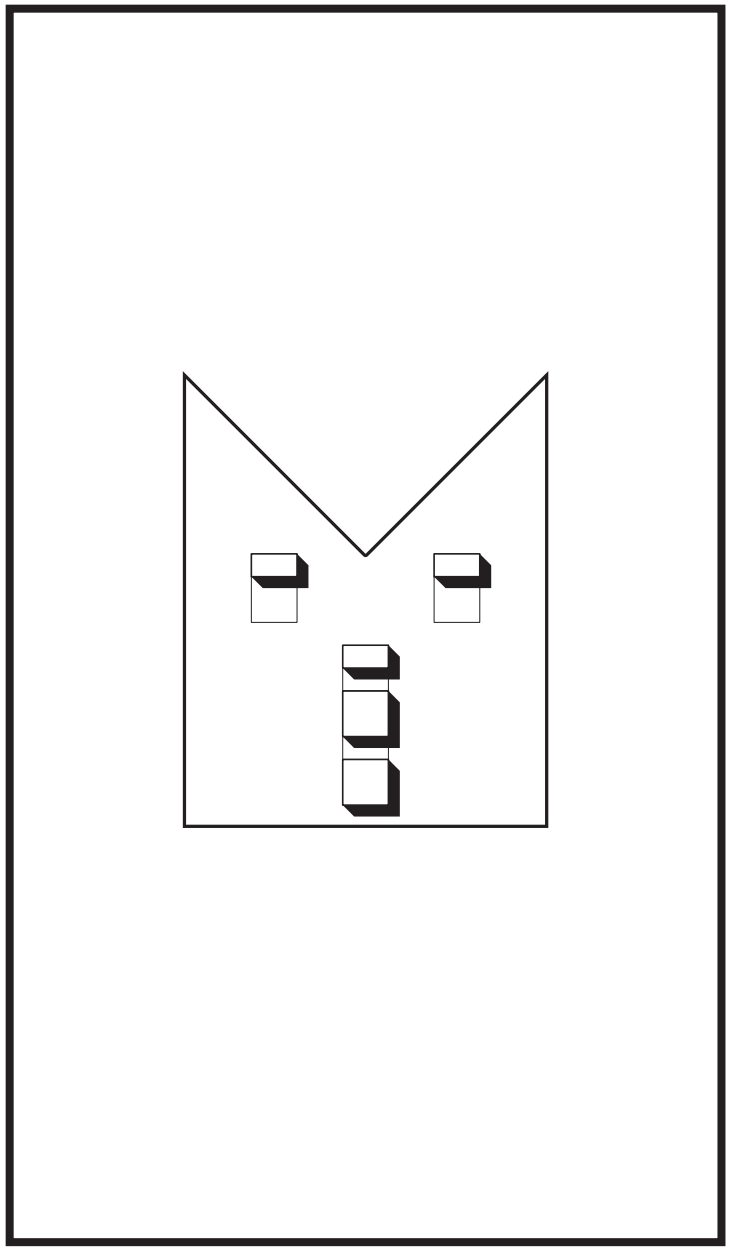
A "face-to-face" is an axial relationship between two people in close proximity who must account for a variety of controls that include, but are not limited to, psychological contingencies, posture, sensory conditions such as aural (not oral) stimulation, and physical adjacency. The exchange presupposes a singular reading of the axis, or exchange. The drawing suggests a composite of axes to not only include the most familiar, but also the parallel axis, the oblique axis, perpendicular axis, the through axis, and the opaque axis.



Exploded View of a Lincoln Log Cabin (Blow-Up), Cinque Mostre exhibition, American Academy in Rome, 2013.

Blow-up

Upon further review of the drawing, several errors come into focus. For one, its low-cost inkjet printing technique is revealed through horizontal white streaks running across the frame. In addition, the petals, which from afar once read as smooth and seemingly "petal-like," have lost their resolution to a more polygonal registration.



John Hejduk, elevation diagram of *Kreuzberg Tower*, 1987. Redrawn by: authors.

10. Literal

definition of LITERAL

A scenario portraying a form, or image, which is recognizable—free from idealization, exaggeration, or distortion—but different from the physical objects or materials that make them.

examples of LITERAL

a. *Balloon Dog*, Jeff Koons, 1994–2000.

