ICON DESIGN

visual vocabulary
syntax specifications

BY PETER STOYKO
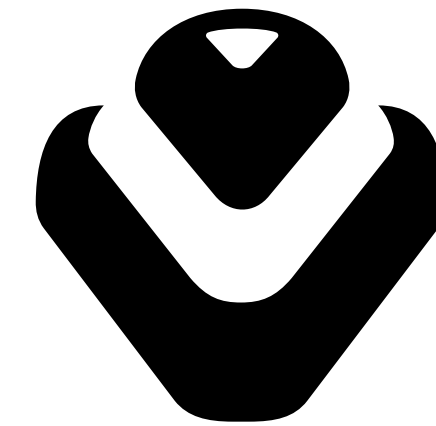VERSION 1.0.1

15 · 01 · 2023

CODEX

VISUAL
VOCABULARY
OF SYSTEMS

VISUAL
VOCABULARY
OF CULTURE

SYSTEMVIZ

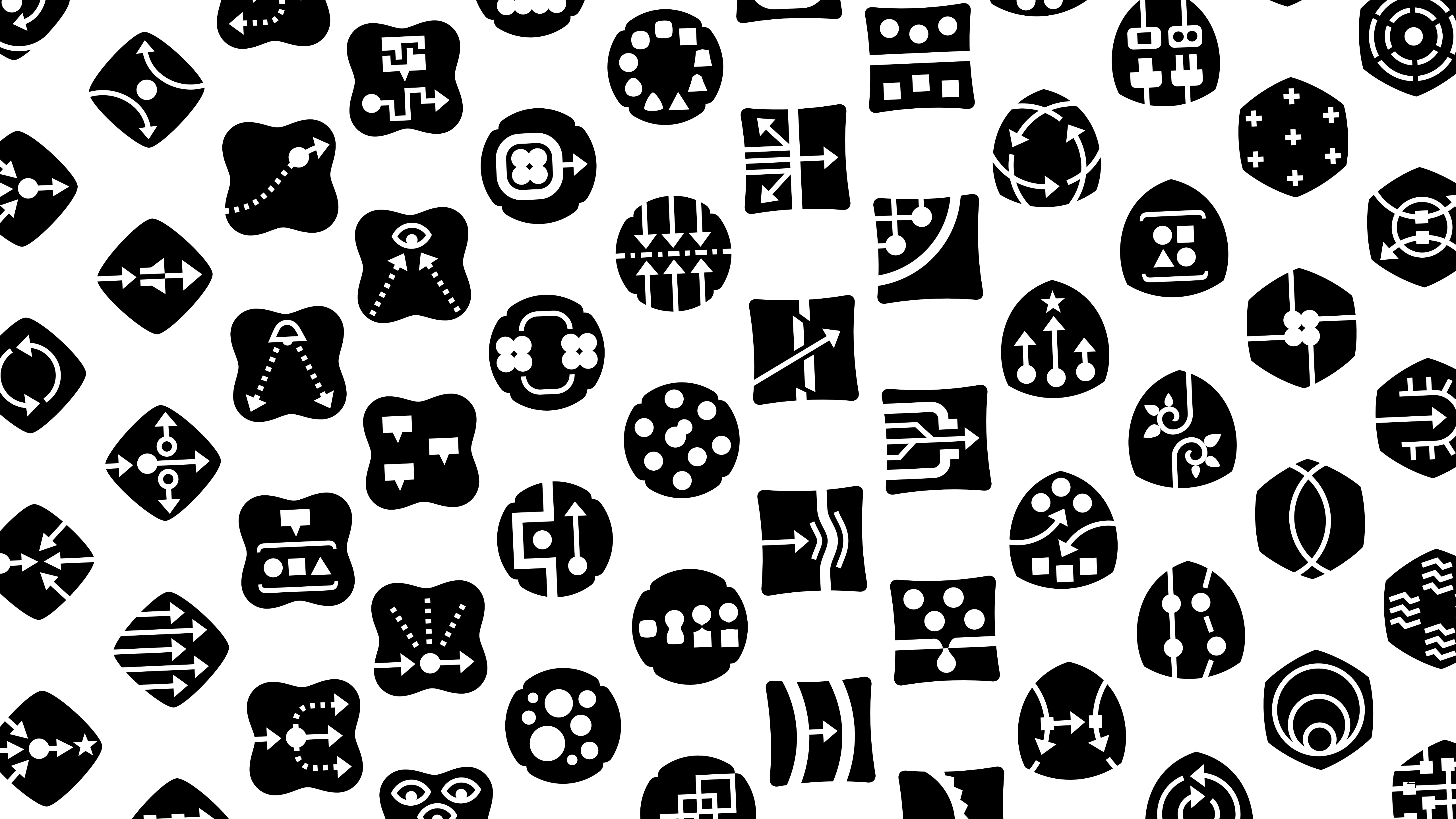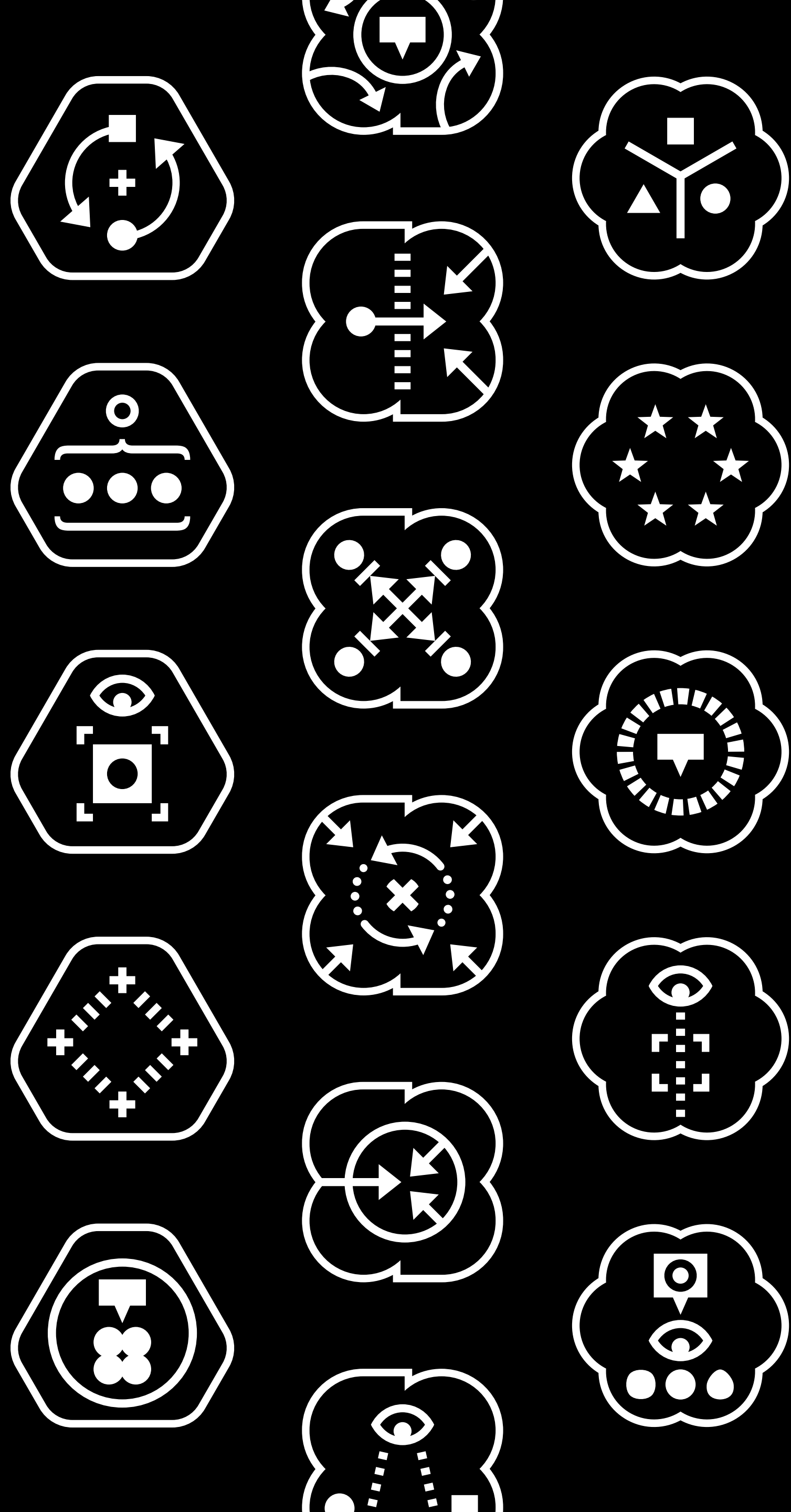cULture
viz

www.systemviz.com

www.cultureviz.com

[A] **INTRODUCTION**

About the visual vocabulary icons and their syntax

VISUAL CODEX

ILLUSTRATED COLLECTIONS

A codex is a collection of related items, gathered together in one place for reference purposes. A visual codex assigns an icon to each item. Icons serve several **roles** for the Visual Vocabularies. Each icon is an illustrative example of the concept to aid sense-making, albeit one that is highly abstract and spatial. Each icon is a conspicuous target for the eye to land on and cognitively orient the viewer. In terms of space efficiency, the icons are compact placeholders that stand-in for complicated concepts in maps, diagrams, and the like. Icons are mnemonics that jog the memory for concepts already learned. The design has to serve all these roles.

SYNTACTICS

ASSEMBLING COMPOUND SIGNS

Icons come in several forms, everything from elaborate photo-realistic illustrations to simple abstract symbols. The Visual Vocabularies are open-source tools with the expectation that anyone can add icons or modify them. The artistic skill-level required to compose each icon cannot be too high if consistency and accessibility are to be maintained. Thus, these icons are assemblages of simpler signs (lines and shapes) to create new meanings (**syntactics**). That works because spatial arrangements give combinations of signs a compound meaning that is recognizable.*

* Yuri Engelhardt, "Syntactic Structures in Graphics," *IMAGE: Zeitschrift für interdisziplinäre Bildwissenschaft , vol. 5, no. 3* (2007), pp. 23-35.
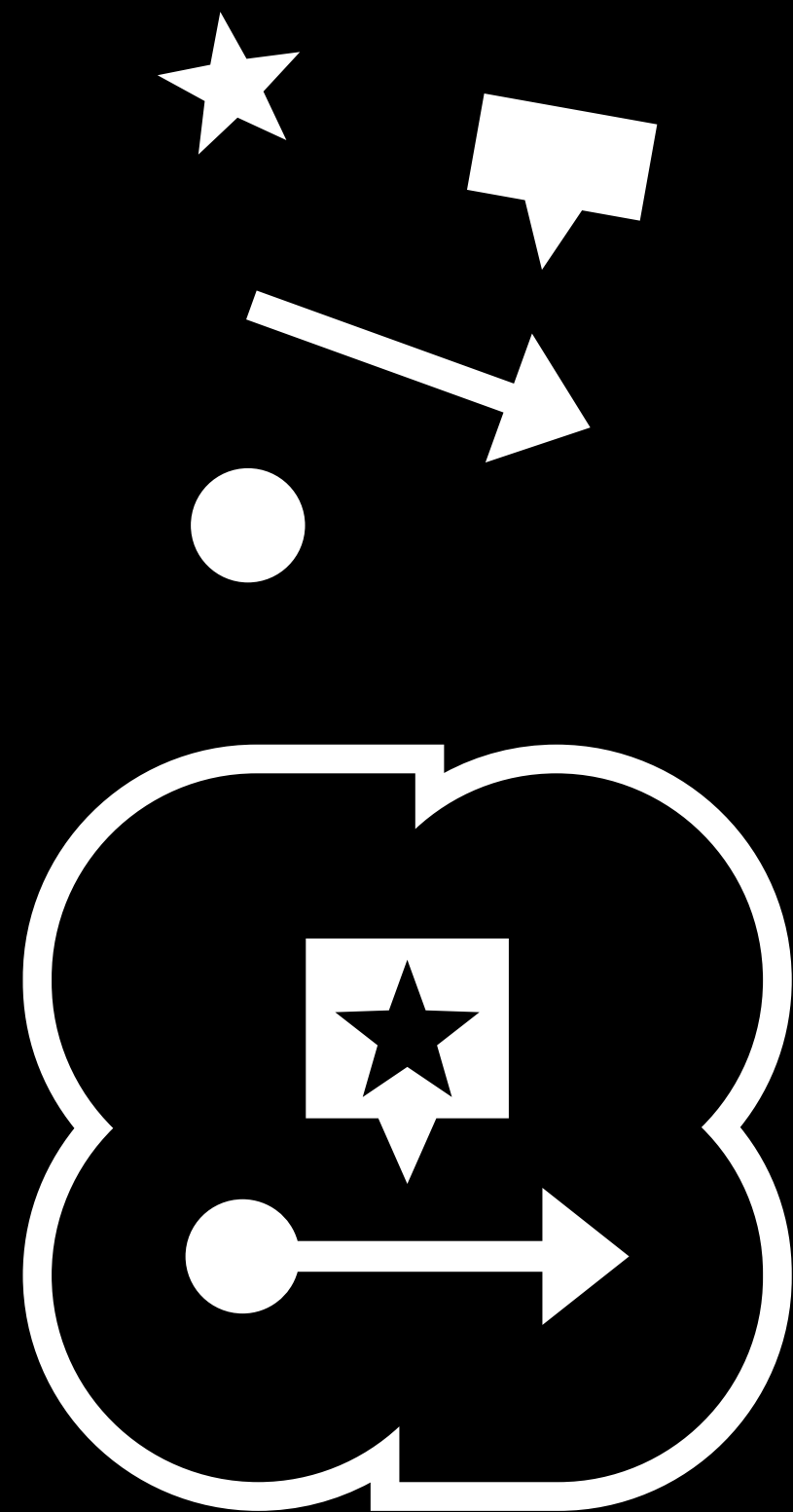
TROPES

CROSS-CULTURAL LEGIBILITY

A trope is a non-literal signifier of something. Very few icons have a direct correspondence to things in the environment that are common to all of humanity. No abstract symbol is inherently meaningful but is acquired through cultural learning. I have written elsewhere about what makes an icon "travel well" across cultures.* (Click on the citation below to access the full article.) To make a long story short, the Visual Vocabulary icons make extensive use of visual tropes found across cultures, including international signage, mapping conventions, and pop-culture products.

* Peter Stoyko, "Imagery That Travels Well: Making Yourself Understood Across Cultures with the Help of Visual Language," in Brandy Agerbeck, Kelvy Bird, Sam Bradd, and Jennifer Shepherd, eds., *Drawn Together Through Visual Practice* (Somerville, MA: Visual Practice Books, 2016).
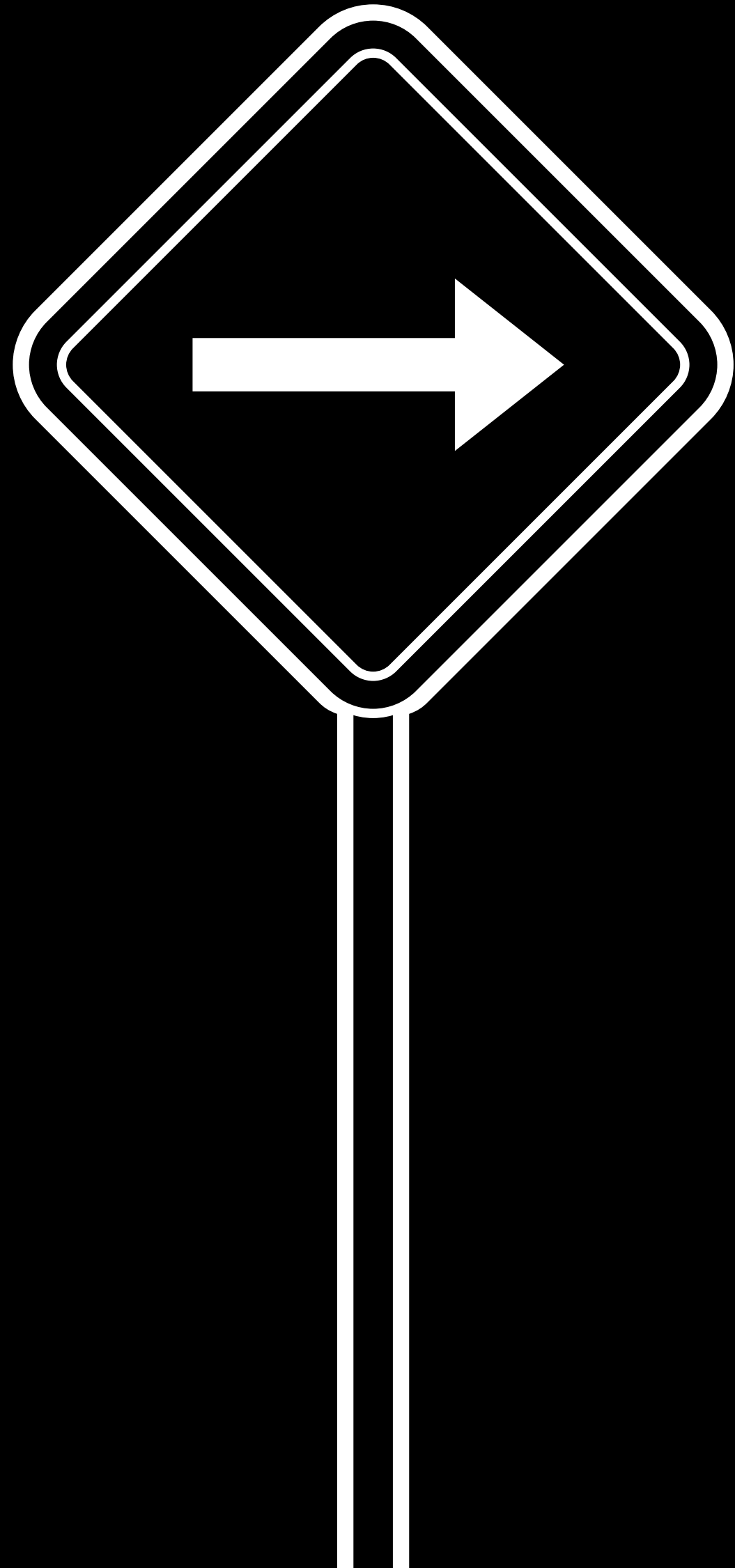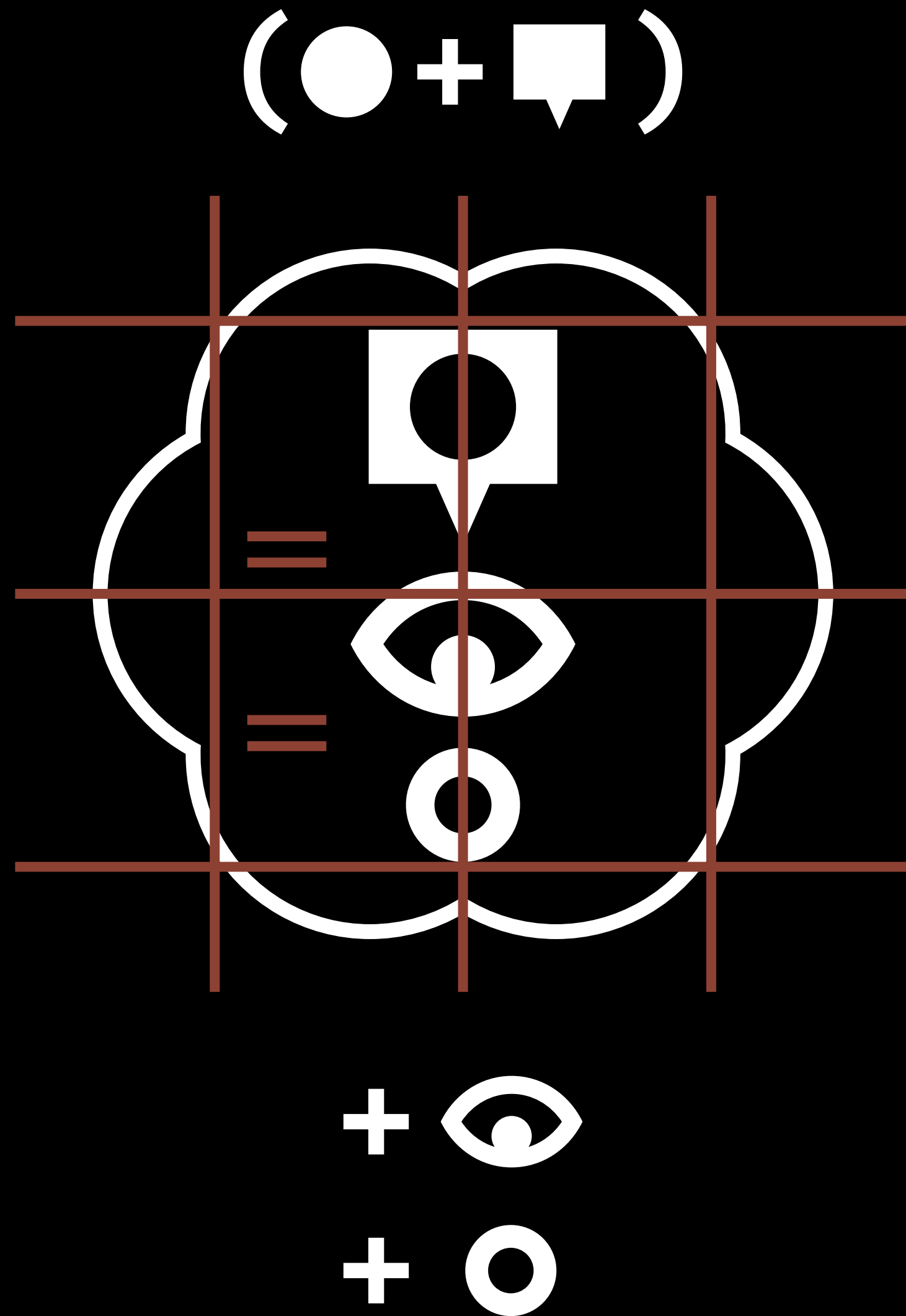
SYNTAX

COMPOSITIONAL RULES

A well-designed icon set has a visual consistency, not just so that the set coheres aesthetically, but to aid interpretation. If the visual conventions each icon follows were different, switching attention from one icon to the next would be disorienting: the semiotics of each icon would have to be figured out anew; no icon is inherently meaningful but is "glanceable" only insofar as it meets expectations. Thus, the Visual Vocabulary icons follow a unified **syntax**, or set of semiotic specifications for making the icons consistent and meaningful. This document describes that syntax in detail.

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MEDIA

MATERIALITY AND MOTION

The Visual Vocabulary icons are designed to work well across media. As a first priority, the icons can be reproduced in one-color print publishing under harsh conditions (such as low resolution and poor paper quality). If present trends continue, the future of media will be the greater use of motion and interaction on high-quality visual displays. Thus, the icons are designed to act as both interface elements and content on high-resolution screens. Indeed, each icon has **static and animated versions**. (At time of writing, the animated versions have not yet been released.) Animation adds a few extra syntactical rules.
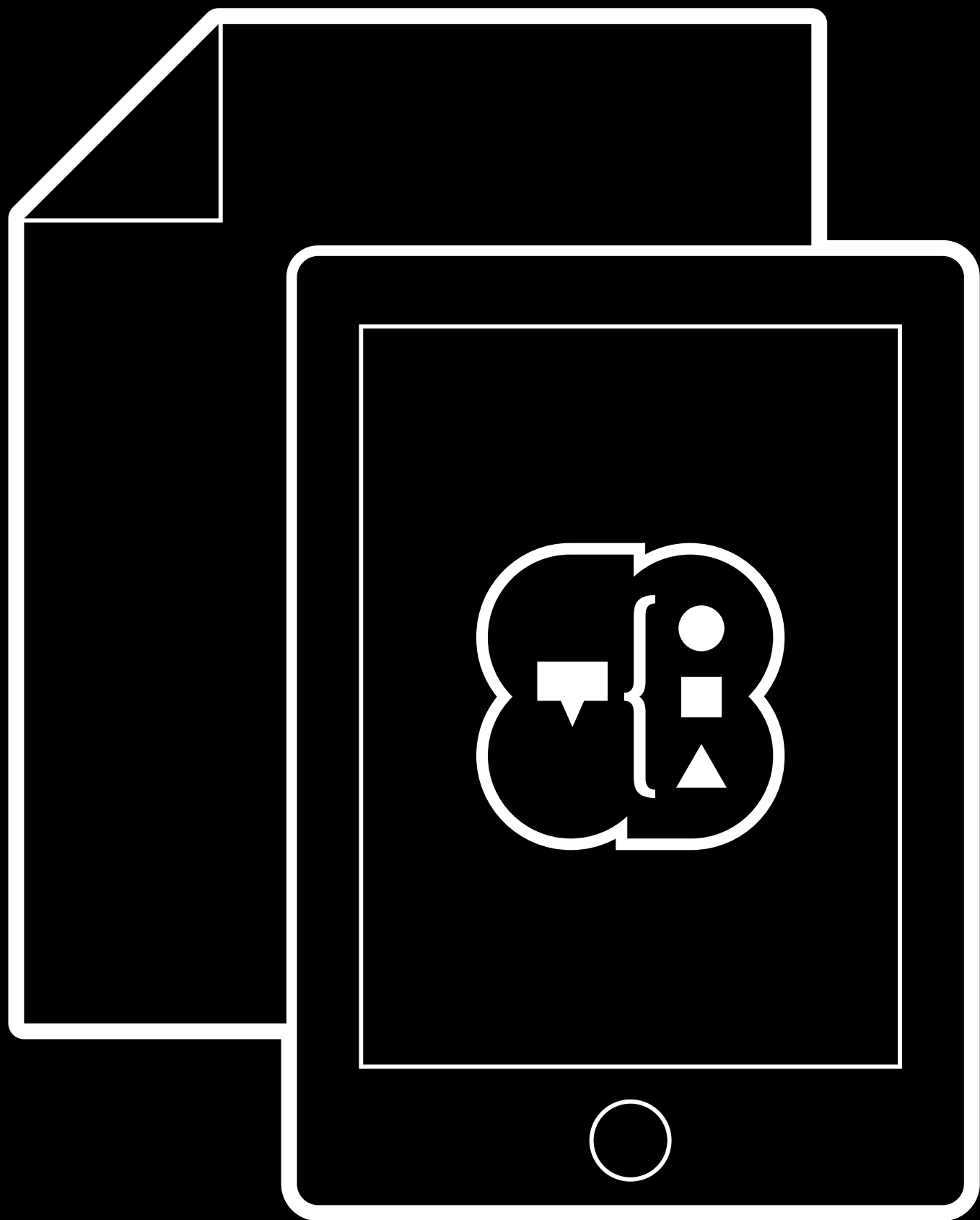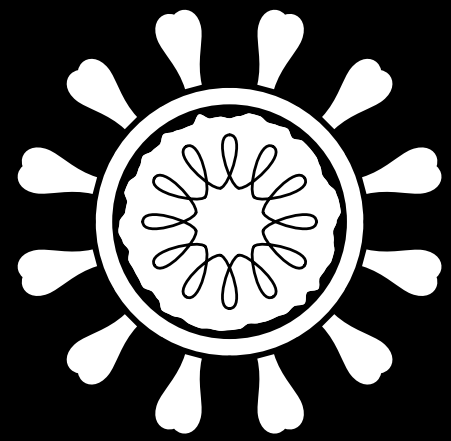
Virom
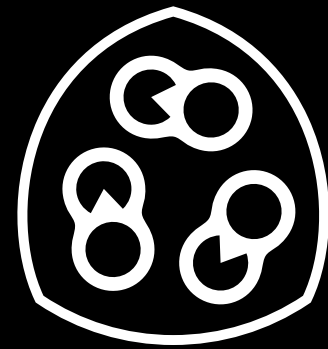
PARASITISM
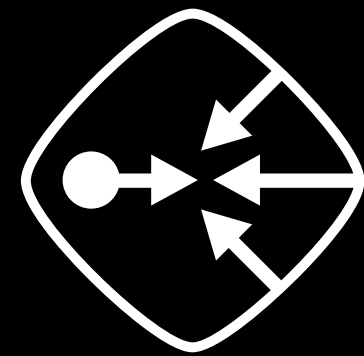The viruse replicates at the expense of a host.
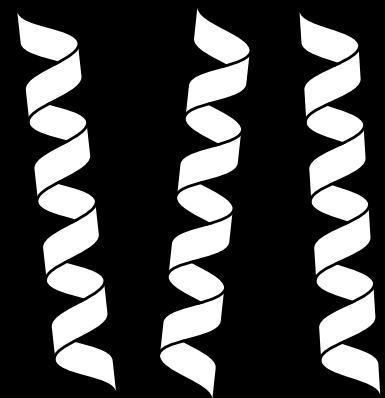
Interferons
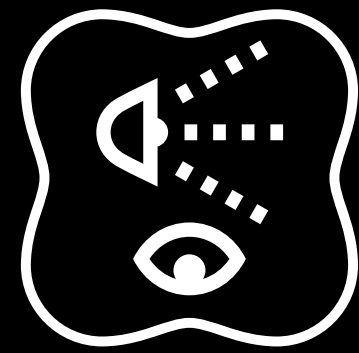
ALERT
Interferons alert nearby cells of a virus
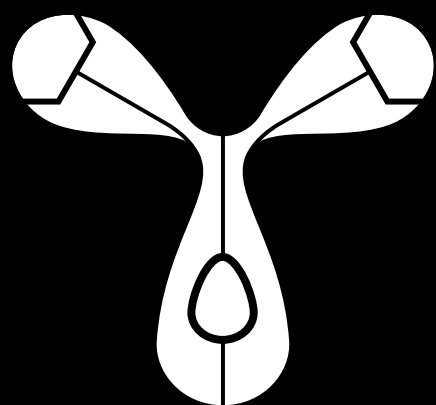
Neutralizing Antibody

OPPOSER
Mechanism by which the immune system responds

TASK

APPLIED CONTEXT-OF-USE

As with any sort of information product, visual codices serve particular tasks. For example, the icons have to function as visual aids for the Visual Vocabulary codex as a reference. They are also used in various activities in which systems and culture are mapped or diagramed. Not all uses can be anticipated. For example, the icons have already been used by others in art works involving experimental physical media. These surprise applications demonstrate their versatility. Versatility does not come by chance. The design anticipates several **use cases and contexts**.

DESIGN CONSIDERATIONS

To recap the objectives and constraints informing icon design:

- Provide an Illustrative example of the concept

- Anchor attention with a target for the eye

- Act as "glanceable" and compact stand-in for the concept in visual displays

- Jog the memory as a mnemonic device for concepts once learned

- Assemble easily from simple lines and shapes

- Invoke symbolism that travels reasonably well across cultures

- Follow a consistent gestalt and semiotic rules to manage viewers expectations

- Work with various media without degrading severely in low-quality formats

- Appeal aesthetically (not repel with ugliness)

- Convey the same meaning in both a static and animated versions

- Function as visual referent within specific use-cases (systems- and culture mapping and diagraming) yet be versatile enough for unanticipated use cases and contexts

[B]

THE BASICS

General icon design and the underlying rationale

ABSTRACTION

LOW ⟵————————⟶ **HIGH**
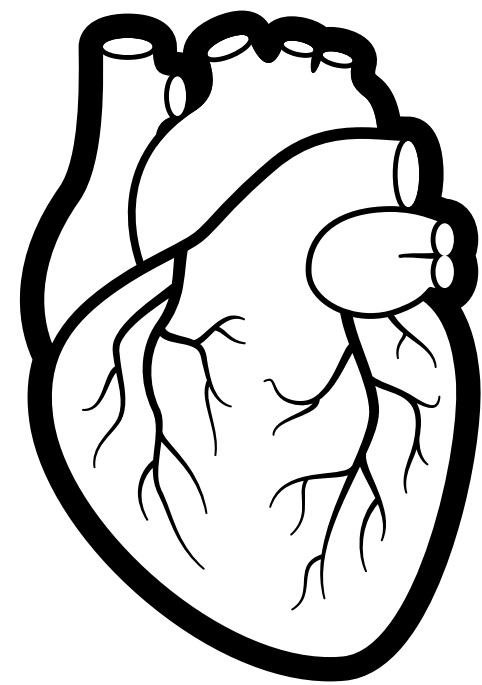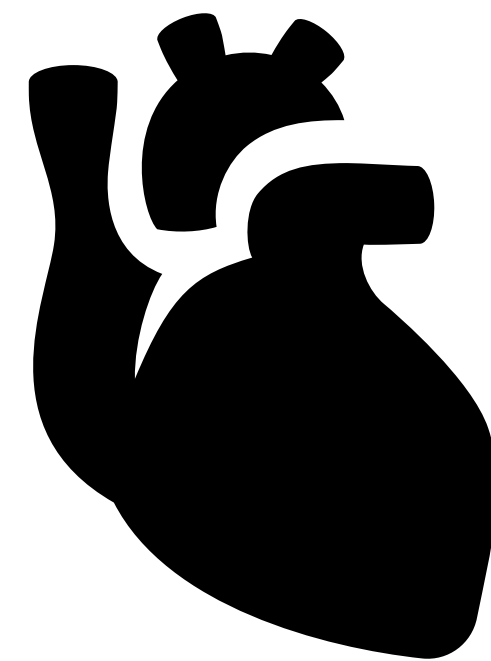
| Literal + Accurate	Literal + Stylized	Non-literal + Conventional Stylization	Non-literal + Unconventional Stylization	Arbitrary Stand-in
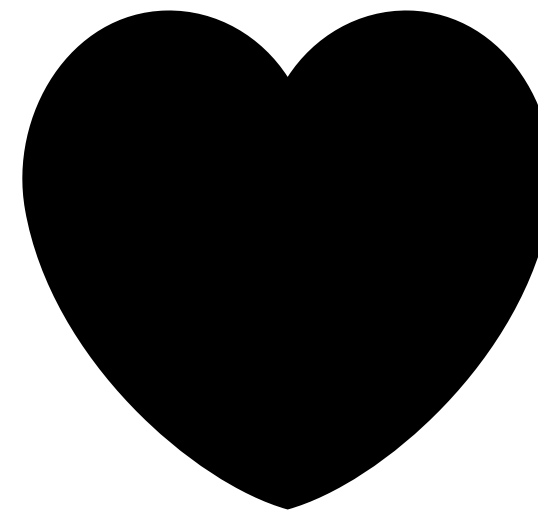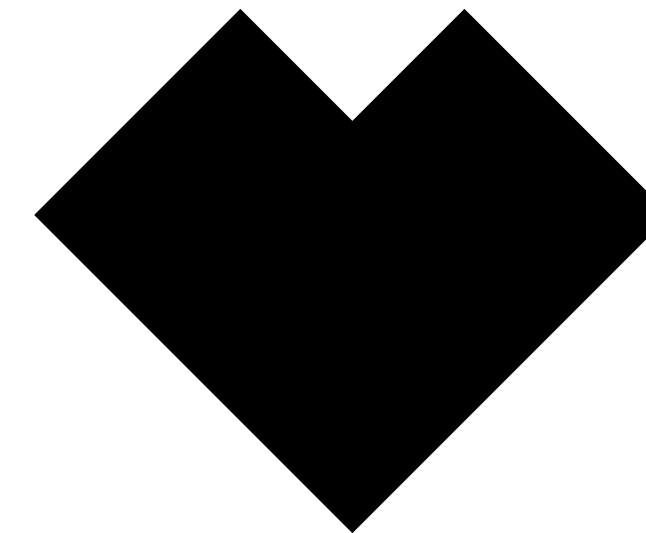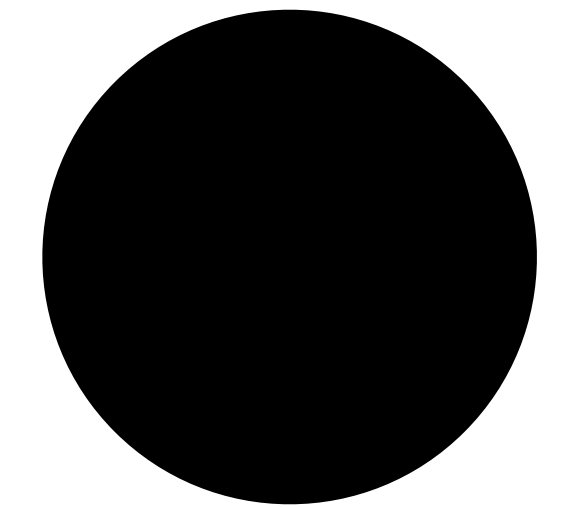
The **level of abstraction** refers to the literal correspondence to the original subject and amount of aesthetic stylization. With compact icons, abstraction tends to be correlated with simplification.
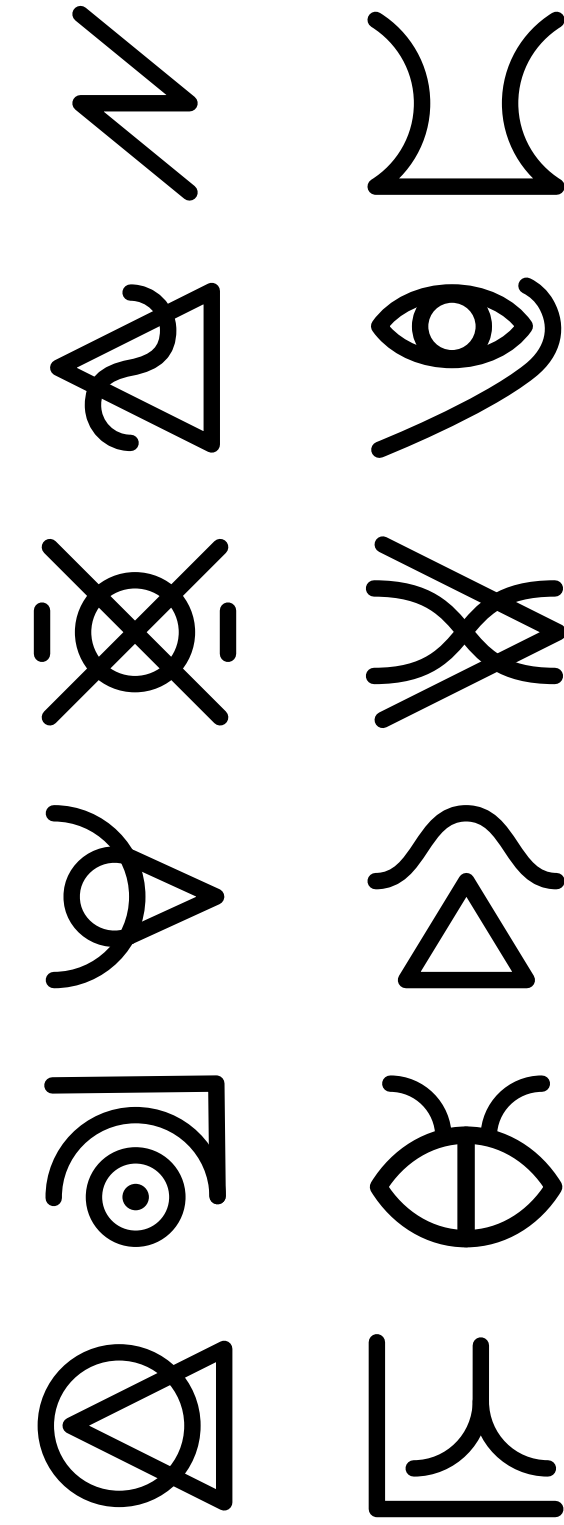
GENERAL ICON LANGUAGES

BLISSYMBOLS
CHARLES BLISS
(1949)
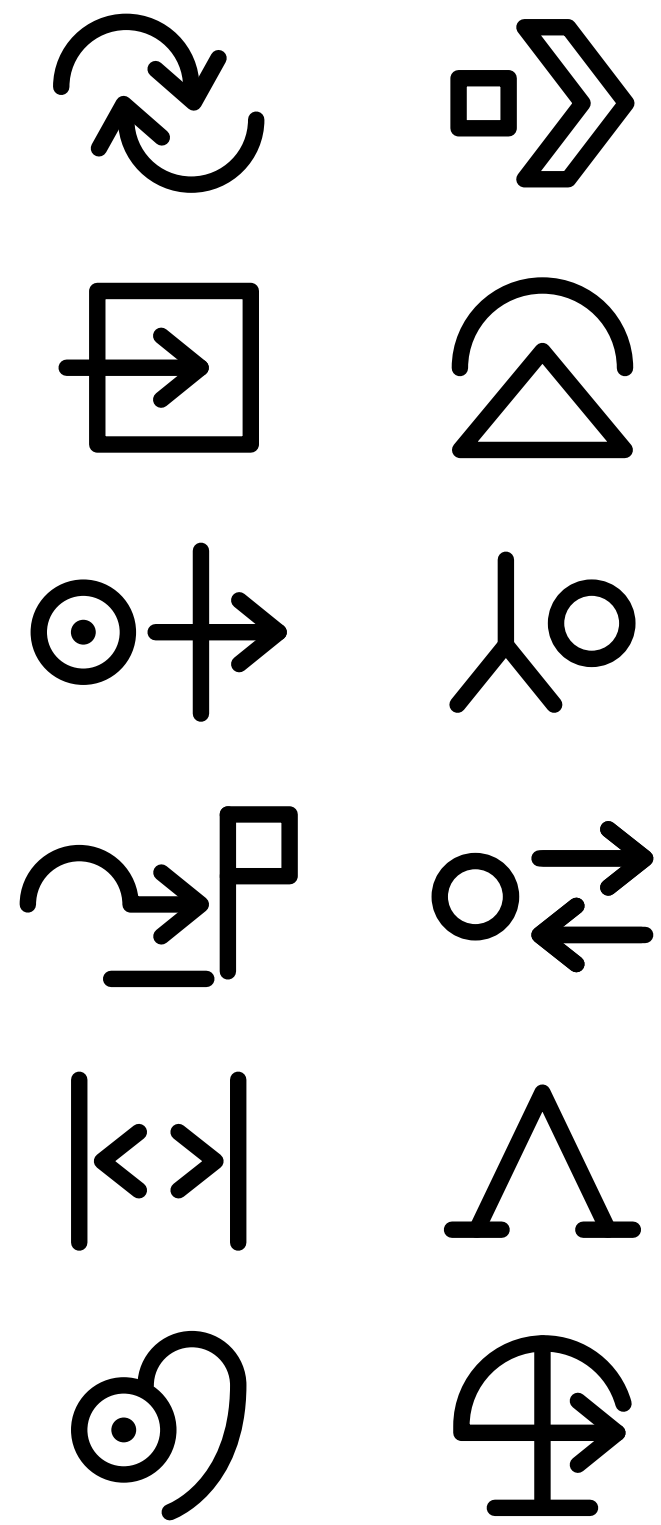
LoCoS
YUKIO OTA
(1964)
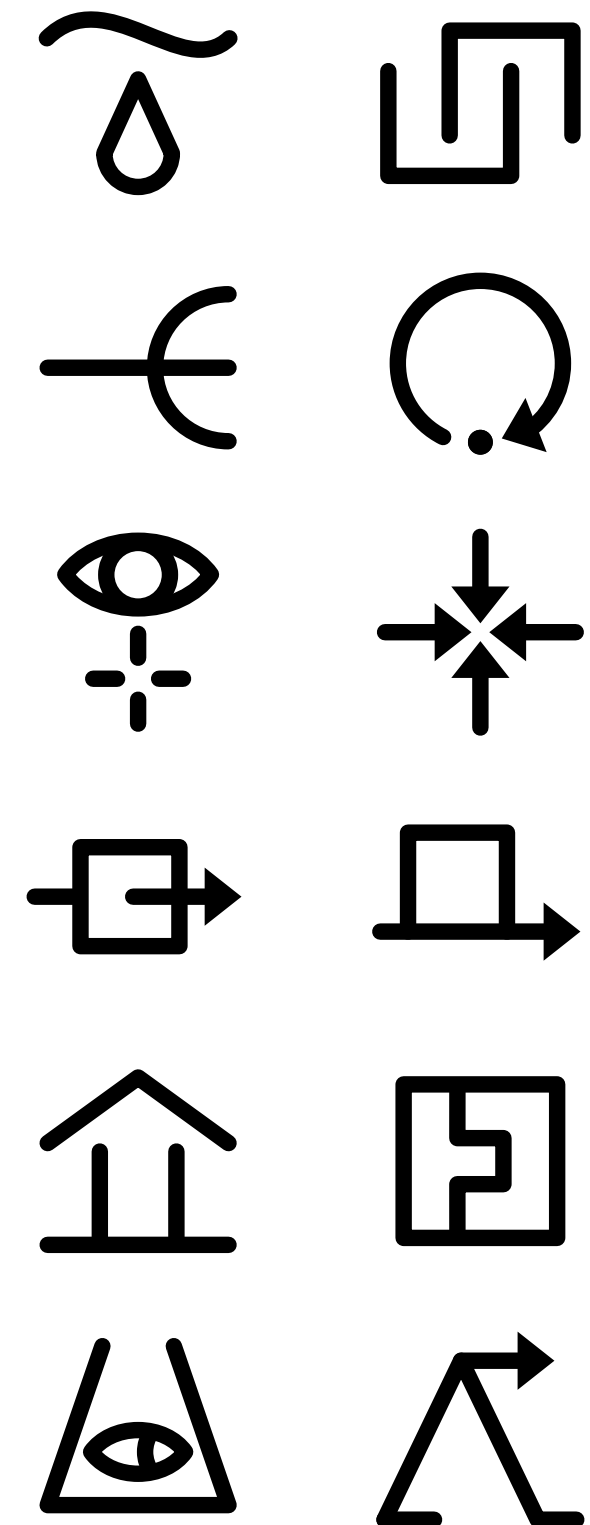
EARTH LANGUAGE
YOSHIKO McFARLAINE
(1992)