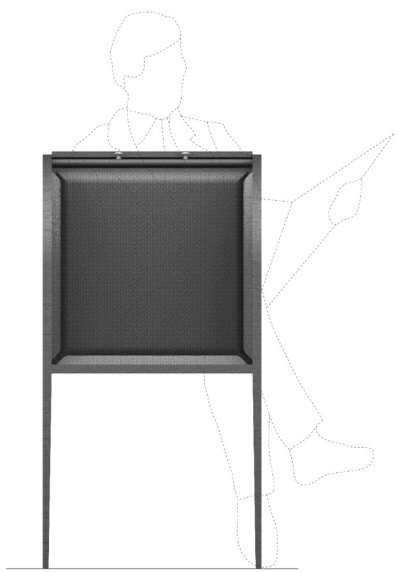
b. Self-Park at 60 E. Lake St., Chicago, Stanley Tigerman, 1986.

c. *Vertumnus*, Giuseppe Arcimboldo, 1590–91.

applications of LITERAL

A literal scenario is a form of illusion-making, which generates its audience by exhibiting a lack of imagination through prosaic characteristics or features. Often times it is an image or object that has been exactly copied and removed from its original context to produce a misreading of scale or function. The effect finds its roots in Minimalism, but is more of a reaction to movements that favored classical references in art and architecture. The literal illusion is riddled with cultural quotations, both anachronistic and popular.

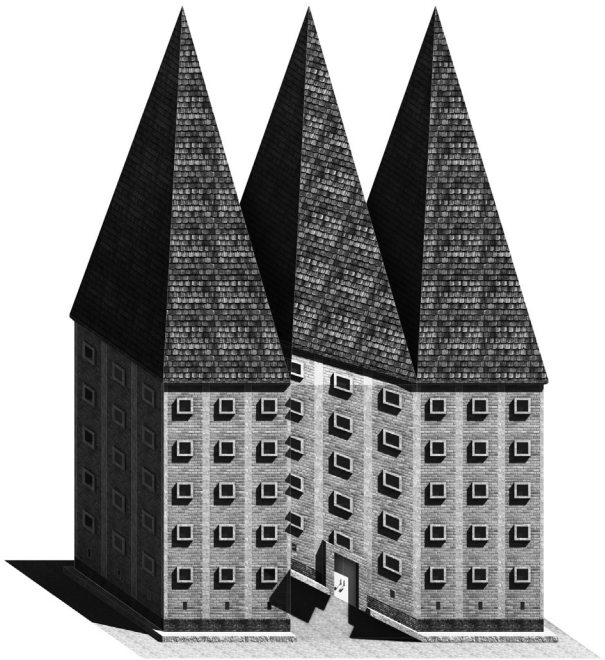
Tambour Chair, closed elevation, Hiding In Plain Sight Collection.



Tambour Chair, open elevation, Hiding In Plain Sight Collection.