**THE ELEPHANT'S
MEMORY** TIMONTHÉE
INGEN-HOUSZ (2007)
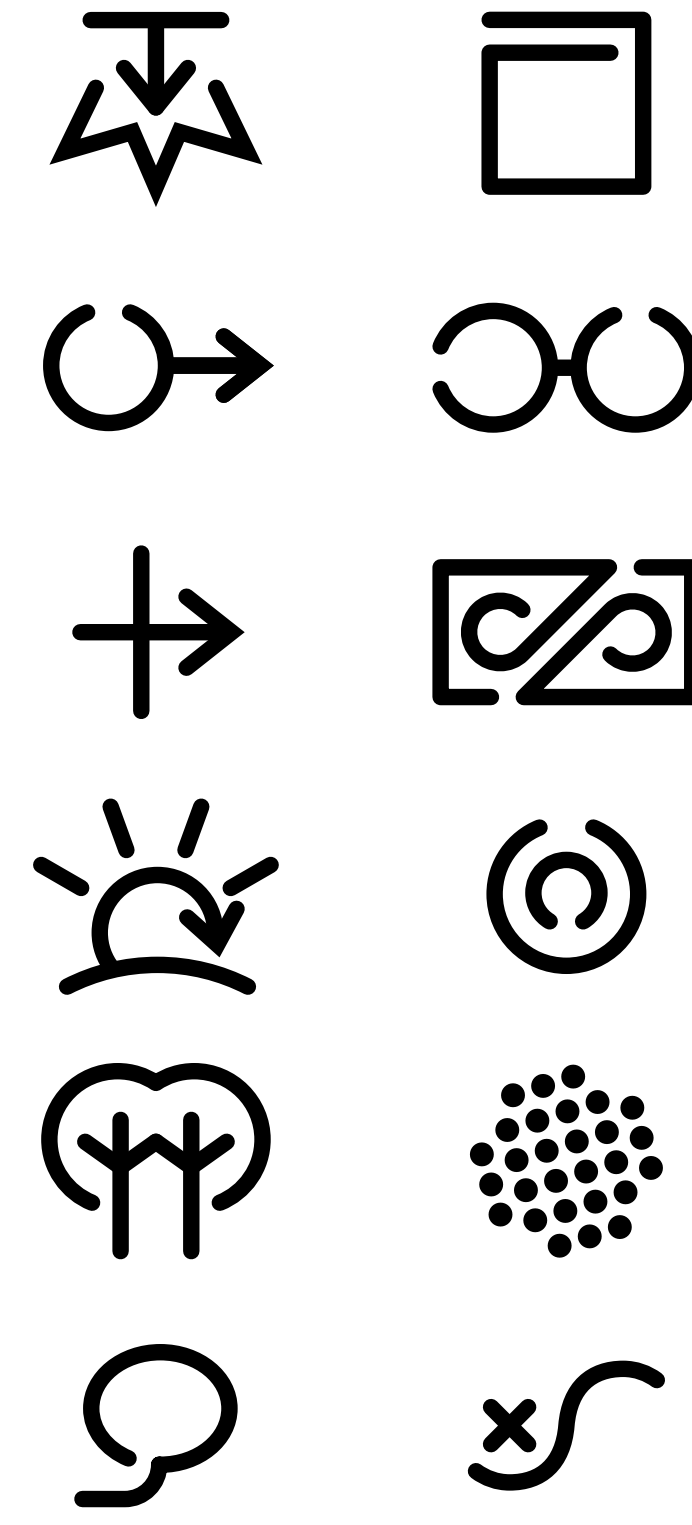
**NOBEL UNIVERSAL
GRAPHICAL LANGUAGE**
MILAN RANDIĆ (2009)

LINE WIDTH

LINE STYLE

SOLID SHAPES
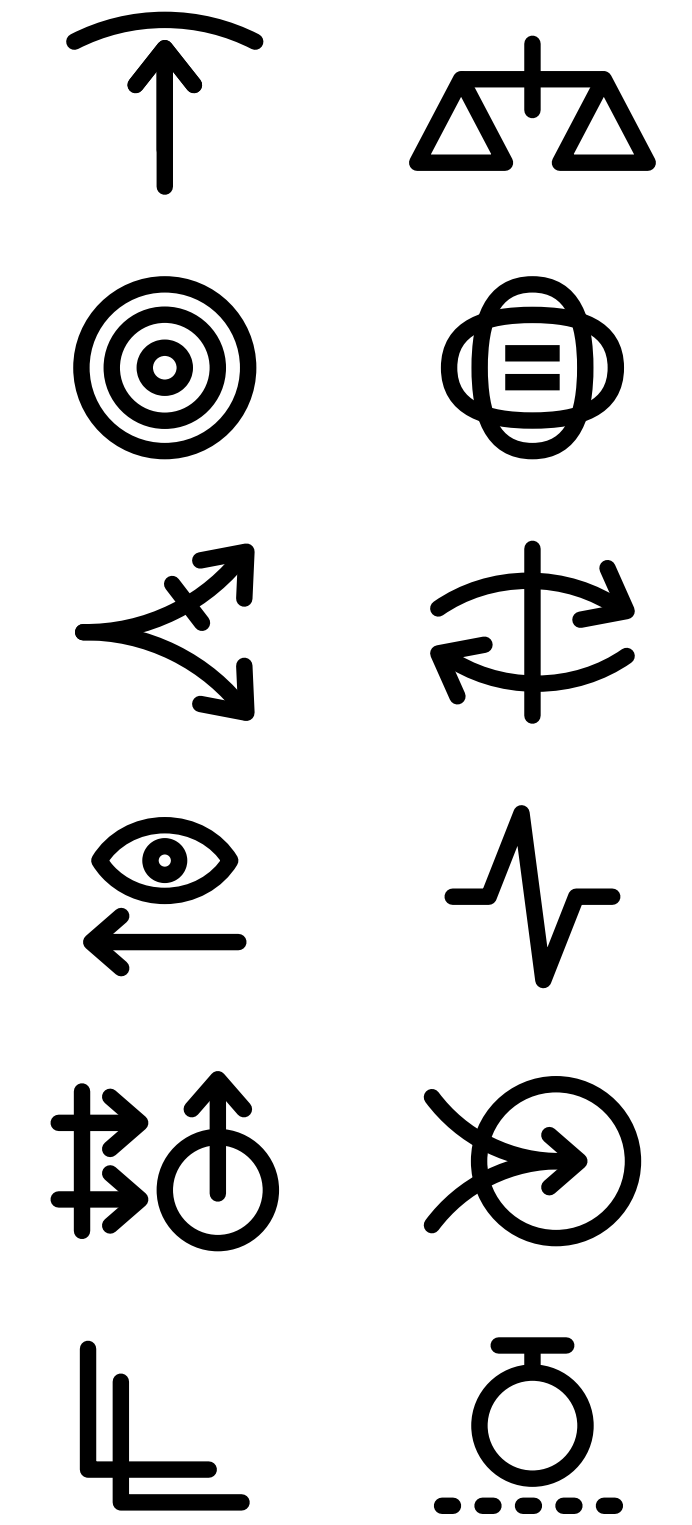
FORMS

FUNCTIONALITY OF BASIC FORMS

General-purpose icon languages (previous page) have not caught on because of intrinsic limitations. They tend to be monoline drawings to make them easy to draw. The single line width limits expressiveness in compact spaces. Side by side, the icons are not easy to differentiate cognitively. Also, the lack of fixed context plus the high level of abstraction make meaning difficult to infer. To overcome these shortcomings, Visual Vocabulary icons make use of multiple line widths and styles, plus various solid shapes. The narrowness of subject makes inference more straightforward; what the icons are about (systems or culture) is declared up front.

SYSTEM ICON SETS

NEW ASPECTS OF INFORMING (1970s) RADOMIR VUKOVIĆ TRANSPORTATION
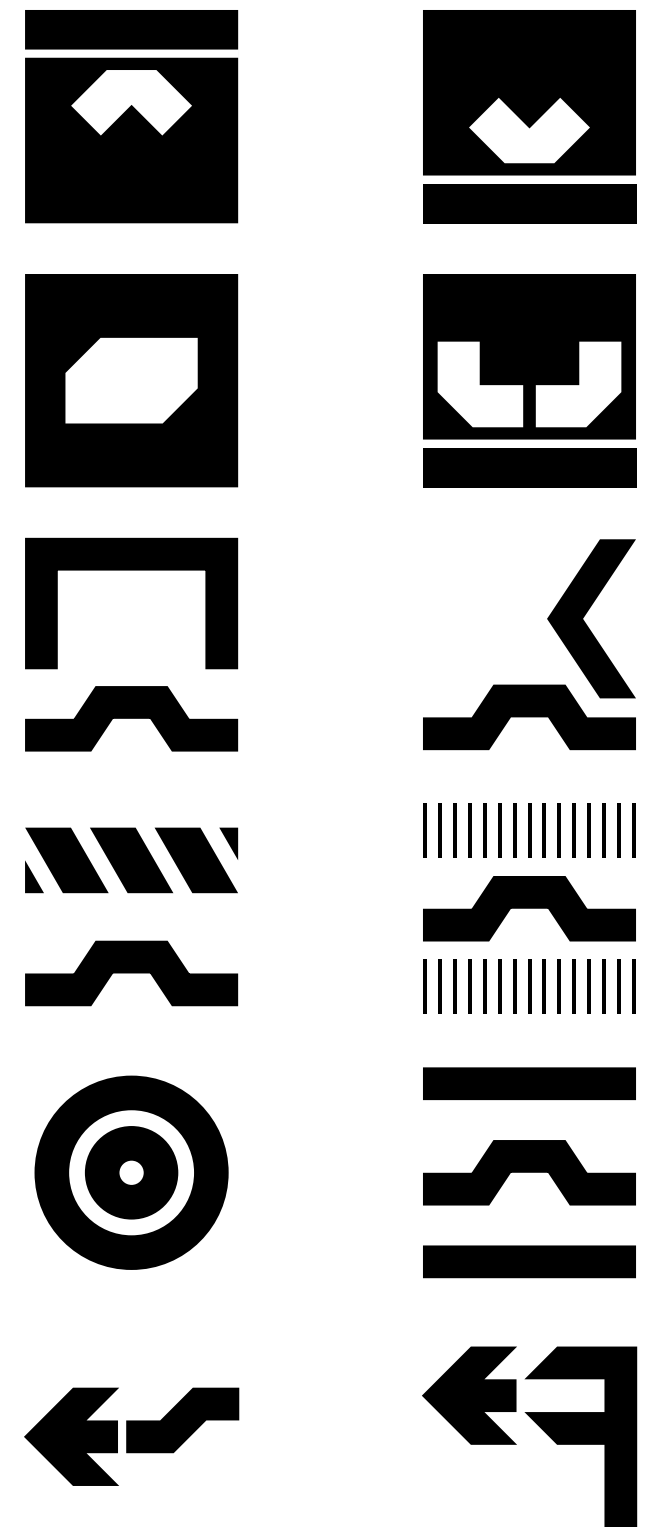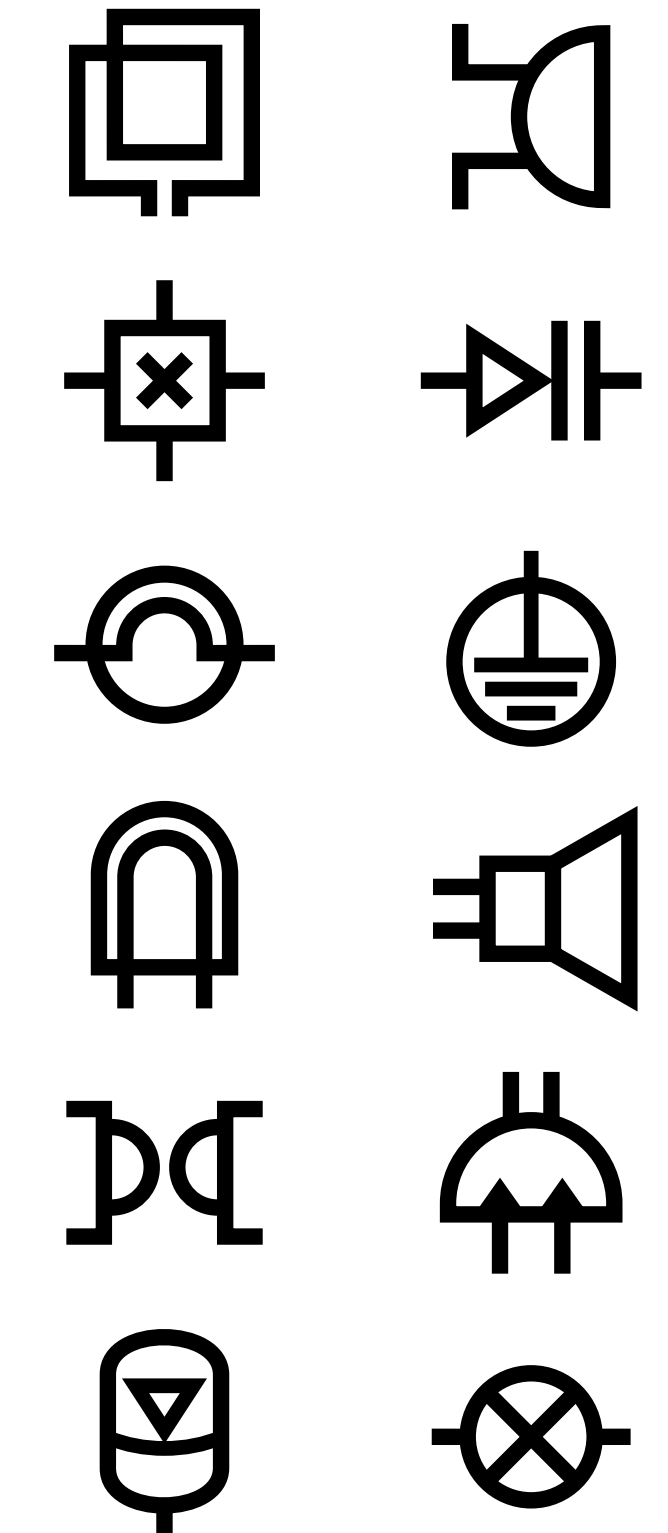
THE HOBO CODE (1870s) WAYFINDING SIGNAGE
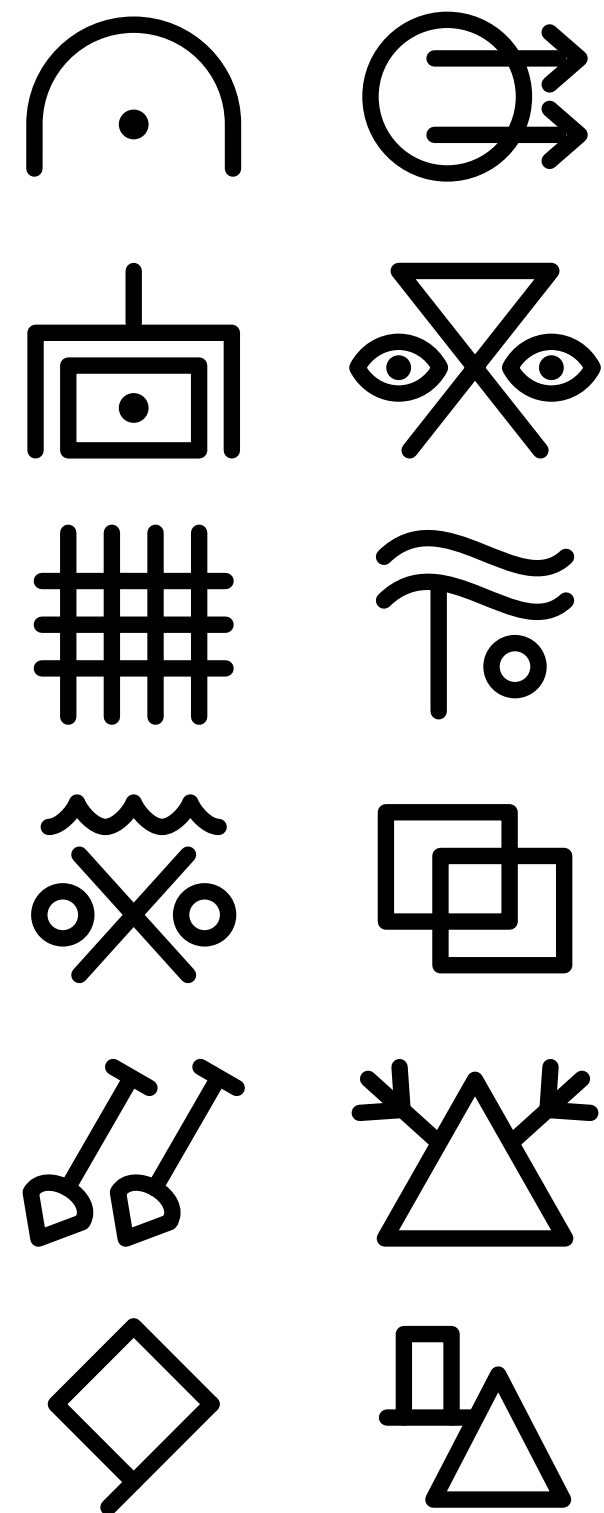
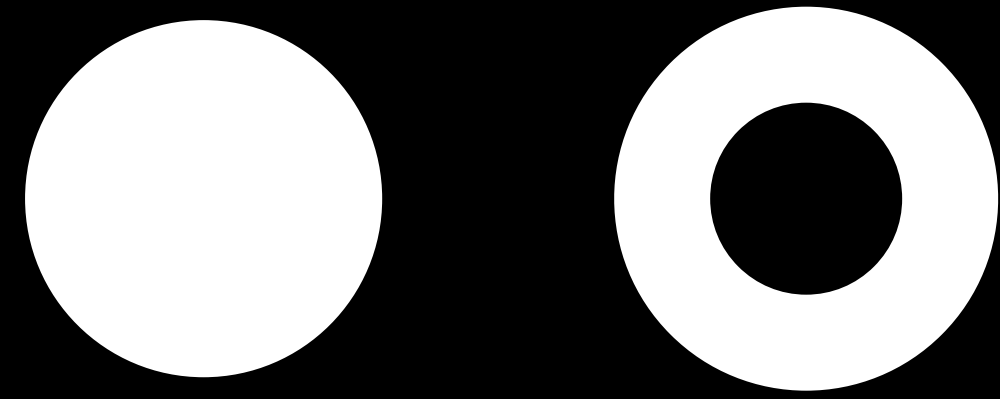**WEB INTERFACE ICONS** (1990-2000s) SCREEN INTERFACES
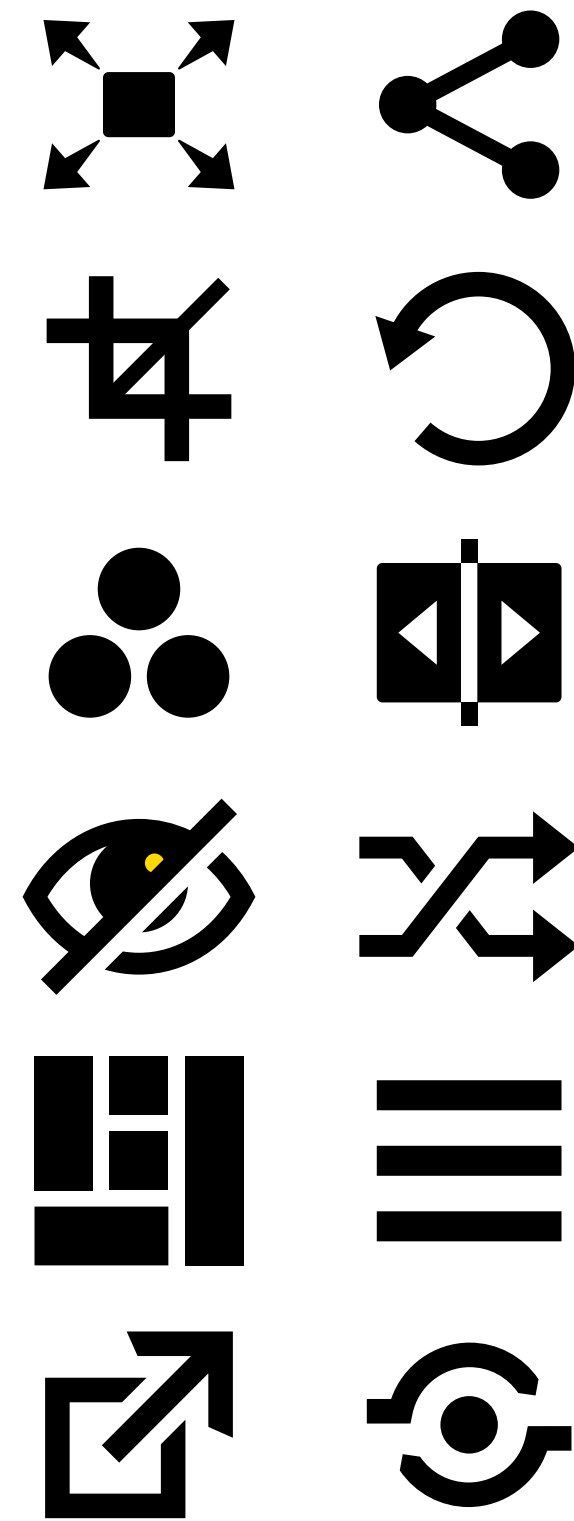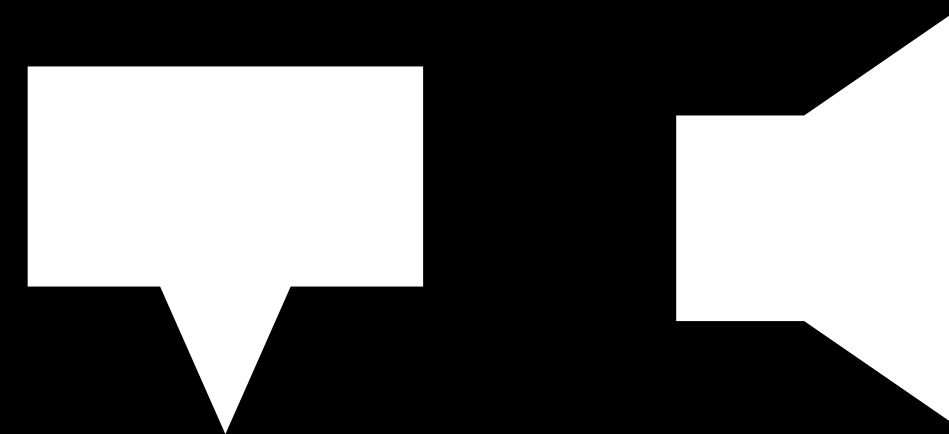
COPY MACHINE ICONS (1970s) MACHINE INTERFACE
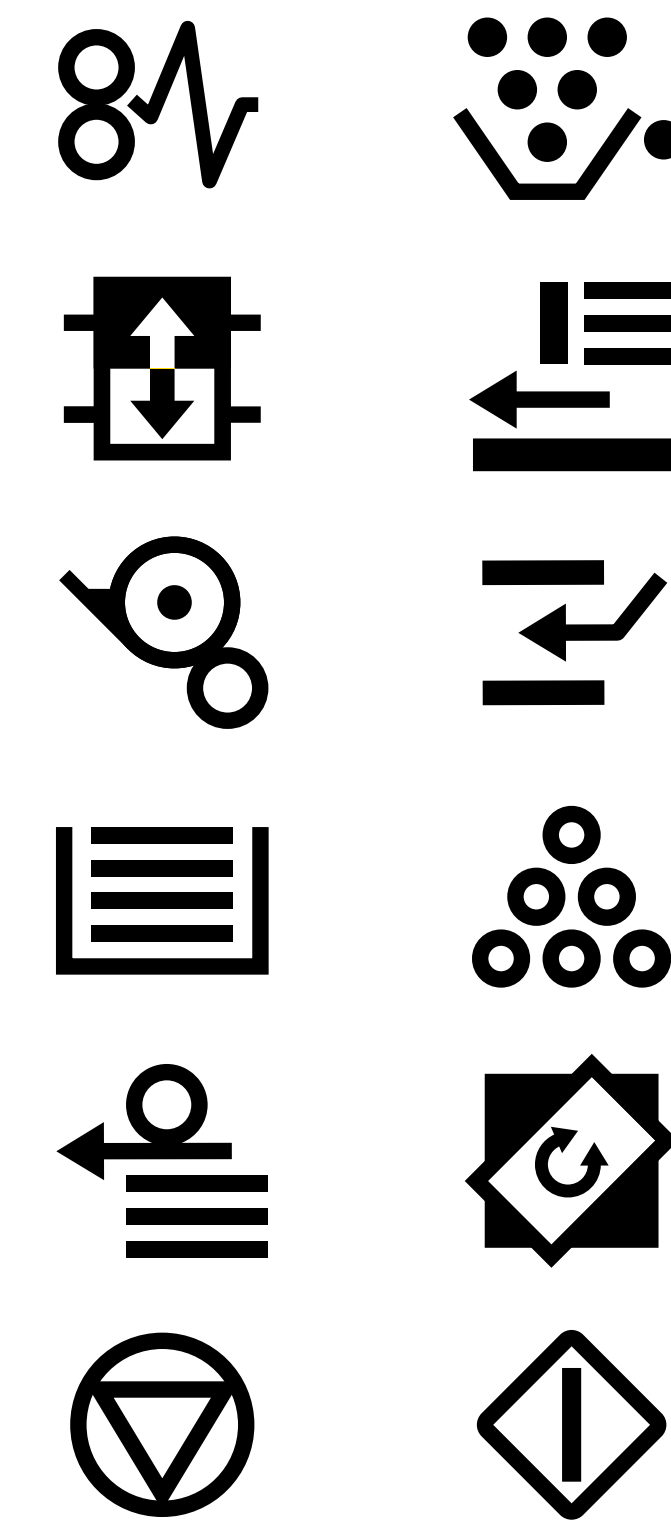
**ELECTRICAL ICONS** (1960-1970s) DIAGRAM NOTATION

STAND-IN SHAPES

PICTOGRAMS

SYMBOLISM

A B S T R A C T N E S S   O F   R E P R E S E N T A T I O N

System-specific icon sets (previous page) rely on moderately abstract symbols (pictograms), with a few arbitrarily assigned symbols. Much can be learned from these cases. That said, few of these icons are applicable to systems more generally. The Visual Vocabulary leans towards higher levels of abstraction for the sake of broader applicability. For the most part, icons are **assemblies** of basic lines and shapes to create illustrative examples of elements or dynamics. Basic shapes (and variations) are used as stand-ins for system- or cultural objects. A small number of pictograms are used to convey more specific functions.

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SIGNAL
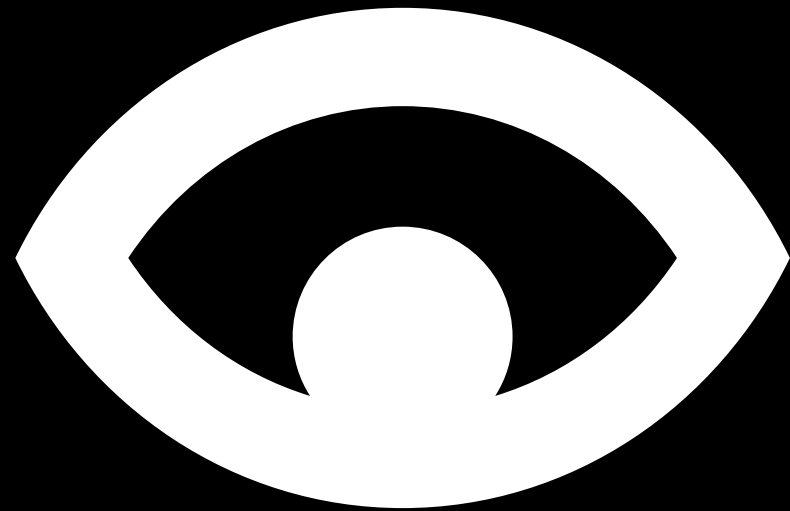
MONITOR, OBSERVE, SENSE, INTERPRET, OR DETECT
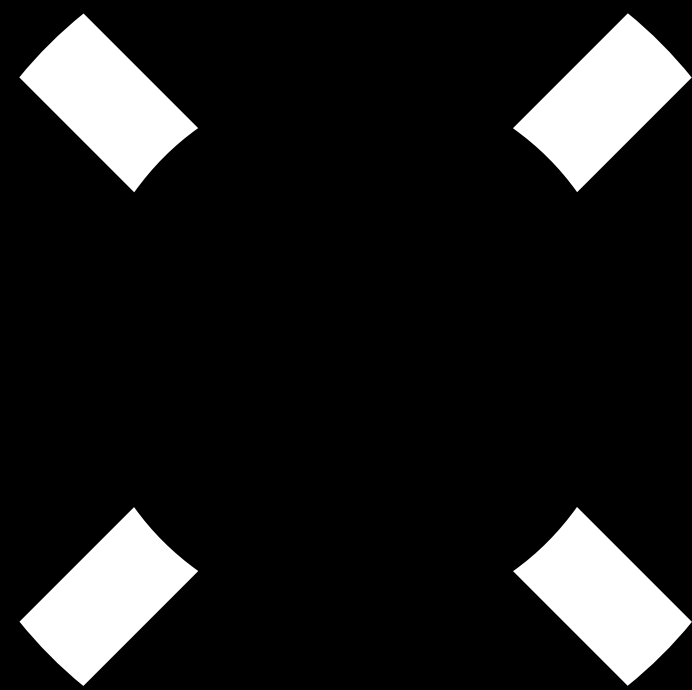
ACTIVATION

ENCODINGS

A S S I G N E D   M E A N I N G S

Any meaning assigned to symbols has to be learned by the viewer. There are limits to the number of meaningful assign-ments a viewer can be expected to remember. Instead of requiring up-front learning of assigned meanings, it is better to make those meanings easy to learn from the text associated with icons. The Visual Vocabulary encodes a small selection of reusable lines and shapes with flexible meanings. The expectation is that viewers will infer these loose mean-ings after inspecting several icons. Together, the lines, shapes, and encodings are the icon set's **shape language**.

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ANNOTATIONS

S T I P U L A T E D   M E A N I N G

The concepts itemized in the Visual Vocabularies are too complicated to be expressed with icons alone. The symbolism expressed by icons may be highly suggestive but it is unreasonable to expect the full meaning to be conveyed. Thus, each icon is accompanied by a text label in most usage scenarios. Once the meaning is learned, the user should be able to parse icons without revisiting the label. Space permitting, a longer annotation can be included, either the generic one assigned to each icon in the Visual Vocabulary or a tailored one written for a specific use case.

ATTRACTOR

An object that draws other objects towards itself; a bias in favor of an appealing position, object, or state; the value in a growth pole.

[C] SHAPE LANGUAGE

The inventory of visual elements of icons and the conventions of application
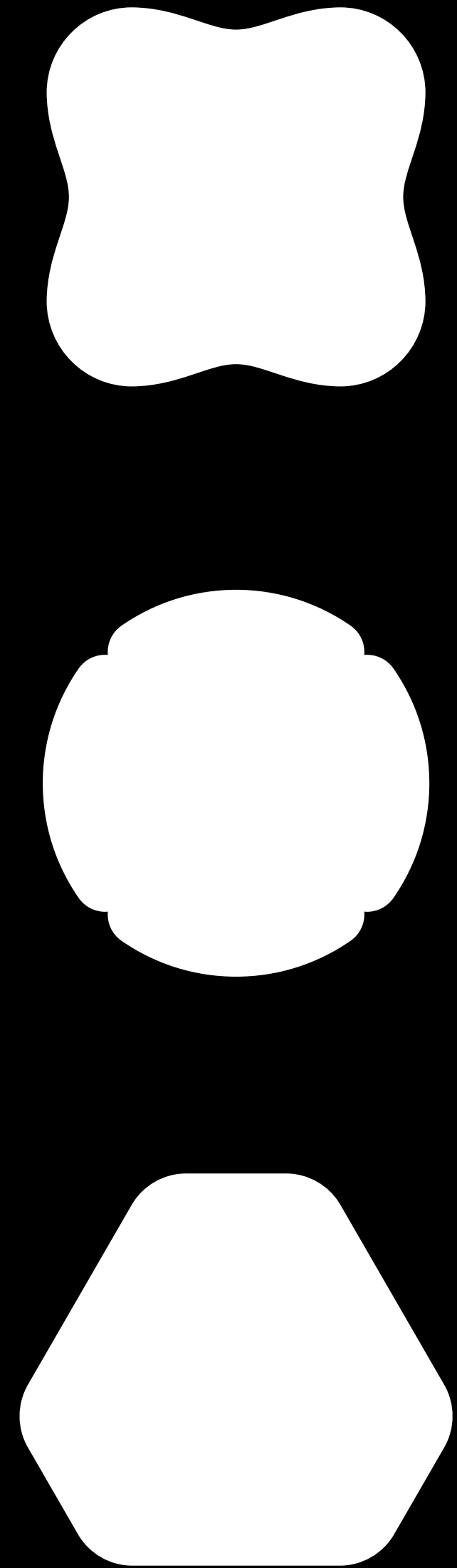
MARQUEES

BACKGROUND SHAPES

The background shapes that envelop each icon represent the general ("marquee") category. Systems are made up of six major categories of elements and culture is made up of three (next page). Marquee shapes have to balance four criteria (see two pages down). The shapes have to be sufficiently different (contrasting forms) to be noticed at a glance. However, the interior space must be of equivalent size and dimensions to accommodate similar icons and not skew attention towards any one category. Some marquee shapes are "exotic" to balance that design tension, yet not so unusual geometrically that they lack conventional names.

SYSTEMS
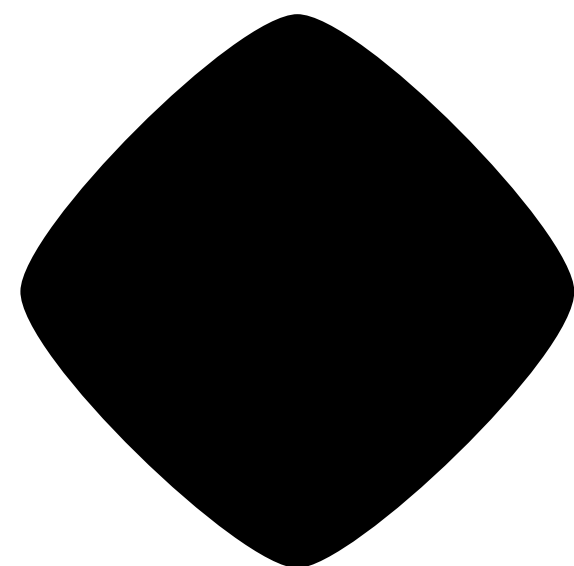
CULTURE

DRIVER
SUPERELLIPSE
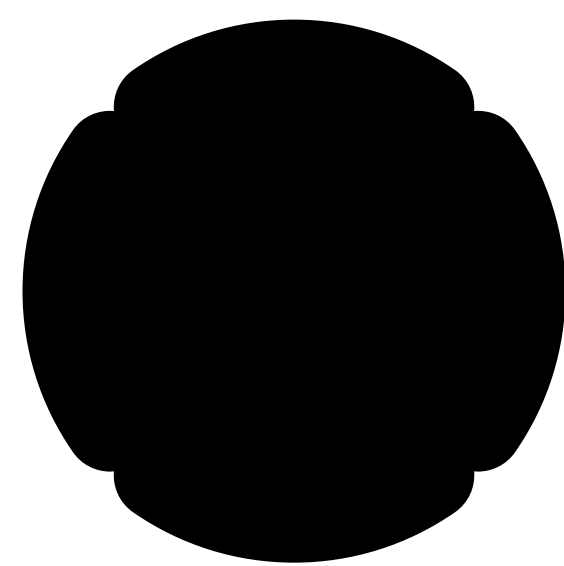
STATE
MOKKOUGATA

RELATION
OVATE

OBJECT
TRAPEZIA
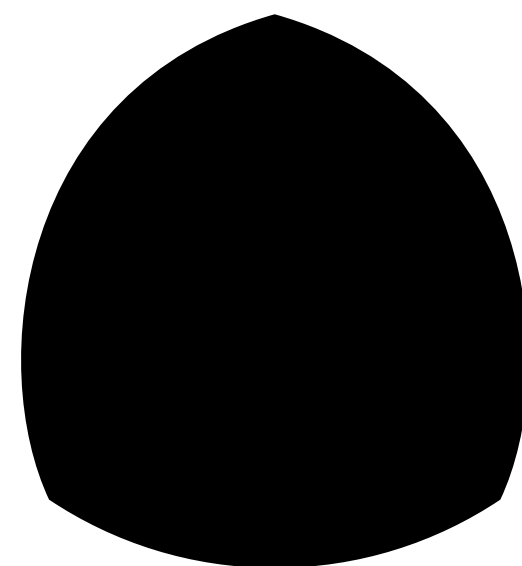
MENTALESE
HEXAFOIL
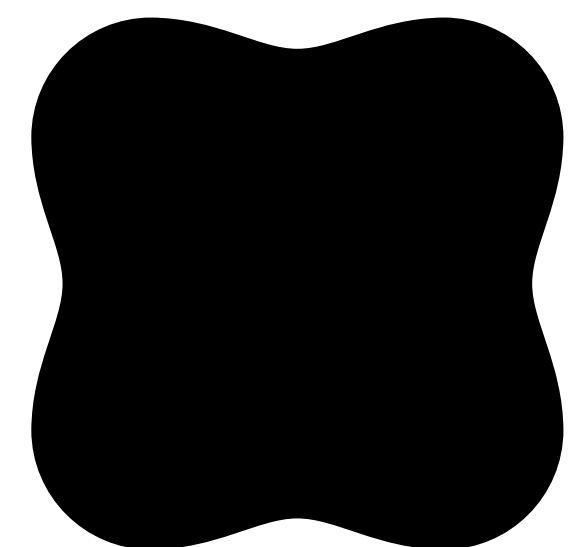
SIGNAL
EPITROCHOID
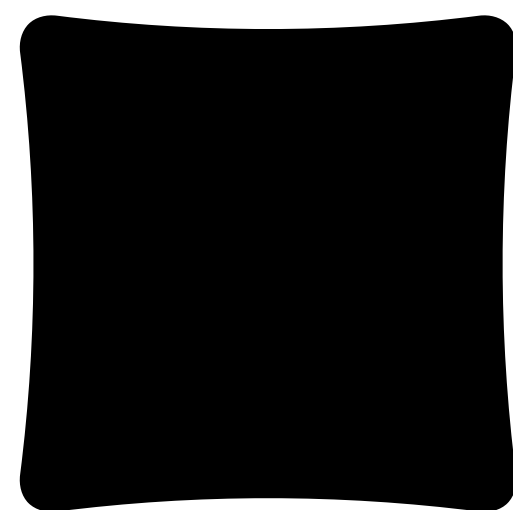
BOUNDARY
ASTROID

DOMAIN
HEXAGON
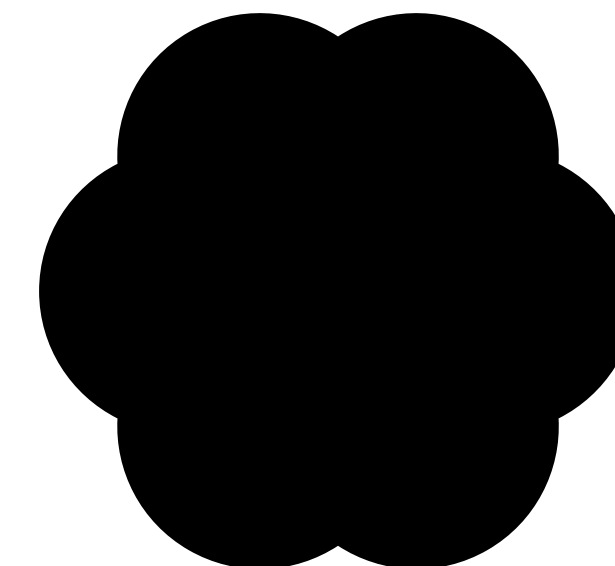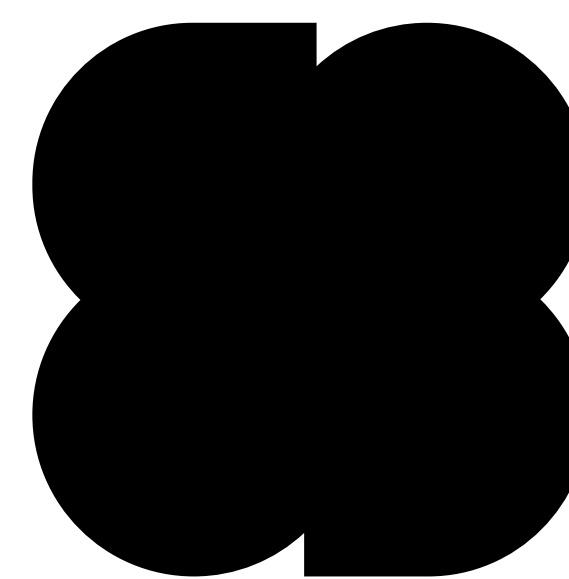
BEHAVIOR
QUATREFOIL

SHAPE SELECTION

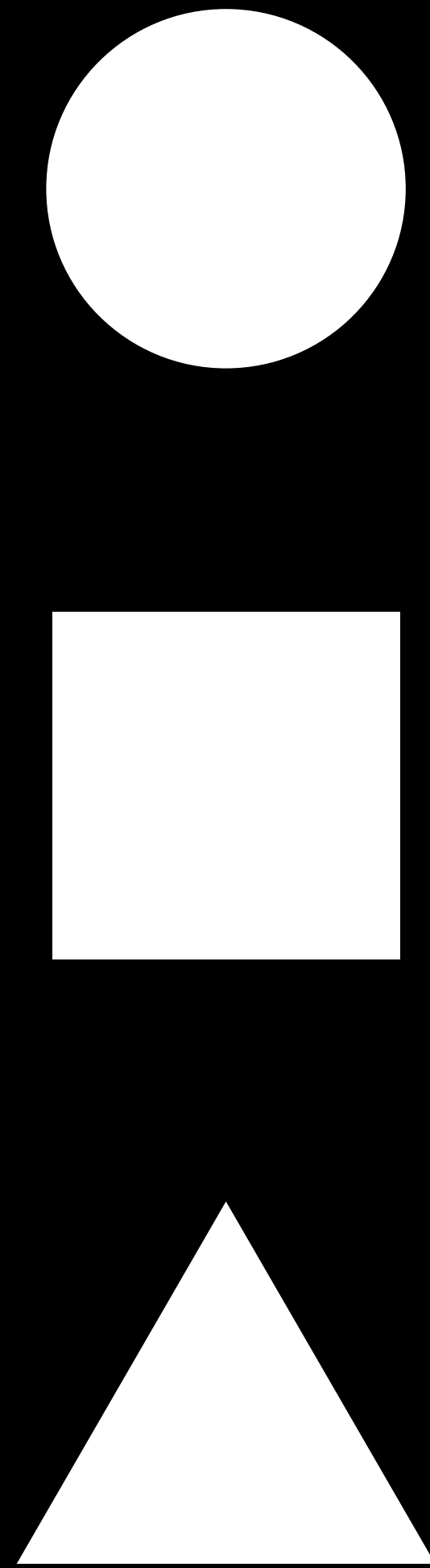Shape selection involves balancing four criteria, some of which are in tension