Hiding in plain sight

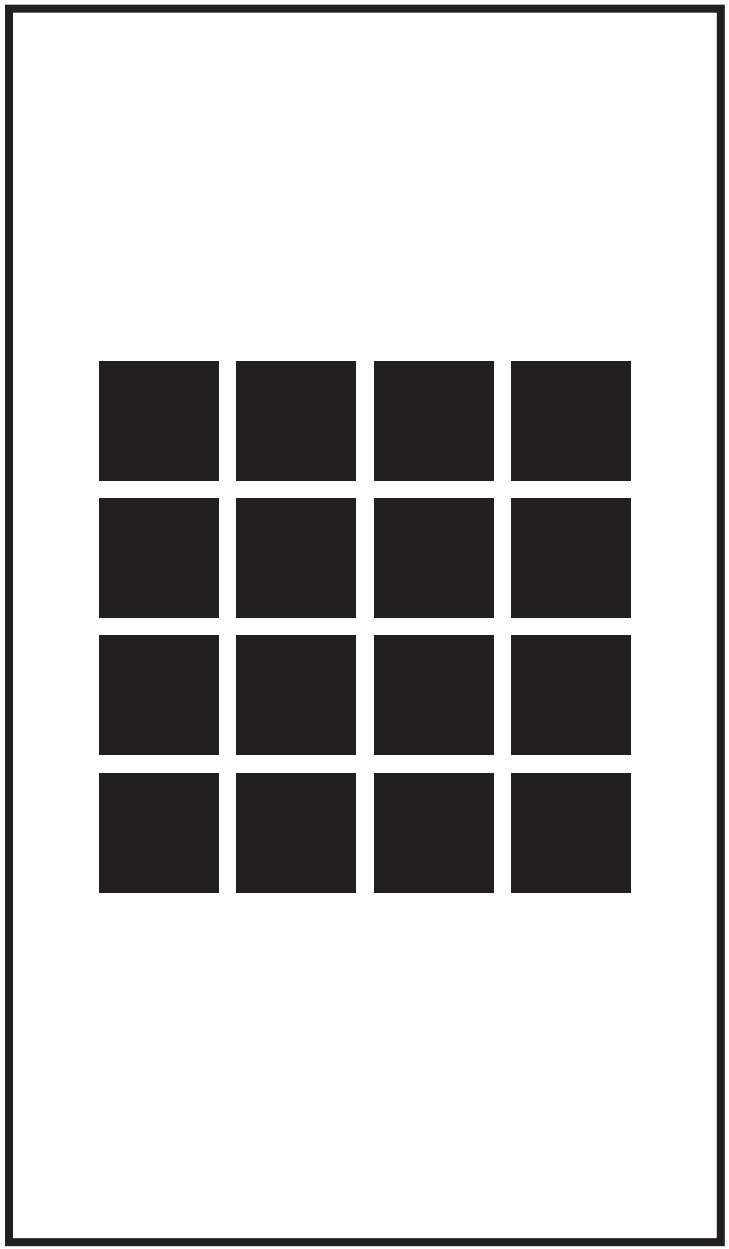
Like a child's conspicuous hiding spot, the Tambour Chair aims to conceal its "chairness" when not occupied. It is when a chair is unoccupied that it returns to being just another object in the room—in this case a desk, perhaps. The chair borrows its features from an unadorned late-eighteenth-century, Federal-style tambour desk in which light and linear forms frame anachronistic proportions and materials.



The Allegorist, a palace in axonometric with local vanishing point, 2014.

Only in part bashful

By definition an axonometric projection, or parallel view, does not exhibit convergent geometry. In this case, the drawing derives its composition from Artemisia Gentileschi's Self-Portrait as the Allegory of Painting (1638–39) where the artist portrays her subject off-canvas. To mimic a similar compositional effect, the drawing here employs a local single-point perspective (i.e., converging lines) at its center to solicit a paradoxical projection. The drawing was published in *Log* 31: New Ancients as part of the essay "Five Self-Portraits."



Ludimar Hermann, *Hermann Grid Illusion*, 1870. Redrawn by: authors.

Norman Kelley

11. Physical

definition of PHYSICAL

A scenario whose effects on the body are motivated by contextual or conflicting stimuli to include movement, orientation to ground, brightness, and size.

examples of PHYSICAL

a. Alice in Wonderland Syndrome (AIWS), Dr. John Todd, 1955.

b. Physiological afterimage.

c. *Mach Bands*, Ernst Mach, 1860.

applications of PHYSICAL

A physical illusion relies on its adjacent context to elicit observer's awareness. The goal is to produce an effect similar to that of an afterimage, in which a retinal impression persists after the removal of a stimulus.[1] This is often the case in point after staring at an LCD screen for an extended period of time and then abruptly shifting one's gaze—leaving an afterimage of a white rectangle.