CONTRAST
Shapes distinguishable at a glance

OPTICAL ADJUSTMENT

Sizing compensates for human perceptual bias to appear same size
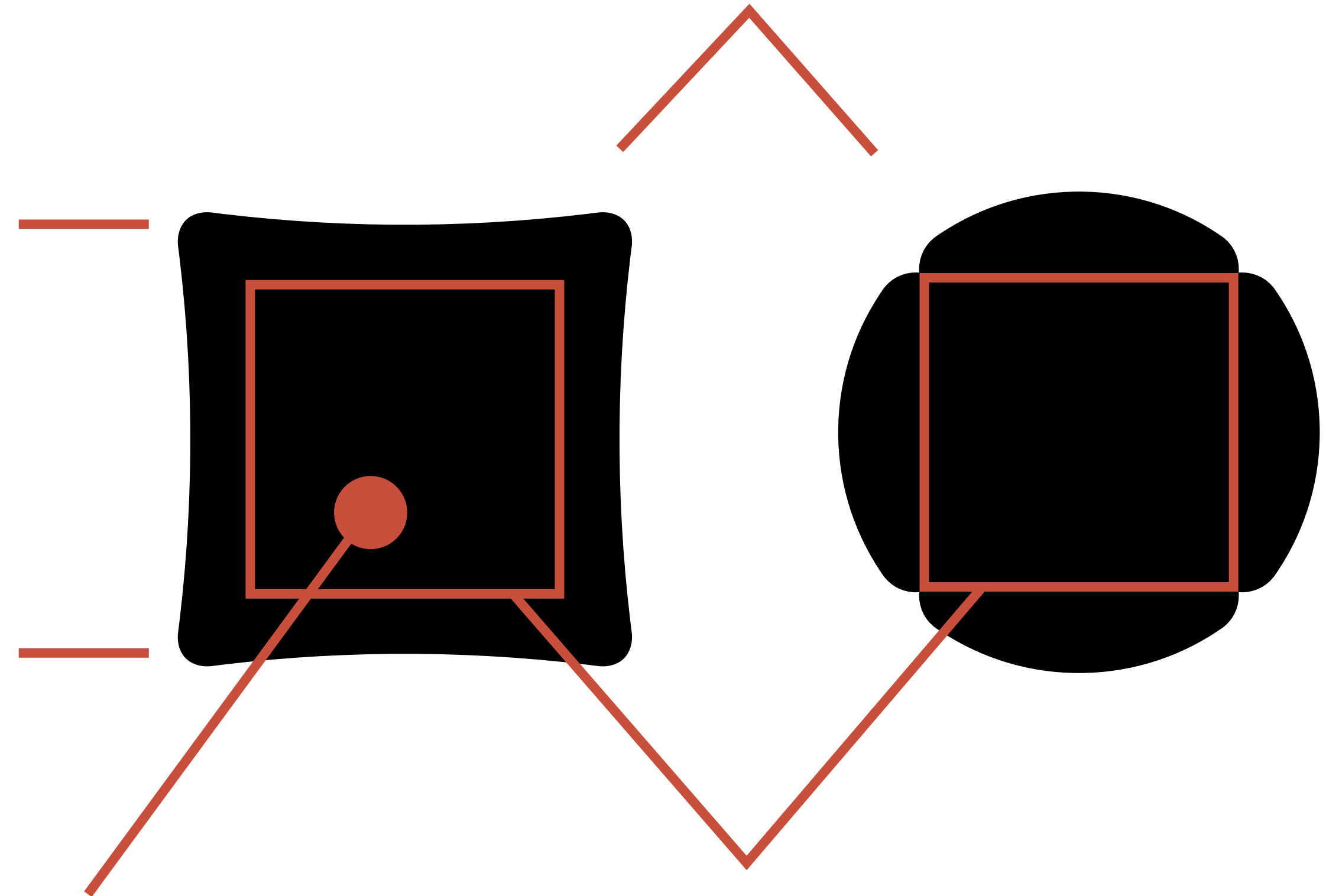
AREA
Equivalent amount of "stage" area

INTERIOR SPACE
Similar dimensions of interior space

23

PRIMITIVES

BASIC SHAPE

In graphic design, a "primitive shape" (or "primitive" for short) is basic in form. A primitive represents an **object**. It is often used as a stand-in for an actor or something that is acted upon. The circle, square, and equilateral triangle are shapes reserved for that purpose.
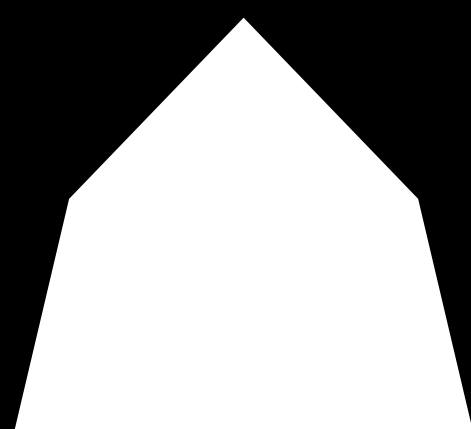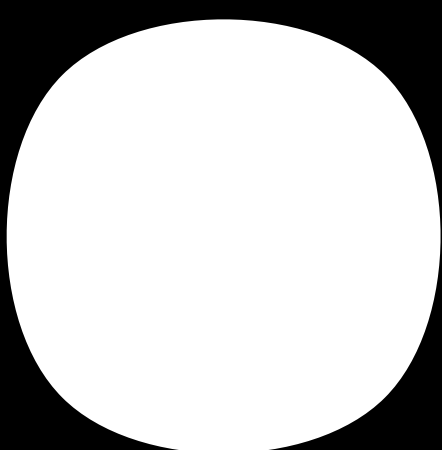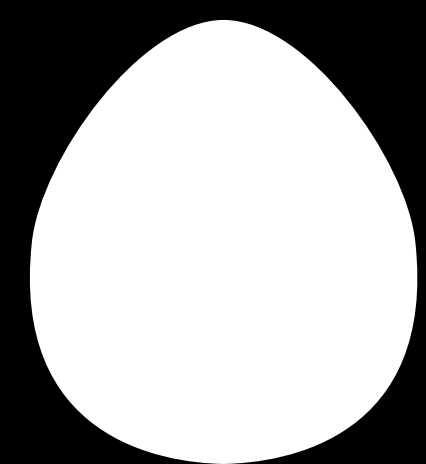
MORPHS

DEFORMED BASIC SHAPE

A morph is a deformed primitive. It useful for representing **changed state**, **subtle variation**, or **mutation**. Morph shapes are usually an interpolation of two primitives: ovoid (or egg; circle + triangle), squircle (square + circle), and tent-like pentagon (square + triangle). Arbitrary deformations can also be accommodated.

1   2   3
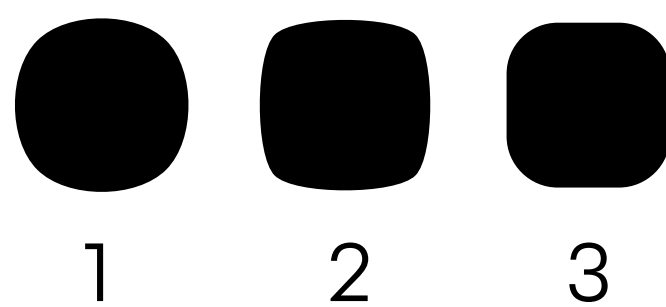
Note that a squircle (1) is different from a super-ellipse (2) is different from a rounded square (3). Superellipses are used rarely for morphs because the superellipse diamond is reserved for a marquee category.
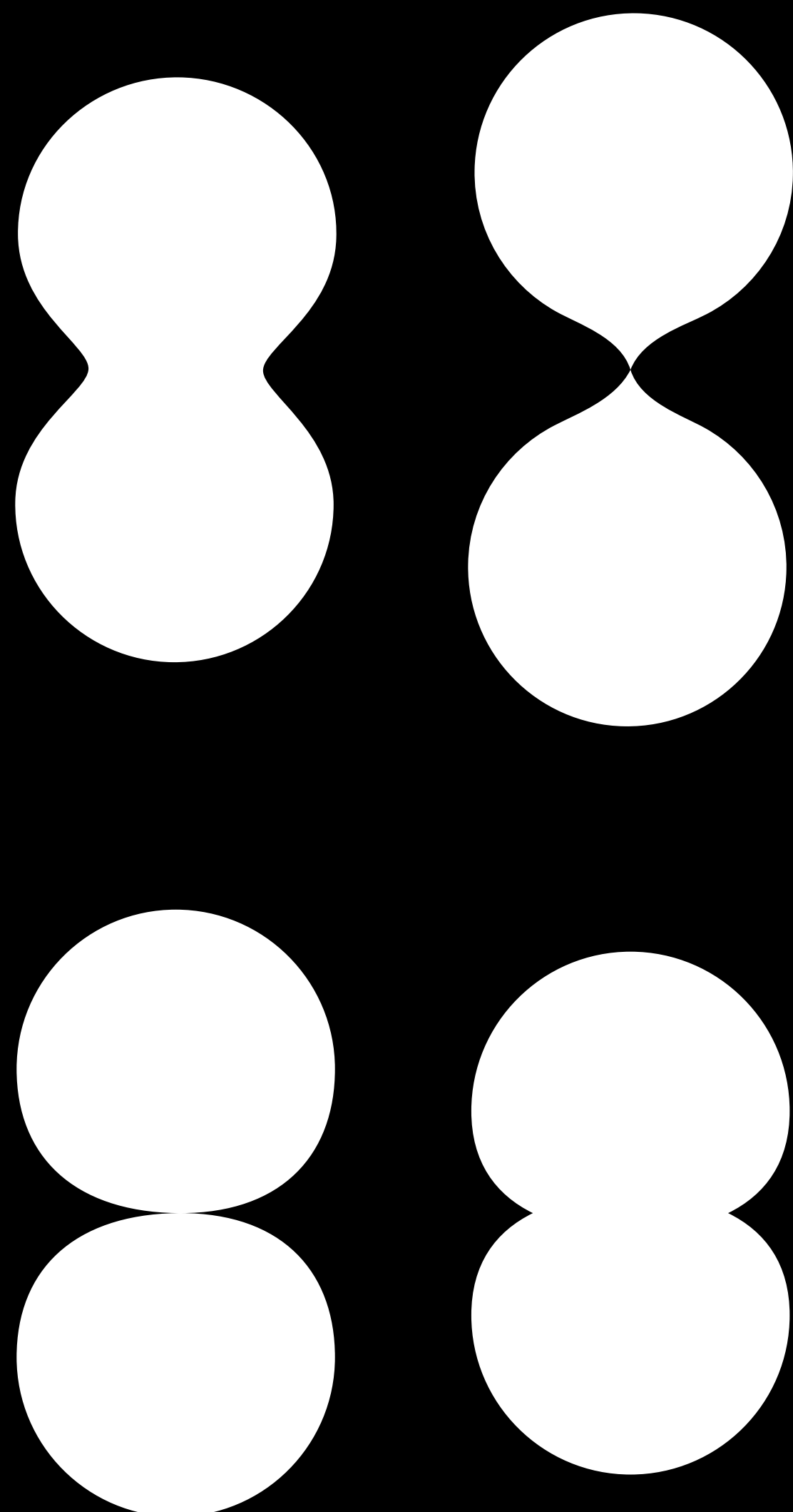
ACTION MORPHS

DEFORMING SHAPES

An action morph is a deformed primitive that suggests a **state change in progress**. Like a morph, an action morph represents state changes or mutation but the process of change is made more explicit by the symbolic nature of the deformation (squish, stretch, etc.). That can involve presenting the morphic change as a sequence to indicate the start-, end-, and intermediate states. Note that morphic change is a more prominent feature of animated icons.
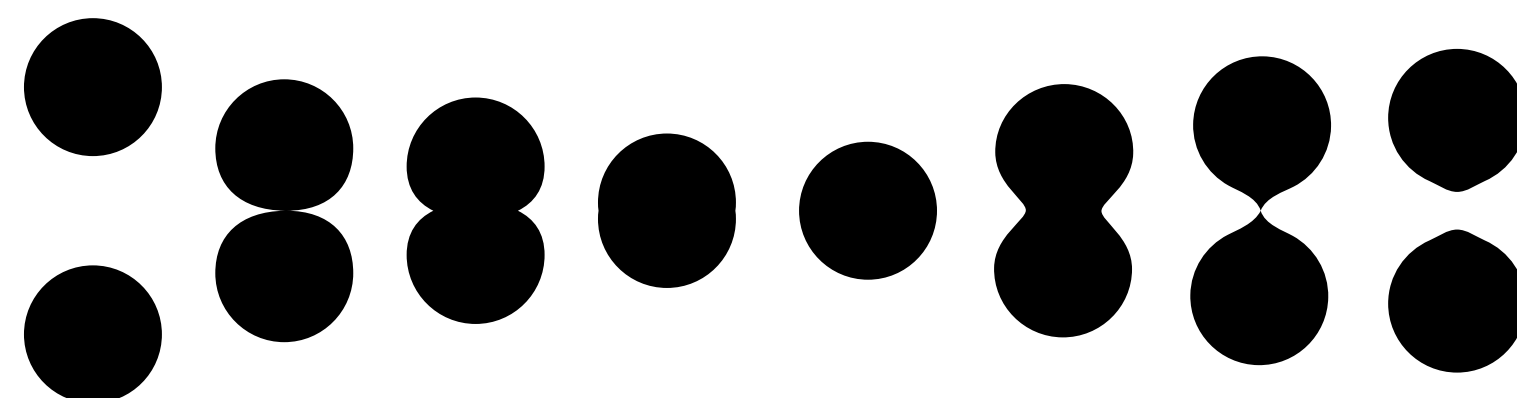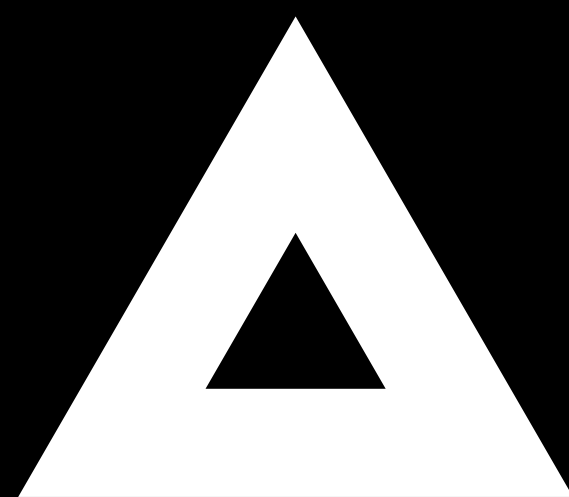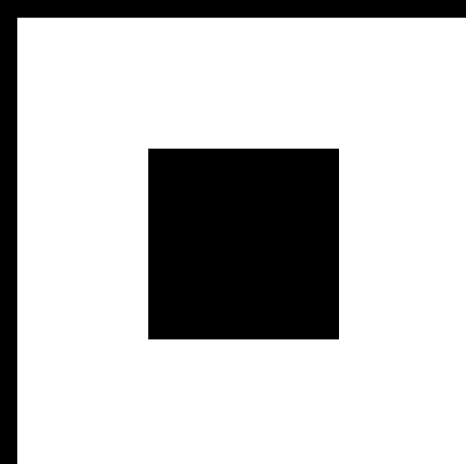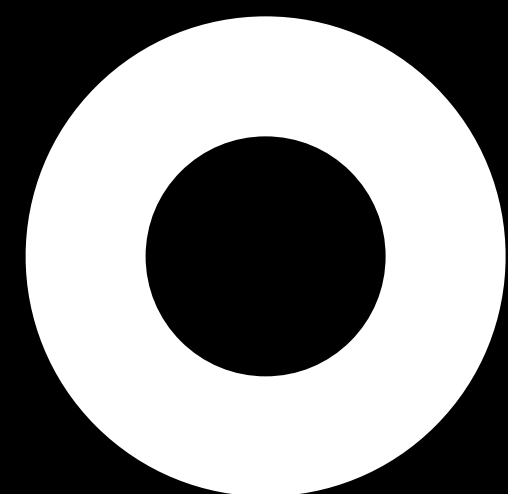
HOLLOWS

OUTLINED BASIC SHAPE

A hollow is an outlined primitive. Hollowness represents a **secondary effect** (or tertiary, etc.), derivation, or condition. In other words, an object may go through several rounds of activity. A round is conventionally called an "order" (first-order, second-order, … n-order) in the language of causal dynamics. An object engaged in a second-order (or above) activity is represented with a hollow. Thus, hollows are an indicator of knock-on effects or subsequence. They can also represent stylized or higher-order derivations of an object, as is often the case in the Visual Vocabulary of Culture.

27
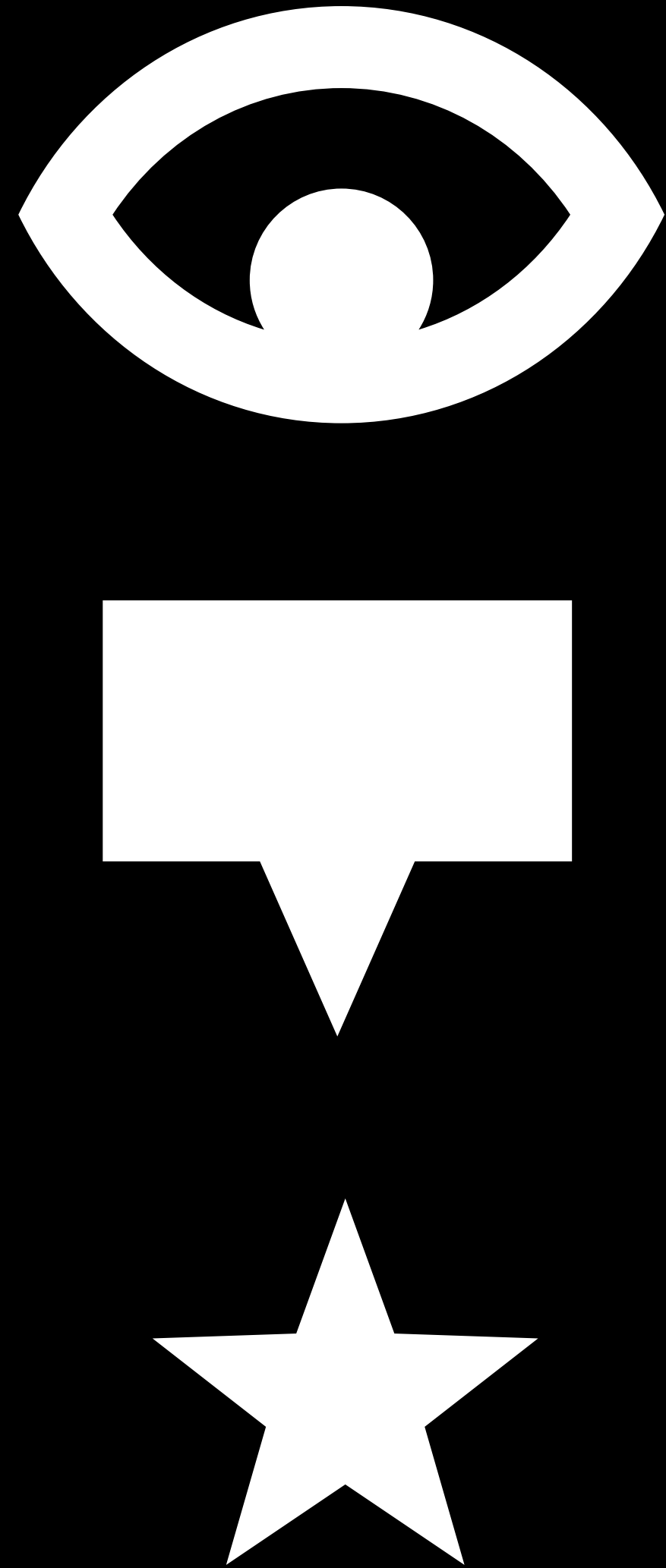
COMPLICATIONS

P I C T O G R A P H I C   S Y M B O L S

A complication is a pictographic symbol that indicates **functionality** which is difficult to express with simple shapes. Each complication does not have one narrow meaning but is a stand-in for a set of roughly similar meanings. For example, a star represents goal, but also motivation, ideal, value, principle, conclusion, and other goal-related concepts. There is an inevitable "elasticity of interpretation," to use Bruno Munari's phrase for permitted conceptual variation of symbols.* These interpretations should be easy to infer from a vocabulary item's text label and description.

* Bruno Munari, *Design as Art* (New York, NY: Penguin, 1971).
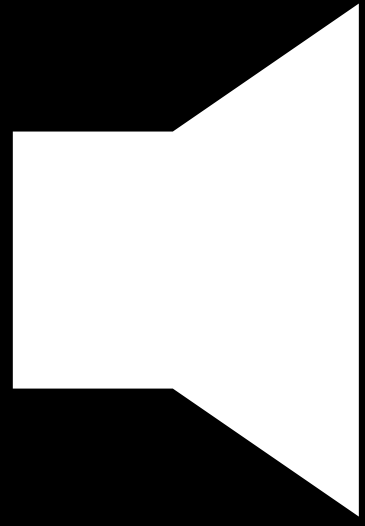
FUNNEL

Amplify, dampen, narrow
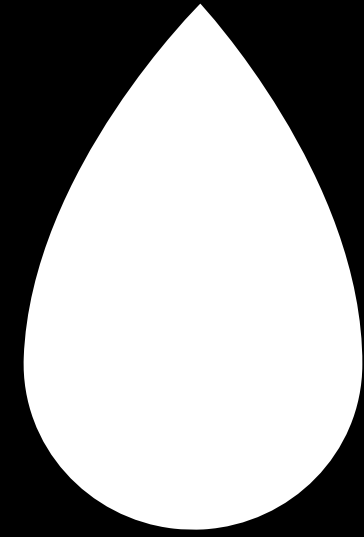
LEAF

Natural, organic, growth, outgrowth

QUESTION MARK

Ambiguity, inquiry, uncertainty, unknown
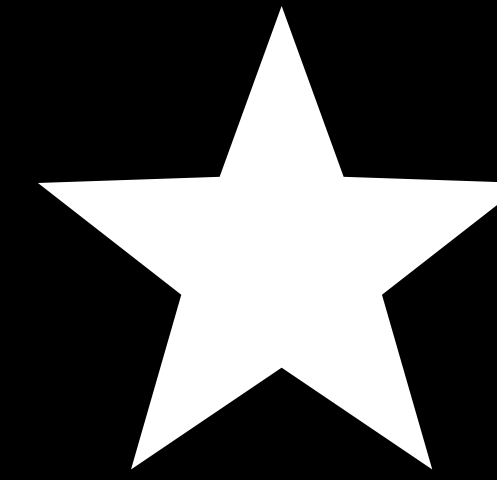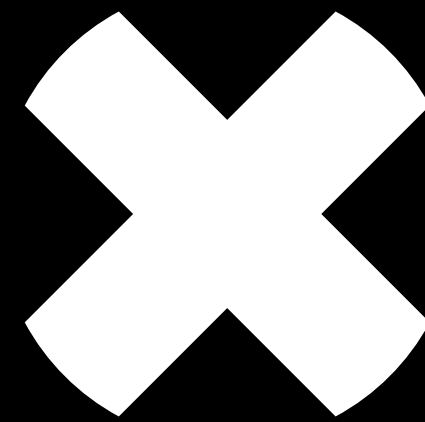
STAR

Goal, value, ideal, principle, conclusion
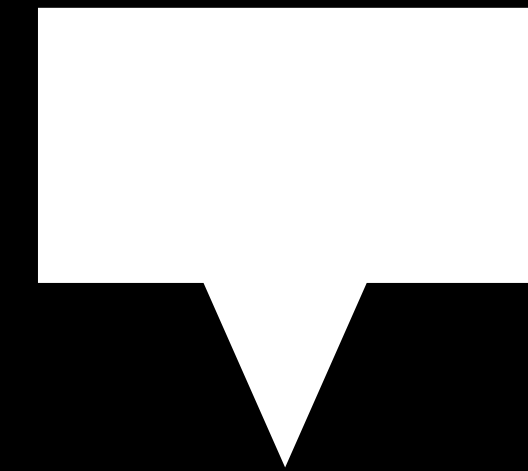
CALL-OUT
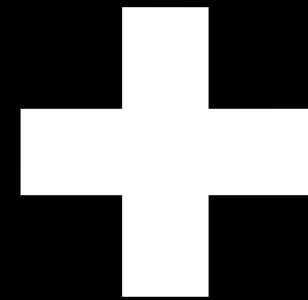
Message, meaning, indicator; also canvas for other objects
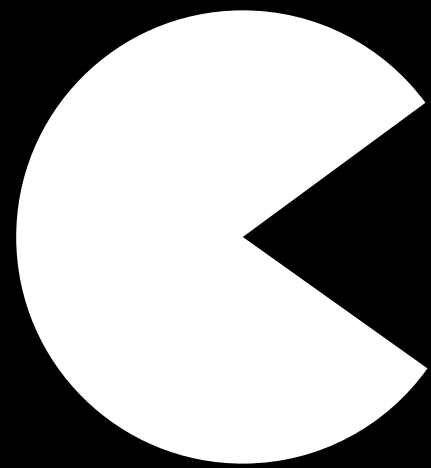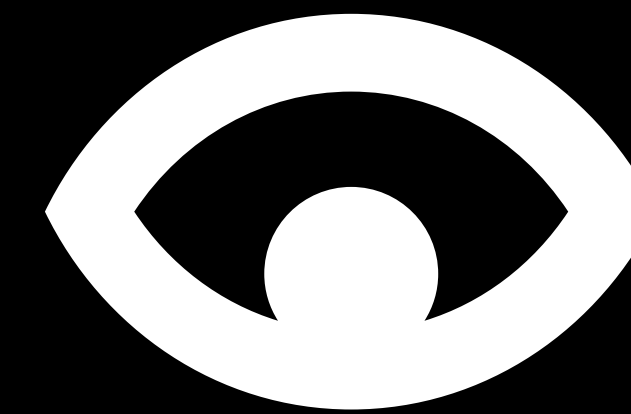
SECTOR

Consume, attack, exploit

DIAGONAL CROSS
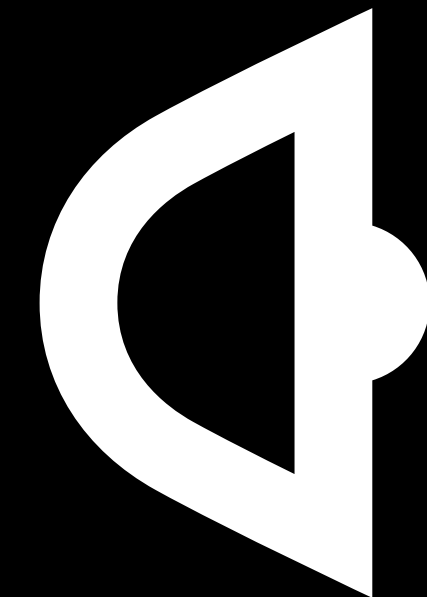
Error, malfunction, forbidden, disruption, problem
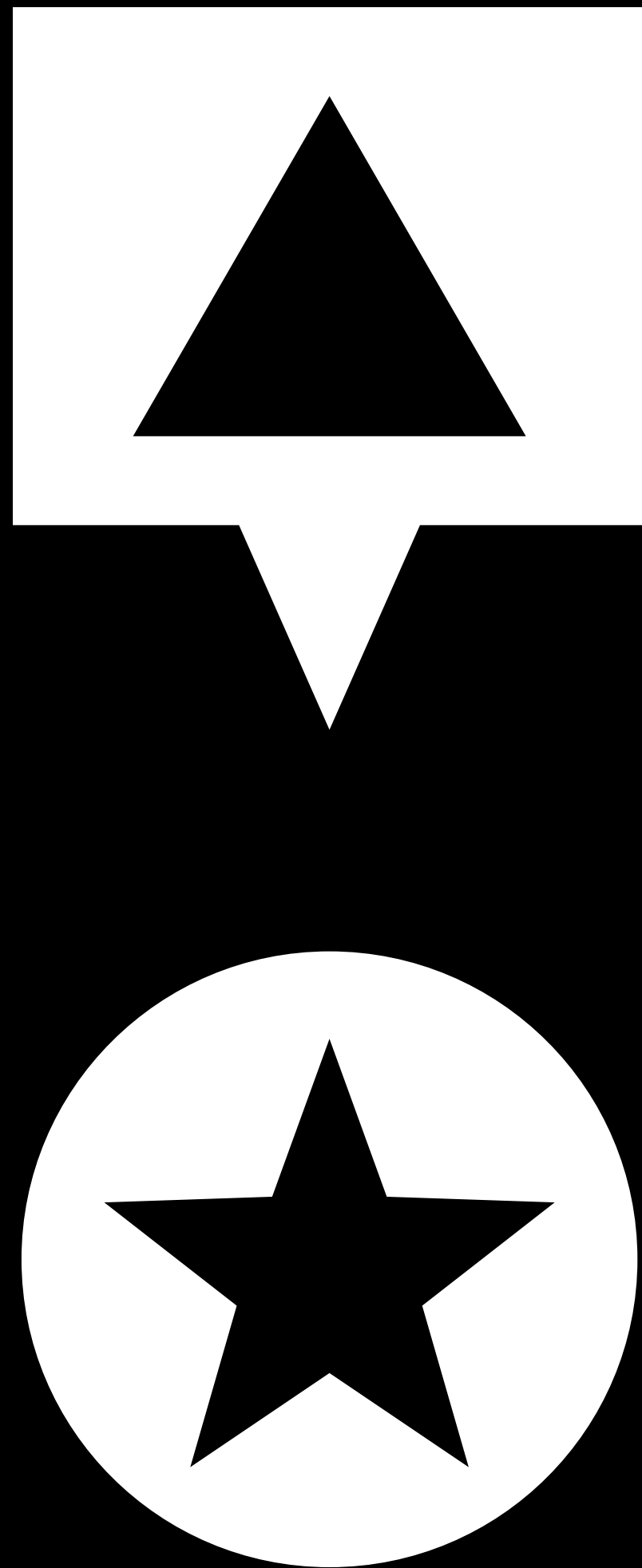
PLUS

Marker, position, reference point

EYE

Monitor, observe, sense, interpret, detect

SPEAKER

Transmit, project, communicate

CANVASES

N E S T E D   S H A P E S

Objects can be placed inside objects to indicate **content or quality**. That is particularly useful with the call-out complication, which is itself a symbol for communicated content (as in speech bubble or map pin indicating detail elaboration). This sort of nesting can be applied creatively to multiply the number of useful symbols available.

BASIC / EFFECT / PATH

TIME DELAY

SIGNAL

AXIS

LINKS

L I N E   S T Y L E S

A thin line signifies a **basic link** between objects, an effect, or a path along which something happens. A variety of line styles differentiate types. A dotted line indicates a time delay, invoking one meaning of the points of ellipsis (...) symbol of the Roman alphabet. A dashed thin line indicates a signal. That can involve two usages. It can (1) indicate the path of a signal or (2) the edges of a signal cone radiating outwards. A mixed dash line indicates an axis around which some sort of tension or balancing takes place (along the tangent).

1 ·········   2

31

ENDS

T H I N - L I N E   E N D - P O I N T S

The most common line end is the arrow head, a widely understood symbol for **directionality**. A tangent line placed in front of an arrow head indicates a hard stop, or the limit of directional movement (a standard symbol in technical drawing). A small square is a generic **end point**, although squares can be placed anywhere along a line to indicate a point of interest. The final end is a generic prong and socket assembly for **connection**. Given that the pictogram implies functionality, this end is also a complication. It symbolizes viable connection or compatible connectors. A line can also joint objects directly without end points.

TANGIBLE

INTANGIBLE

DOMAIN EDGE

(GAP) IMPLICIT

BOUNDARIES

L I N E   S T Y L E S

Boundaries are thick lines. The solid thick line is a tangible (physical) boundary and the dashed thick line is an intangible (notional or conceptual) boundary. One partial exception involves the thin line doing double-duty as both a basic link and a domain edge. This secondary usage should be distinctive enough in context to be easily discerned by the viewer. The reason for the exception is that a domain- or type edge may be an analytical delineation but may or may not have boundary qualities. Another form of implicit boundary (caused by spatial distance) is created by a gap of empty space between generic end-points.

33

WAVE

SHOCK

DITHER

FLEX
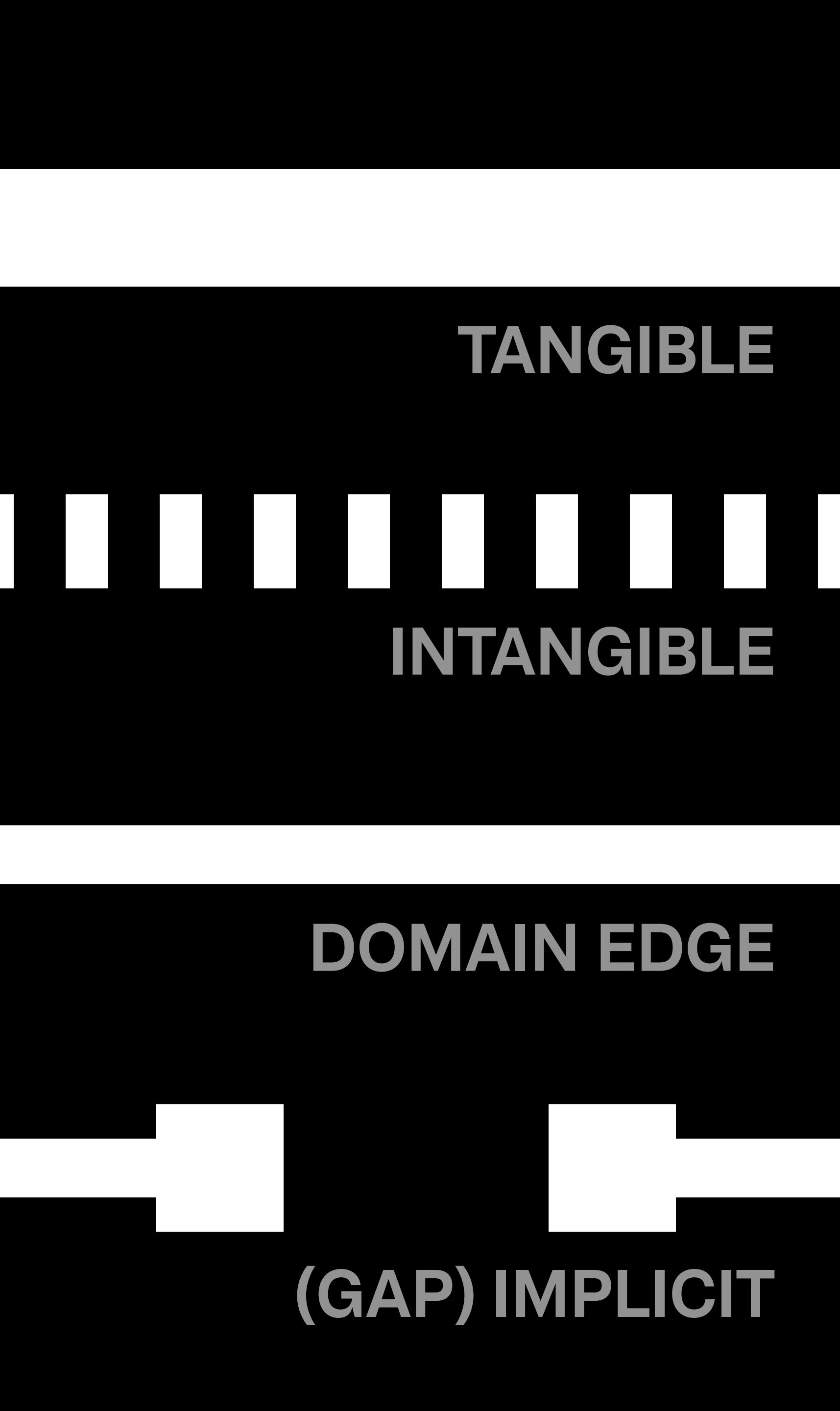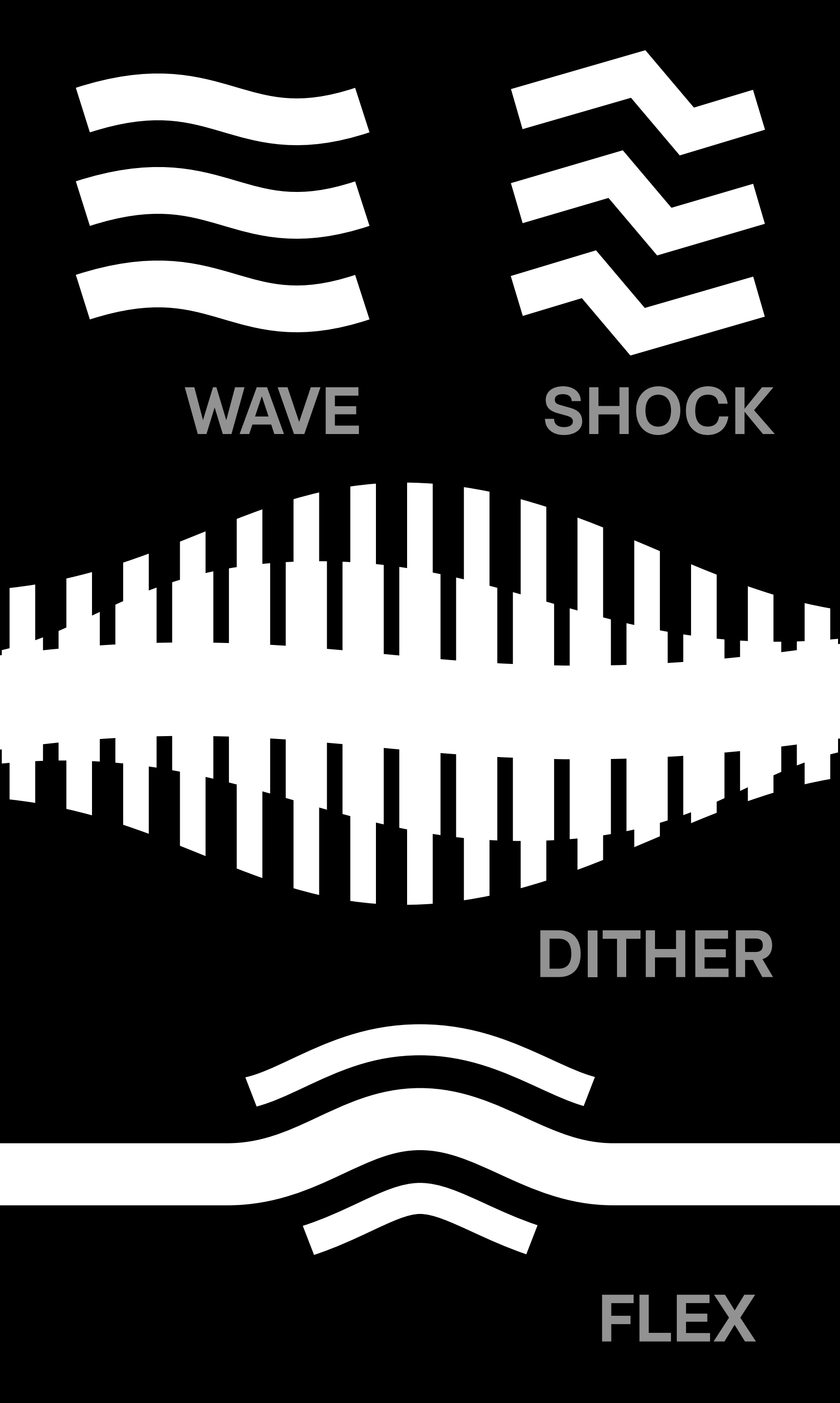
KINETICS

SUGGESTIONS OF MOTION

Some line- and shape styles suggest **movement or energy**. Waves can indicate flow or ambient conditions. Jagged versions can represent a sudden disturbance, shock, or turbulence. Dither patterns suggest fuzziness of boundaries or ambiguous objects, perhaps partially obscured by environmental noise. Motion lines that run parallel to a line discontinuity can suggest flexing or distortion taking place. Fuzziness, shock, and flex convey these meanings as simulations of optical blur. These sorts of visual tropes are common to comic storytelling and pictographic signs.

34

SURFACES

SUGGESTED QUALITIES

Lines may have bumps of different shapes to suggest **texture or qualities**. They can also suggest qualities on one side (or face) of a boundary. Stripped areas can suggest a diminished state or faded-out object. Stripes cannot be thinner than the minimum line width (2.25 pts at Visual Vocabulary poster display size) to maintain a uniform resolution, a condition that significantly limits their use.
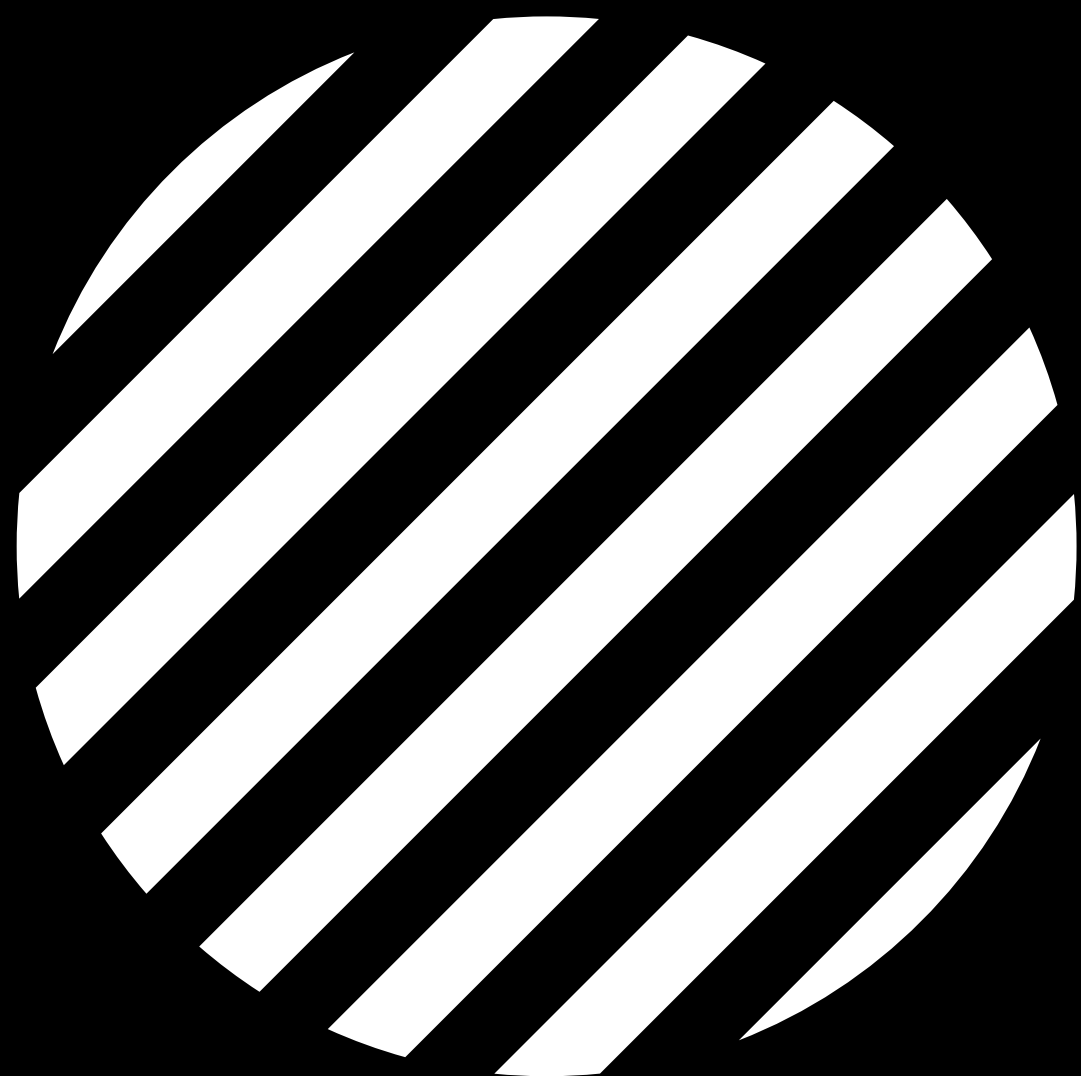
BRACKETS

GROUPED OBJECTS

Brackets indicate conceptual (notional) grouping; that is to say, a **set**. Box brackets indicate a simple set. If an additional symbol is to indicate something about the set, then the prong of a curly bracket points towards that summary indicator.