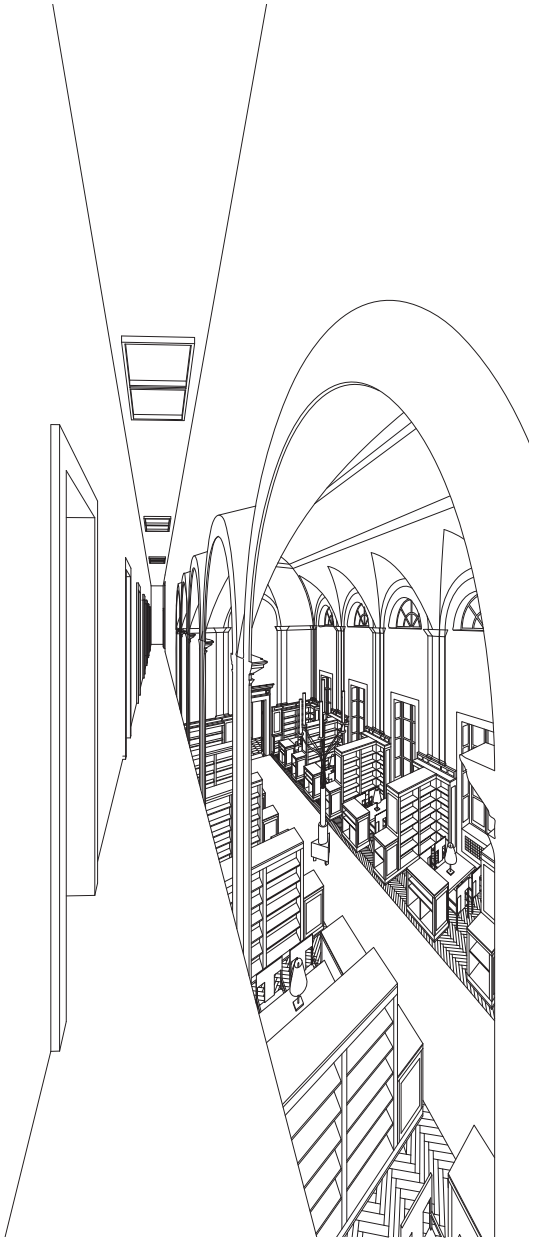
1. "afterimage." *Britannica.com*. Encyclopædia Britannica, 2013. Web. 1 March 2015.

Norman Kelley

Wrong Chairs Exhibition, plan, Volume Gallery, 2013.

Walking through walls

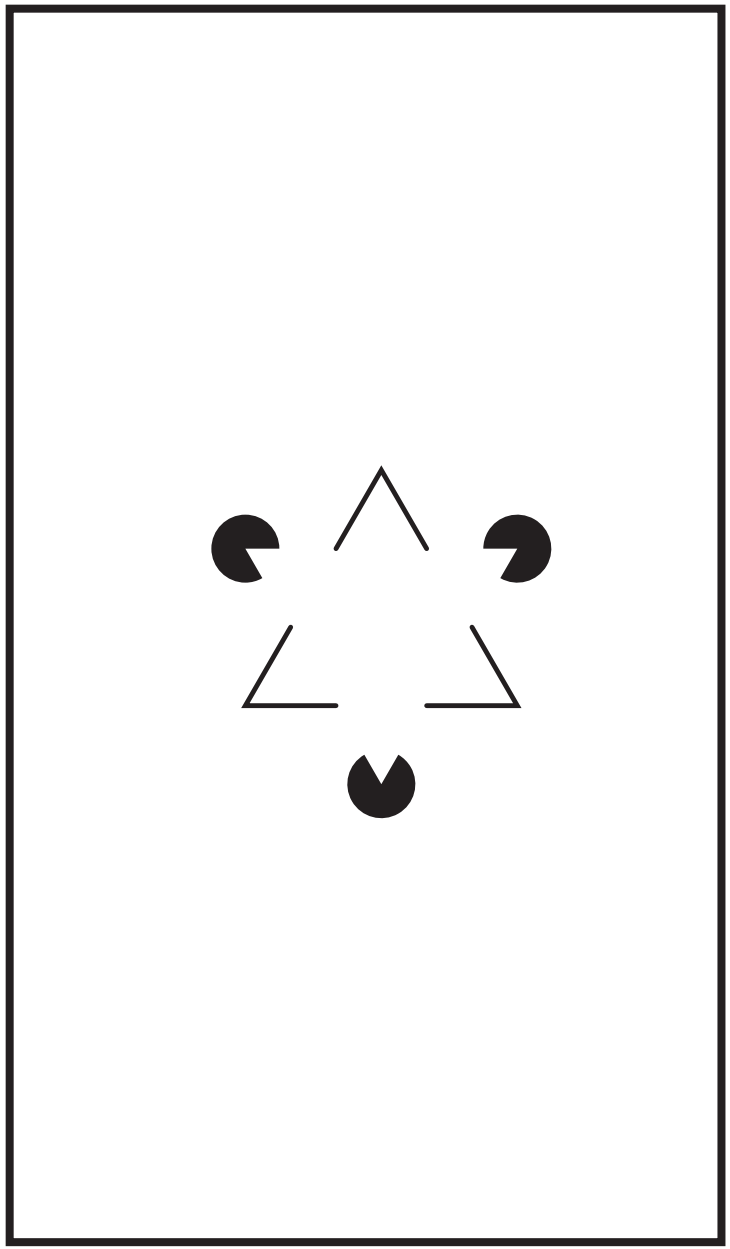
The second exhibition of the Wrong Chairs Collection explored each chair's ability to be read individually. The context, an art gallery, was designed to simulate the experience of walking through a white-walled gallery with multiple partitions. In this case, however, nonexistent walls were projected onto the floor at a 45-degree angle to direct movement and curate views of the work.



Anamorphic View Into Arthur and Janet C. Ross Library, American Academy in Rome, 2014.

Had it always been this narrow?

On the second floor of the American Academy in Rome's 1914 designed McKim, Mead and White Building is a peculiar corridor. The corridor measures approximately one-hundred feet long, twelve feet high, and thirty-two inches wide. On the left side of the corridor is a row of eight identical doors that open onto eight offices. Looking right down the corridor is a blank wall. If one were able to look through this blank wall one would be looking into the main hall of the two-story Arthur and Janet C. Ross Library. The two spaces collapse into one by way of an anamorphic view, or a projection which allows for an image or object to be reconstructed only when observed from a specific vantage point. The wall is no longer a wall, but now a false window peering into a real space.



Gaetano Kanizsa, *Kanizsa's Triangle*, 1955. Redrawn by: authors.

Norman Kelley

12. Cognitive

definition of COGNITIVE

A scenario in which the eye perceives an object, or shape, where none is actually drawn. Also referred to as an unconscious inference.

examples of COGNITIVE

a. Ponzo illusion, Mario Ponzo, 1911.

b. Penrose triangle, Oscar Reutersvärd, 1934.

c. Rubin's vase, Edgar Rubin, 1915.

applications of COGNITIVE

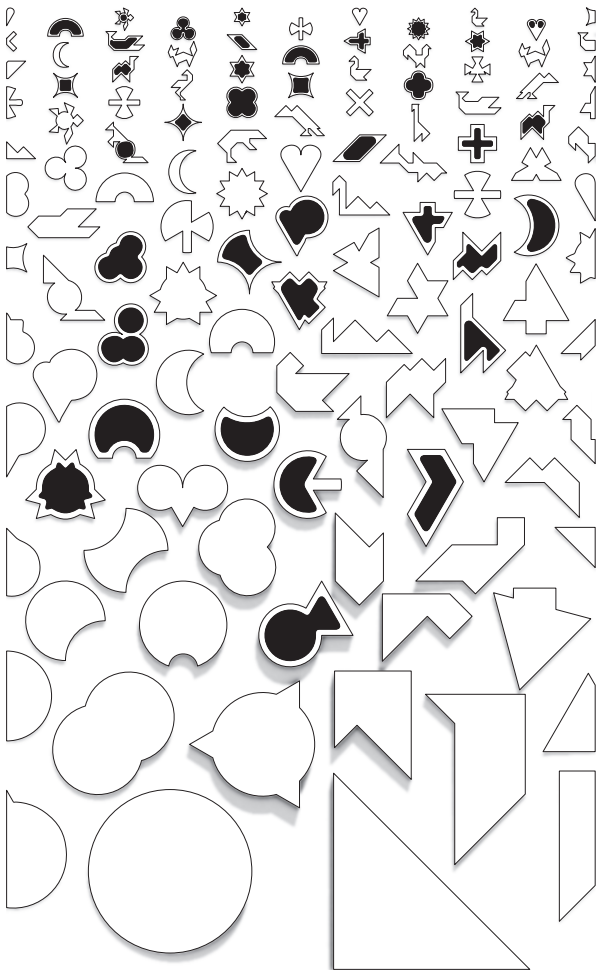
Cognitive illusions arise when assumptions are made, thus leading to unconscious inferences about a subject. In the case of Mario Ponzo's illusion, the psychologist was able to demonstrate that human vision determines an object's size based on its background, i.e., the reading of two parallel lines intersecting two converging lines, also referred to as the railway track illusion. The most common application is observed when describing a visual relationship as having figure-ground qualities, where one of two readings can be inferred from the same image. The liability of the cognitive illusion scenario is that it can often produce an impossible object (see: M. C. Escher) and is unfavorable for it alienates one's audience and limits real world applications (do not see: M. C. Escher).

Norman Kelley

Rubin's Barrel, 360-degree elevational rotation, 2013.