36

RETICLE
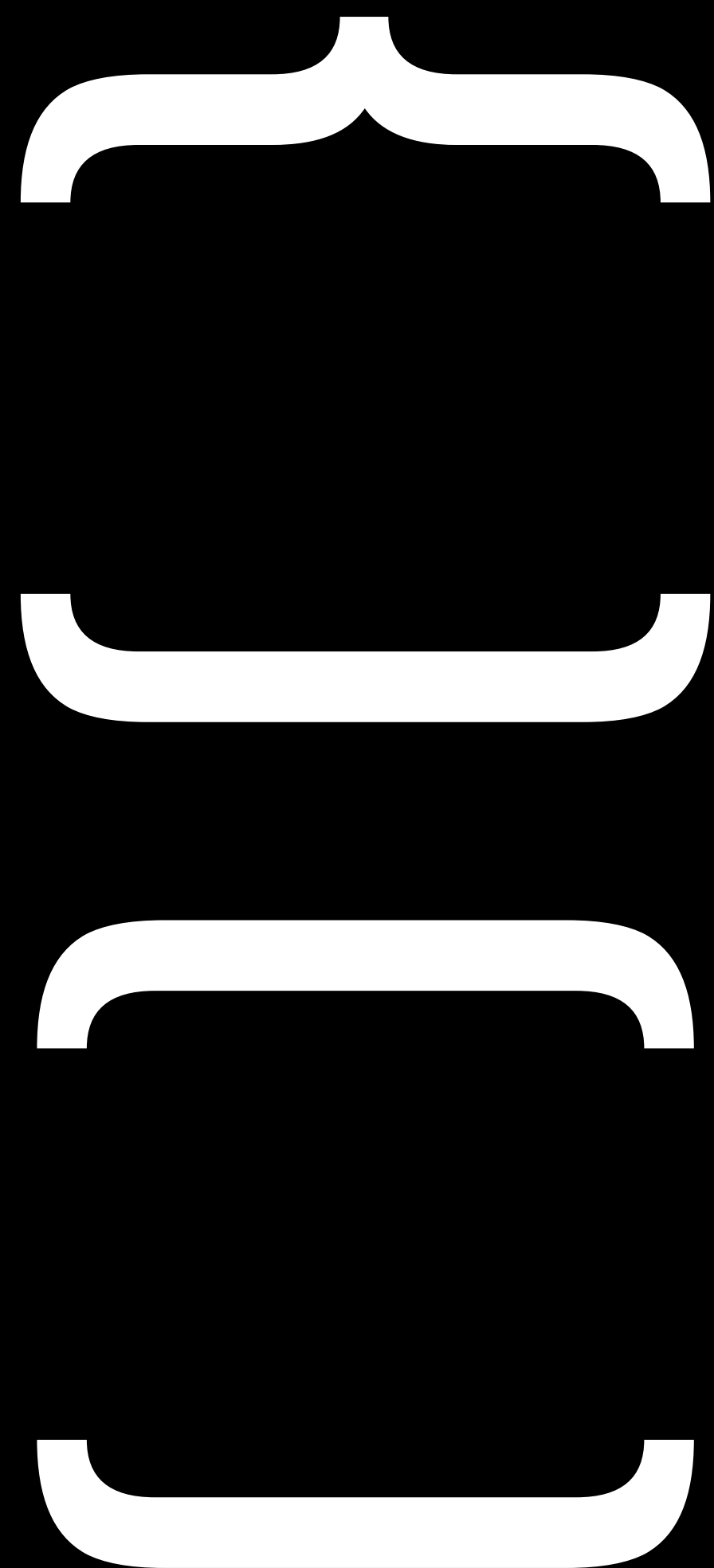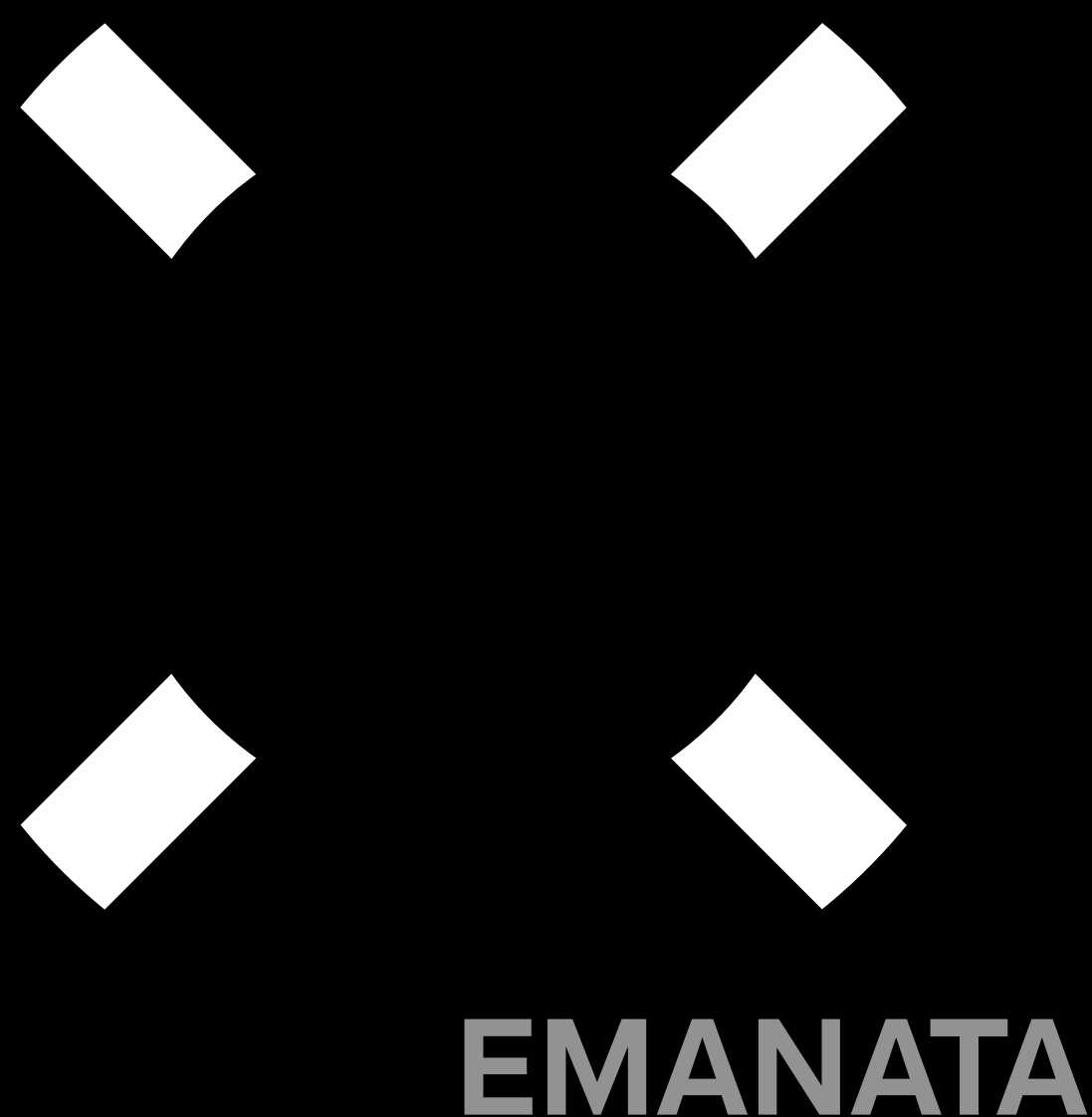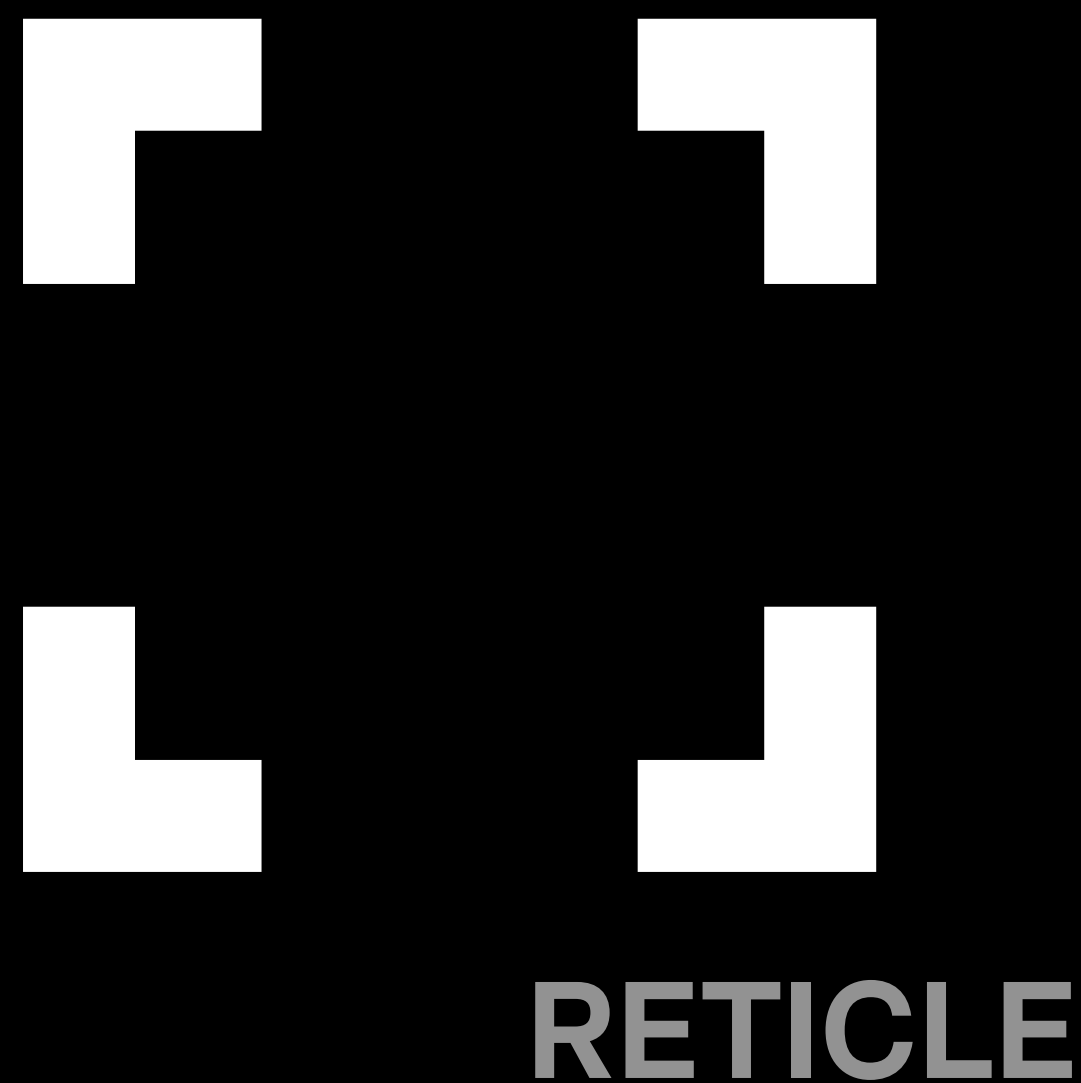
EMANATA

AFFIXES

FRAMING OBJECTS

An object or line may be placed within effect frames to indicate some sort of happening. The emanata (radiating lines radiating outwards) indicates a state of activation. Emanata of different line lengths indicate differences in activation levels: (1) low- or (2) high levels. The reticle (corner lines framing inwards) draws attention to a point of interest, a non-visible happening, or the target of a future happening.

1   2

37
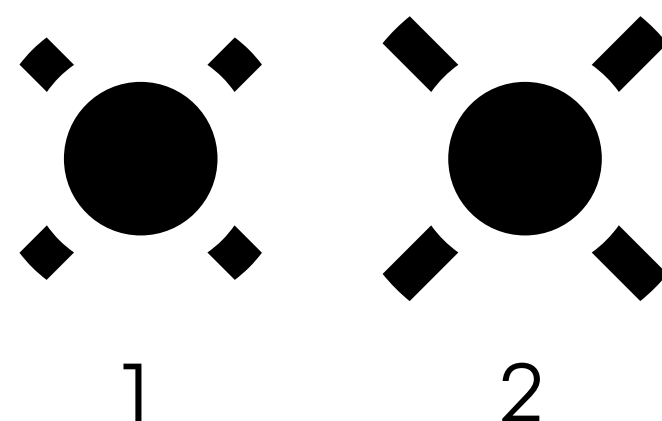
[D] **COMPOSITION**

Arrangement considerations to optimize for use

FLATNESS

CONSISTENCY OF PERSPECTIVE

All shapes are drawn with a two-dimensional flatness. It is sometimes tempting to use 3D shapes (or an implied third-dimension) to express system components. However, the icons are intended to work with diagrams and interfaces that make use of an added dimension. Moreover, the inconsistent treatment of dimensional perspective can result in confusion when icons are used together. Thus, for the sake of **consistent perspective**, the icons are always flat (x- and y-dimensions) without a depth (z) dimension.
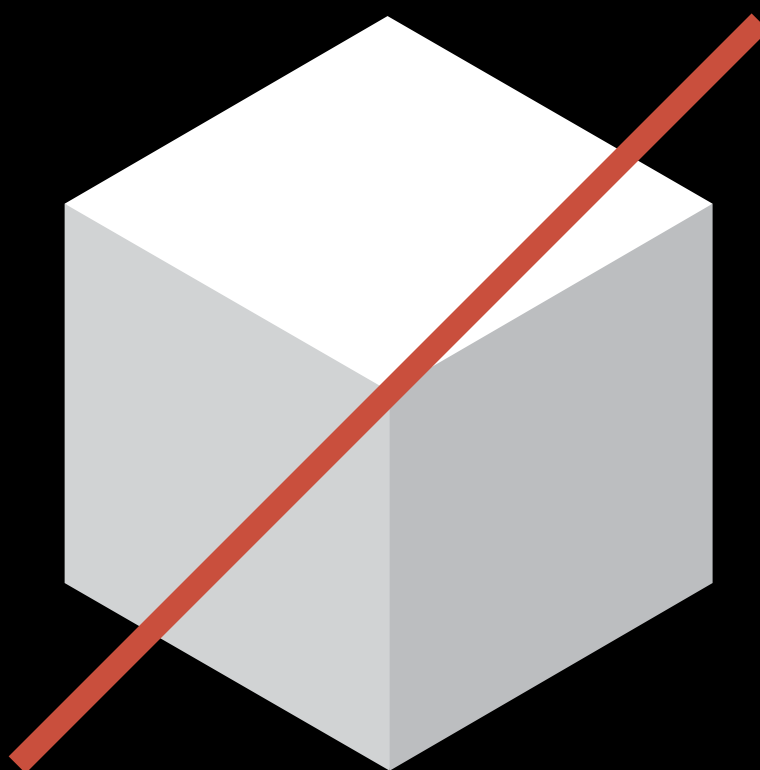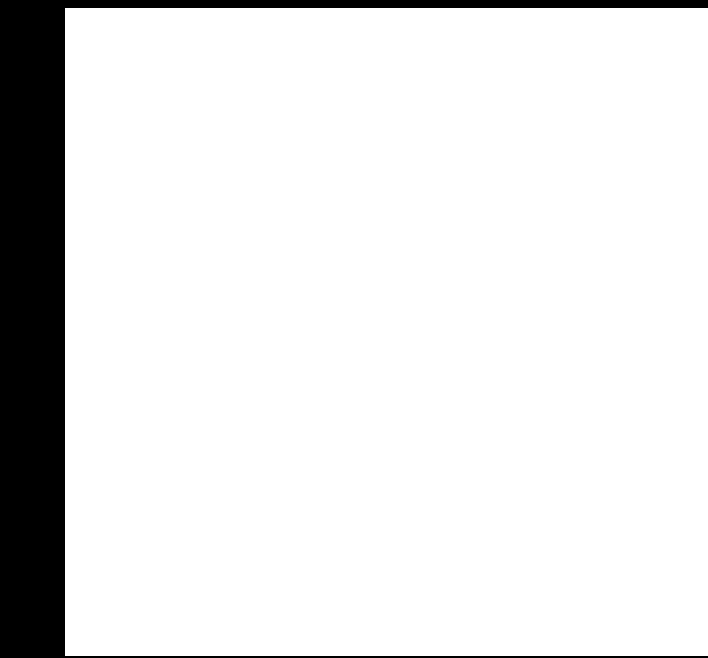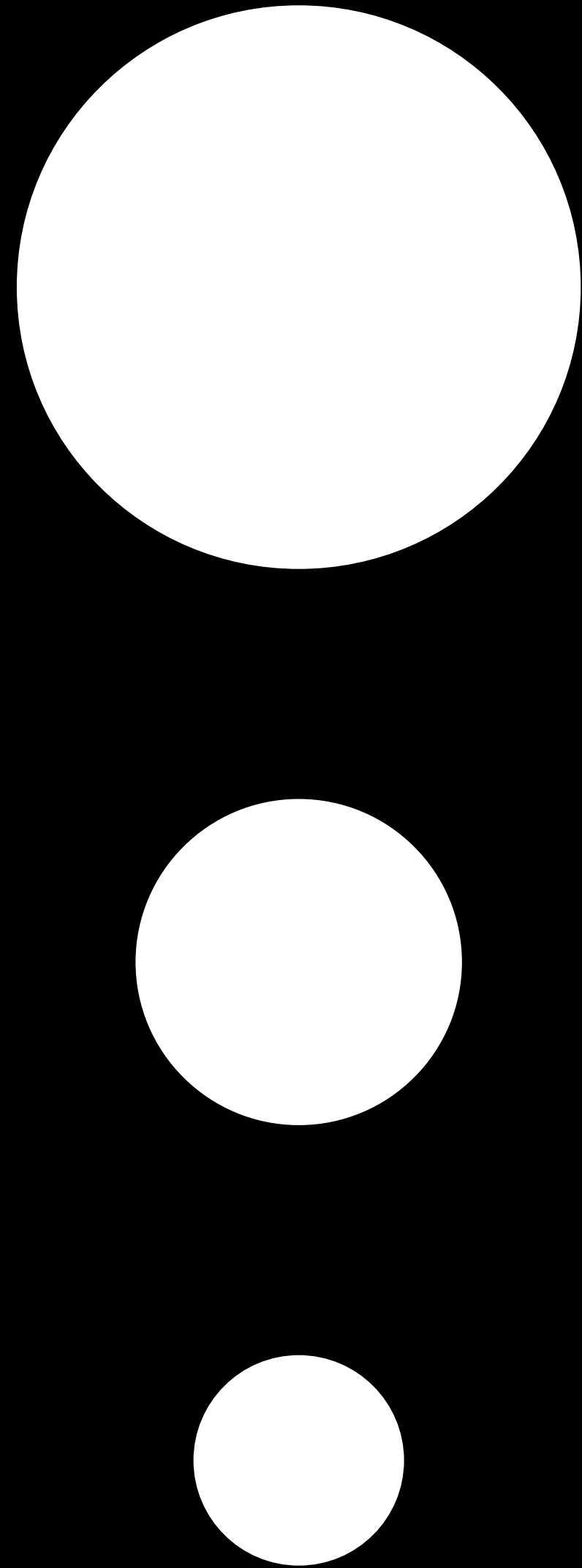
SIZE

S C A L E   C O N S I S T E N C Y

The dimensions of shapes and line widths is consistent across icons. The strict consistency of line widths prevent confusion given that width is encoded as having a meaning and expecting viewers to notice relative sizing in each icon is a heavy cognitive burden. For objects, there are **size steps**: small, medium, and large. The smaller size allows for complicated arrangements of objects that suggests patterns while avoiding excess clutter. The larger size allows for the nesting of objects (see canvases). Size steps also offer a limited indication of scale, which is relevant to some vocabulary items.

GEOMETRIC

OPTICAL

GEOMETRIC

OPTICAL

OPTICAL ADJUSTMENT

RELATIVE SIZING

Humans have a **perceptual bias** when it comes judging the relative size of different shapes. (Or, more accurately, humans growing up in modern environments full of flat surfaces and right-angles acquire this bias.) For example, if a circle is near a square and they have the same geometric dimensions, the circle will appear smaller. Shapes with curved- or pointy sides have to be subtly larger to be seen as equivalent in size to shapes with flat ends. Thus, all primitives, morphs, and hollows have been optically adjusted to appear equivalent in size. As mentioned, all marquee shapes have been optically adjusted too.
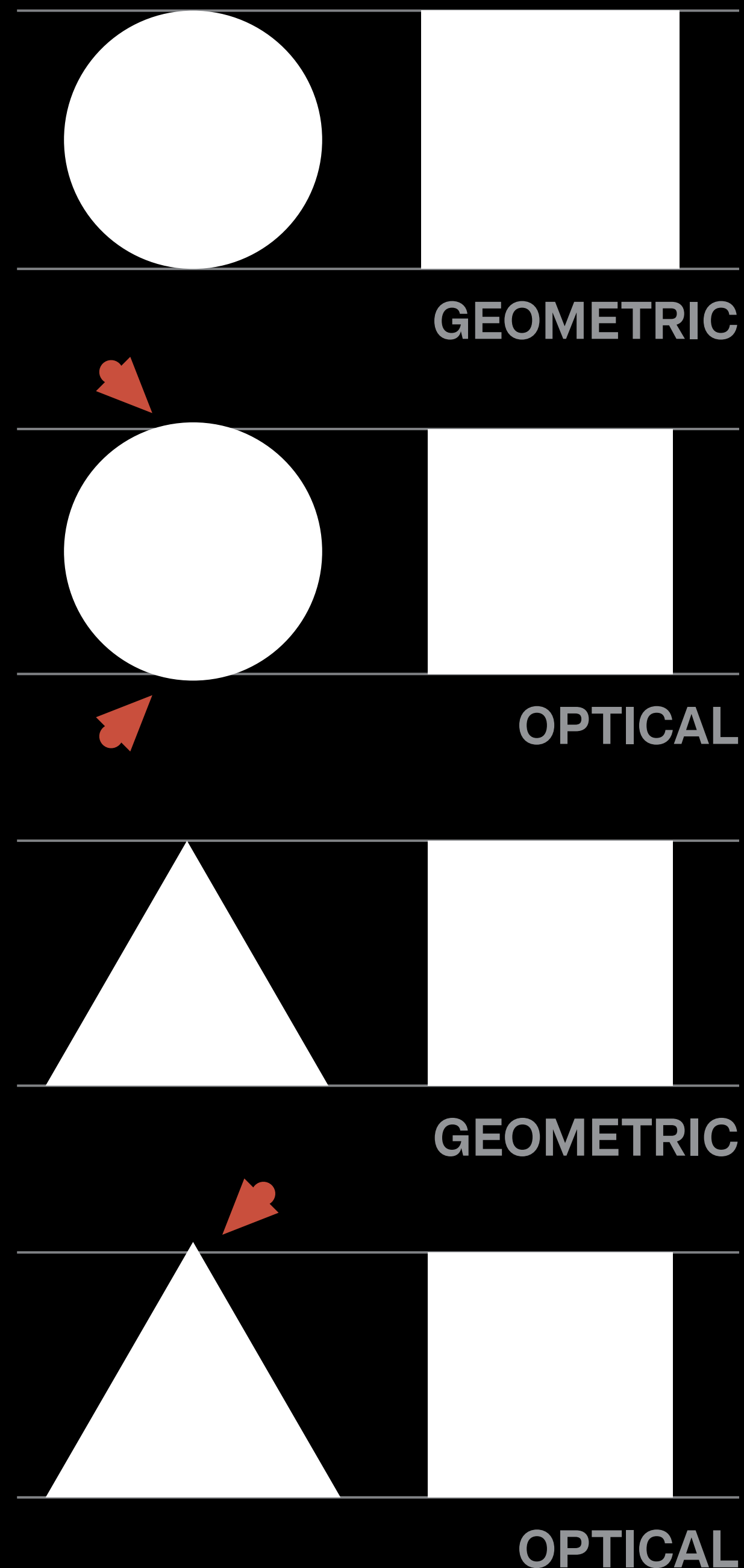
BLEEDS