I had seen those faces before but never quite so intimately

If you squint hard enough, your focus is drawn to the barrel's stout exterior silhouette, an outline with two perfectly symmetrical contours that appear to bow outward. All of the object's signifying "barrel" features—six metal straps and twenty-two vertical seams—have been masked or removed to underline this iconic outline. Now allow your eyes to relax. Are you drawn to a new set of contours? The false silhouette no longer gives the impression of a portly character expecting to be drained, but rather a sinewy black figure—symmetrical now only from one angle. Look even closer and you may also see the projection in reverse. The original object, once controlled and purely functional, is now bi-stable, or worse yet, ambiguous. It aims to invert its physical proportions by pulling its waist inward; no longer a barrel anymore, but a vase. But that's not entirely true either.



Shape Shape Evolution, elevation of educational relief graphic, Early Learning Play Foundation Playhouse, 2013.

Shapes plus shapes plus shapes equal animals, stars, and lucky charms

The exterior of the playhouse is patterned with an "educational relief" graphic. Playing on a preschooler's ability to recognize basic figuration, the pattern transitions vertically in scale and in depth so that the primitive geometries (triangles, squares, and circles) at the bottom of the structure's faces blend to produce more recognizable figures (animals, stars, and lucky charms) at the face's top.

Here You Shine, spherical projection, 2013.

Here you shine

A light bulb appears to be masking the text, "Here you shine." The edges of the rectangular canvas clip the reading of the text and force the observer to begin reading the image from its center. A spherically projected set of figures wrap the light bulb's surface. The drawing was commissioned as part of an auction for Storefront for Art and Architecture's *POP* exhibition in New York City.

Index

Bibliography

Alain-Bois, Yves. "Radical Reversibility." Art in America, Apr. 1988.

Ament, Ernest; Scaife, Ross (2004-12-22). A Glossary of Rhetorical Terms with Examples. Lexington: University of Kentucky, Wayne State University. Retrieved 2010-10-14.

Battersby, Martin. *Trompe L'oeil: The Eye Deceived*. New York: St Martin's, 1974.

De Vries, Peter. *Tents of Wickedness*. Boston: Little, Brown, 6.

Evans, Robin. *The Projective Cast, Architecture and Its Three Geometries*. Cambridge, MA: MIT Press, 1995.

Feyerabend, Paul. *Against Method*. New York: Verso Books, 1975.

Hejduk, John. *Mask of Medusa: Works 1947–1983.* New York: Rizzoli, 1989.

Hickey, Dave. "Trying to See What We Can Never Know." *Optic Nerve: Perceptual Art of the 1960s*, ed. Joe Houston. New York: Merrell Publishers, 2001.

Houston, Joe. "Black and White." *Optic Nerve: Perceptual Art* of the 1960s. New York: Merrell Publishers, 1996.

Schwartz, Hillel. "Seeing Double." *The Culture of the Copy: Striking Likenesses, Unreasonable Facsimiles*. New York: Zone, 1996.

Walton, Thomas F. *Technical Data Requirements for Systems Engineering and Support*. Prentice-Hall, 1965.

Crary, Jonathan. *Techniques of the Observer.* Cambridge, MA: MIT Press, 1990.

Illustration Credits

Autumn Wings Company, Duck Head Decoys, 2015. Photographs by Amy Jenkins: cover.

Redrawn from William Hogarth. Satire on False Perspective, February 1754. Engraving. 20.79 x 17.145 cm. W.S. Lewis Collection, London: 2.

Dossi, Dosso. *Jupiter, Mercury and "Virtus" or Virgo* (Jupiter creating souls as butterflies by painting them, 1529. Kunsthistorisches Museum. Photo Credit : Erich Lessing, Art Resource, NY: 7.

Johann Jacob von Sandrart. *Zeuxis und Parrhasius*, 1675 (Teutsche Academie der Bau – Bildhauer-und Maler-Kunst, Vol. 3/2, Fol. C., Nuremberg 1774): 11.

Decoy Duck, India Jane Company, 2015: 11.

Drawn and modified from *The Projective Cast and Its Three Geometries* by Robin Evans. Cambridge, MA: MIT Press, 1995. 1995: 13.

Drawing modified from *The Book of American Windsor Furniture: Styles and Technologies* by John Kassay, Amherst: University of Massachusetts Press, 1998: 35.

Redrawn by William Sedig from John Hejduk, *Wall House II Drawing*, 1970: 57.

Kelley, Thomas. "Five Self Portraits," in *Log* 31, New Ancients. New York: Anyone Corporation, 2014: 33, 45, 77.