TRANSECTING MARQUEE EDGES

A line or arrow can be positioned so that it **transects the edges** of the background; that is, it "bleeds" beyond the edges, to use the graphic-design term. That technique gives the marquee edges a portal-like quality, as if the viewer is looking at a larger scene through a window rather than a fixed space. Bleeds are used creatively to make the icon aesthetically balanced and less cluttered. They can also suggest that a group of items displayed is merely a sample of a larger area full of items.
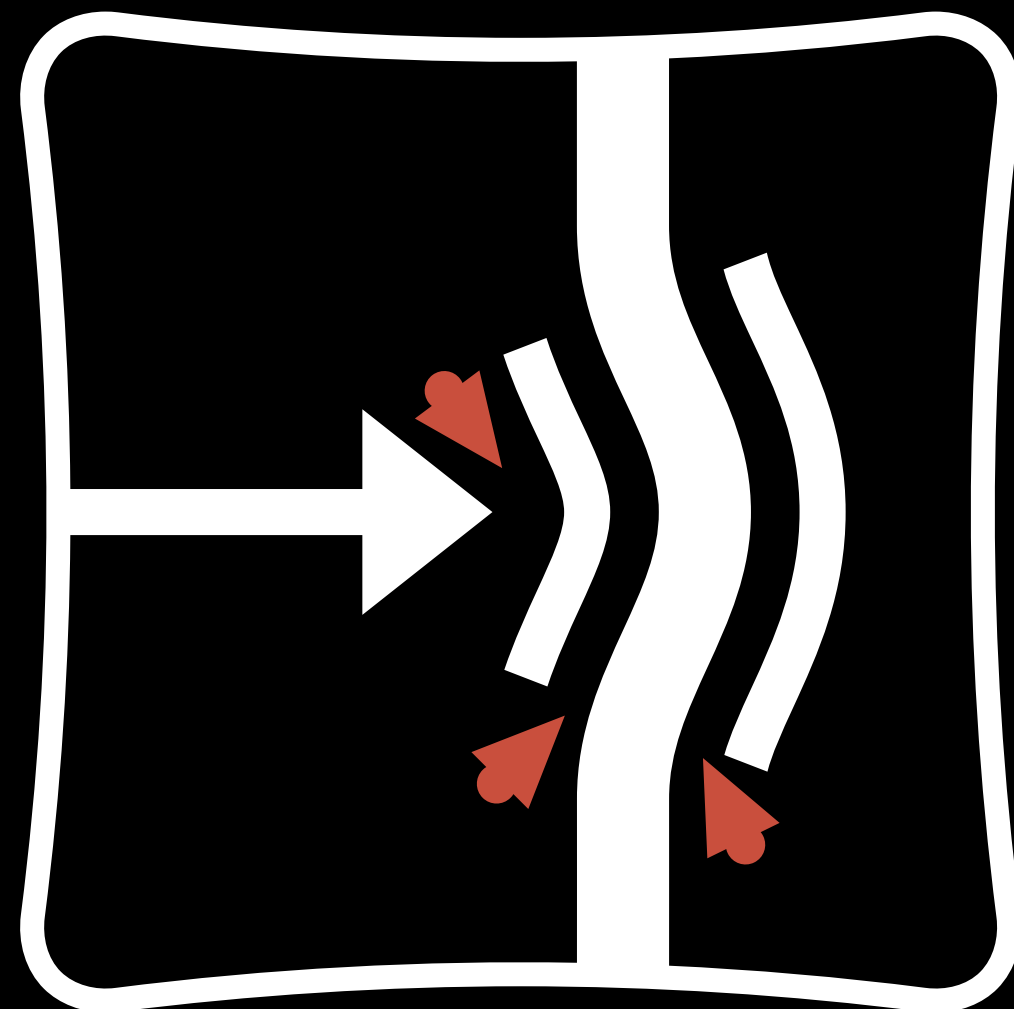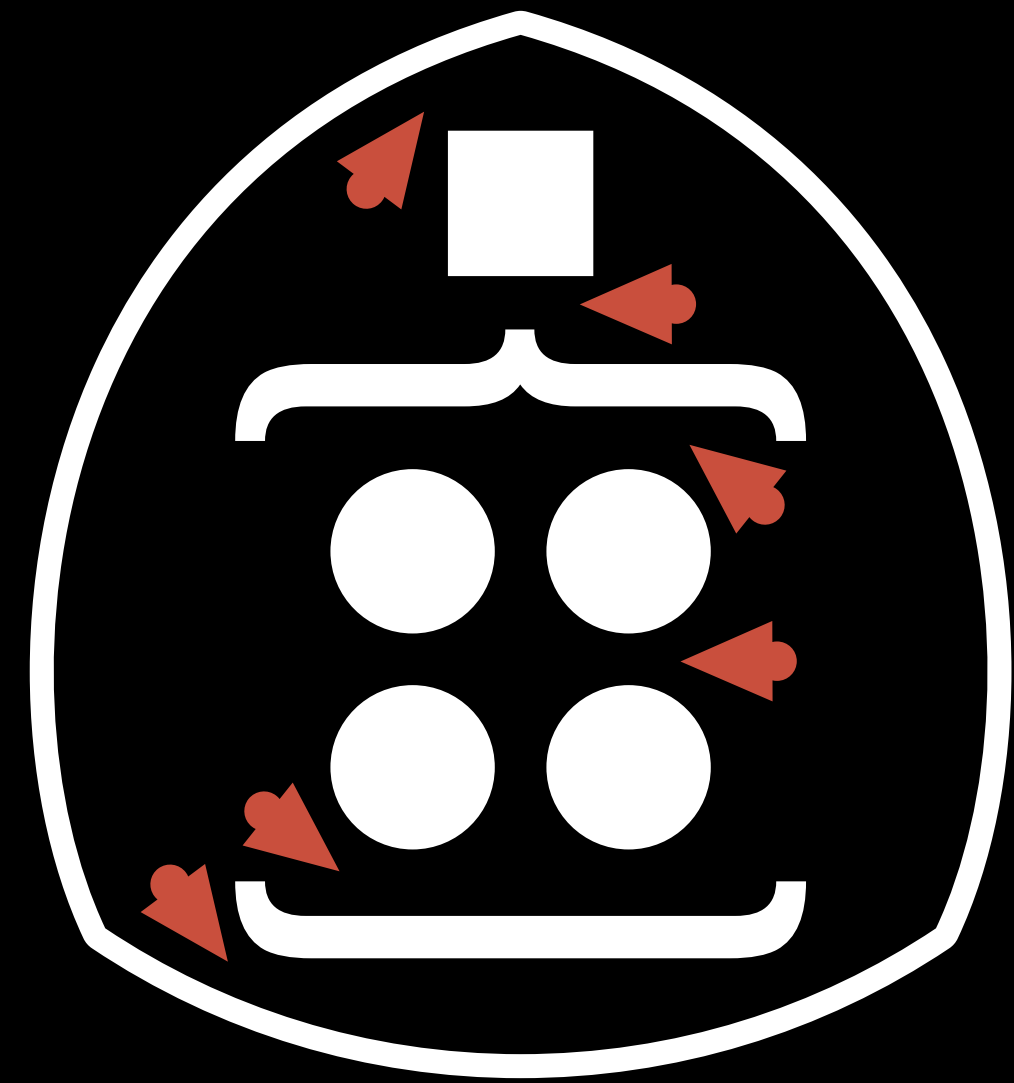
METRE

CONSISTENCY OF SPATIAL SEPARATION

The spaces between objects is strictly controlled so that parts of the icon are clearly separated, otherwise parts may blur together (especially for viewers with visual impairment). Consistent minimum empty-space between objects helps guide the eye and give space a tidy rhythm, or **metre**. Distances between objects can indicate relations, another reason to maintain consistency. Thus, there is a need to be careful about how lines and objects are arranged in terms of precise spatial separation. The width of the thin line is the minimum distance used (a little less is permissible for optical adjustment purposes but should be avoided nonetheless).

>2.25 pt

DENSITY

CLUSTERING ARRANGEMENTS

Density of objects can indicate important system concepts related to concentration, crowding, accumulation, capacity, and the like. Thus, this is another area where proximate distance is used to express meaning according to Gestalt psychology principles. Note that density that results in overlap (as shown below) is a special case that indicates a stock of some sort, such as a system inventory.

HIGH

LOW
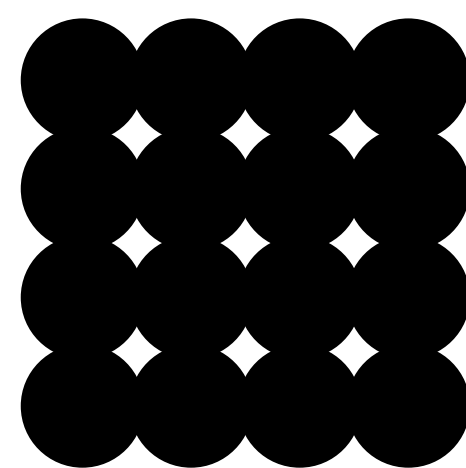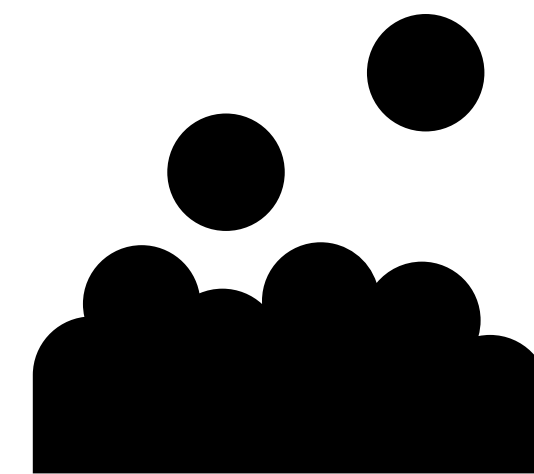
STOCK   ACCUMULATION
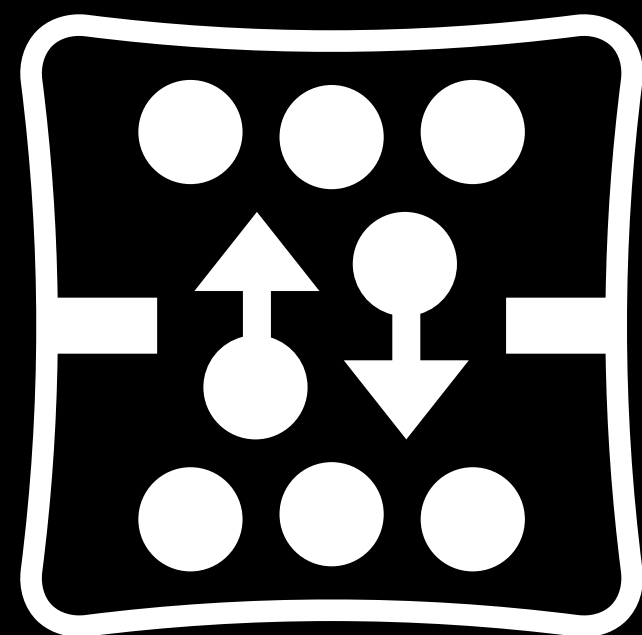
SYMMETRICAL (BALANCED)
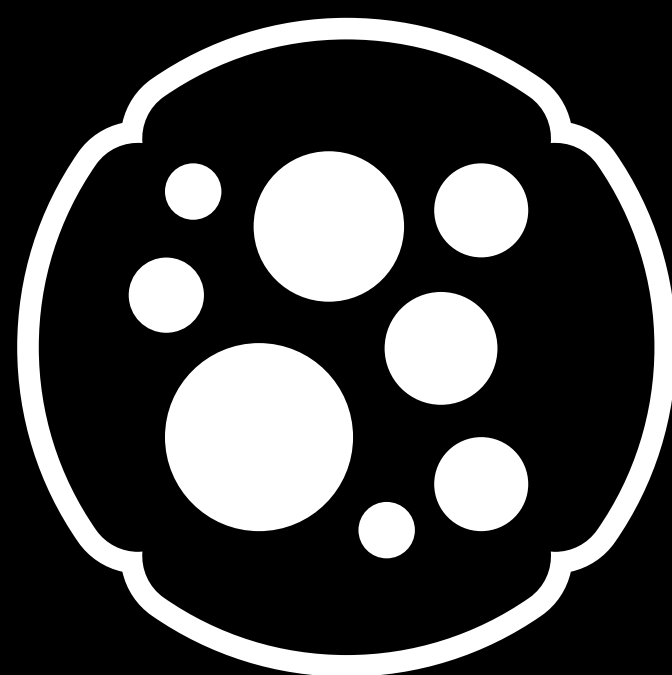
ASYMMETRICAL, BALANCED
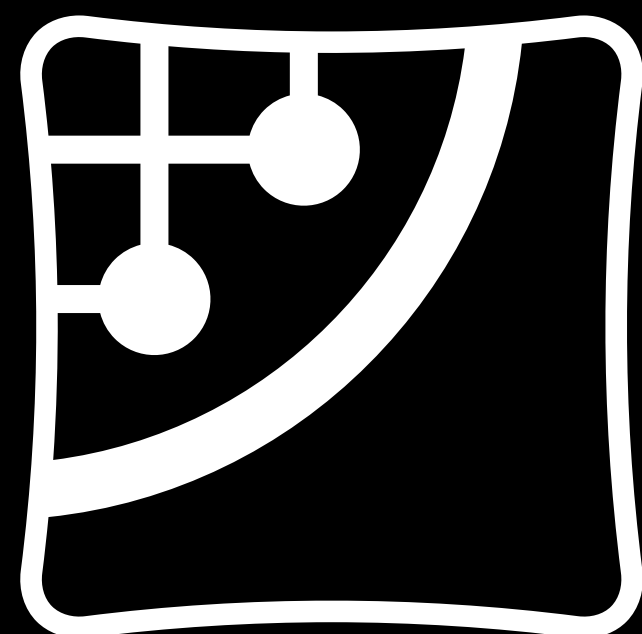
ASYMMETRICAL, UNBALANCED

BALANCE

USE OF LOP-SIDED ARRANGEMENTS

If we think of the marquee shape as a stage, the icon should not occupy the stage in an ungainly way. For example, the pieces that make up the icon should not inadvertently bunch-up to one side and leave an awkward space on the other. Such an arrangement would be considered "unbalanced." A highly symmetrical icon is **well balanced** by definition. Notice the term "inadvertently." There are times when imbalance or unevenness are meanings that the icon is intended to convey. In such cases, a lack of balance is permissible. The point is to be careful with how balance is treated, for both aesthetic and conceptual reasons.

45
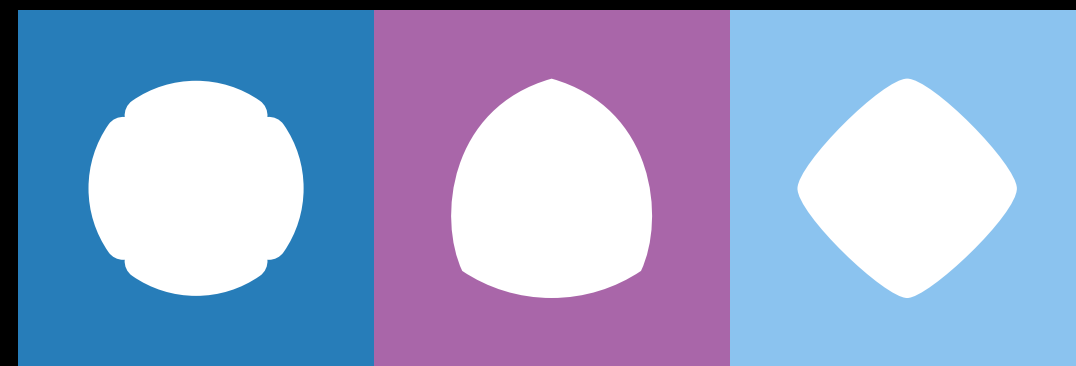
COLD
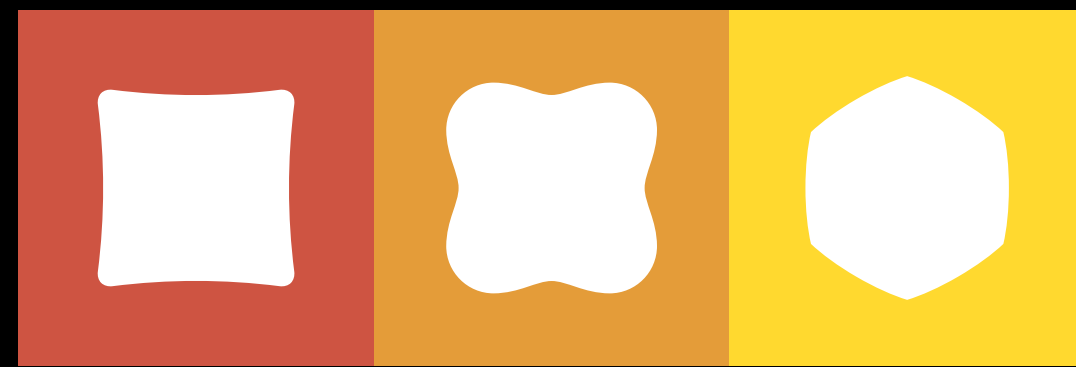
WARM
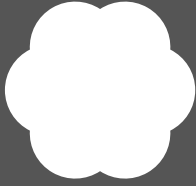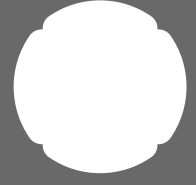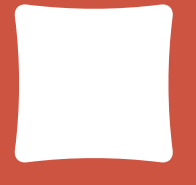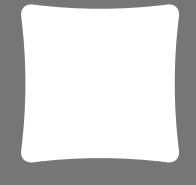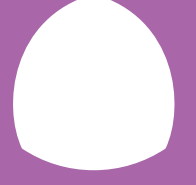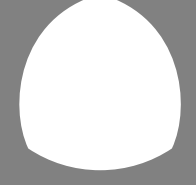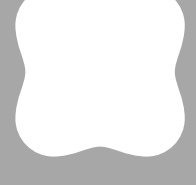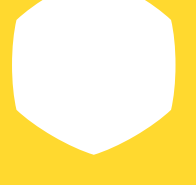
NEUTRAL

COLOR

CATEGORY ENCODING

When a large numbers of icons are in use, shape alone may not be enough to allow the viewer to differentiate the marquee categories at a glance. **Color coding** is an optional secondary differentiator. Color selections are optimized for contrast (as measured on a standard color wheel) while not being too brash (bright rainbow or candy colors), garish (acidic or putrid colors), or muted. Certain hue + tone combinations are excluded to accommodate color blindness. Culture icons are color coded with a softened grey-scale so that they can be differentiated from system icons at a glance.

75 / 89 / 93	
# 4B595D	
39 / 125 / 185	
# 277DB9	
206 / 84 / 66	
# CE5442	
169 / 102 / 169	
# A966A9	
133 / 151 / 159	
# 85979F	
228 / 156 / 57	
# E49C39	
139 / 95 / 239	
# 8BC3EF	
188 / 210 / 204	
# BCD2CC	
255 / 222 / 47	
# FFDE2F	

SAFE COLOR

ACCOMMODATING COLOR BLINDNESS

A significant share of the population is color blind. Many **color palettes** are touted as color-safe because they avoid combining green with red or blue of the same tone. The results, when converted to greyscale, become distinctive shades of grey. This is a good step in the right direction but does not account for protanopia (red blindness), deuteranopia (green blindness), and tritanopia (blue blindness). Pulling green from the palette entirely and being careful about tone corrects for that. In any case, color is merely a reinforcing differentiator and marquee shape are expected to do most of the work of differentiation.

47
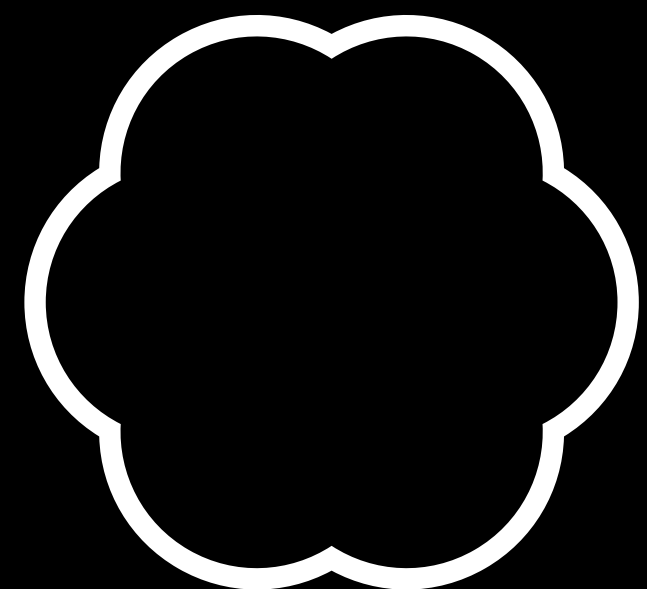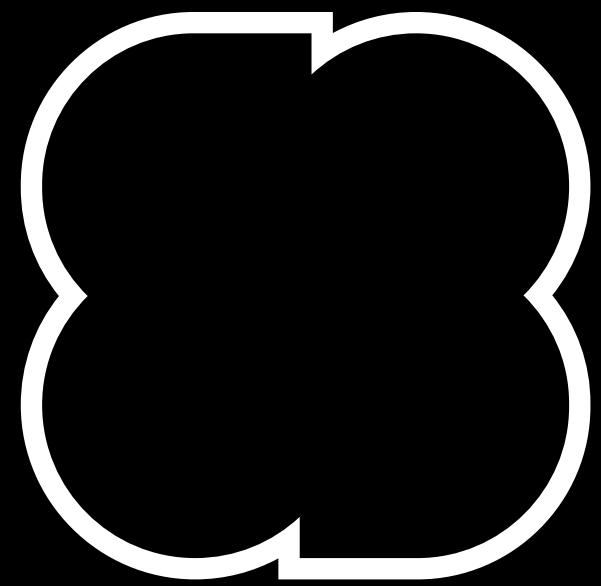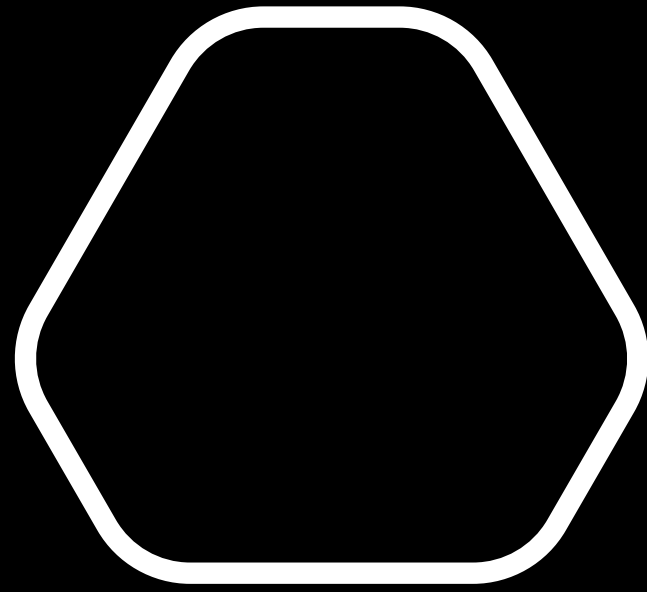
HALO

BACKGROUND OUTLINE

If icons are to be placed on a dark or colored background, maximum contrast is retained by adding a **holo** (white outline) to the marquee shape. That contrast is necessary so that the marquee shape (category) is obvious and does not recede into the background.

[E] **MOTION LANGUAGE**

Standard attributes of animated icons to express meaning

SEQUENCE

ANIMATIONS SHOWN ON STATIC MEDIA

This document is presented in a static medium, making it challenging to demonstrate animations. Sample animations will be showcased on the SystemViz web site. To compensate, animated icons will be presented as a **sequence of frames**. The sequence will not show the entire set of frames that make up the animation. Just enough frames are shown to give the viewer a sense of how the concept is being illustrated. During this discussion, the space inside the marquee shape will be referred to as "the stage." Sequences will be presented on a grey background to differentiate them.
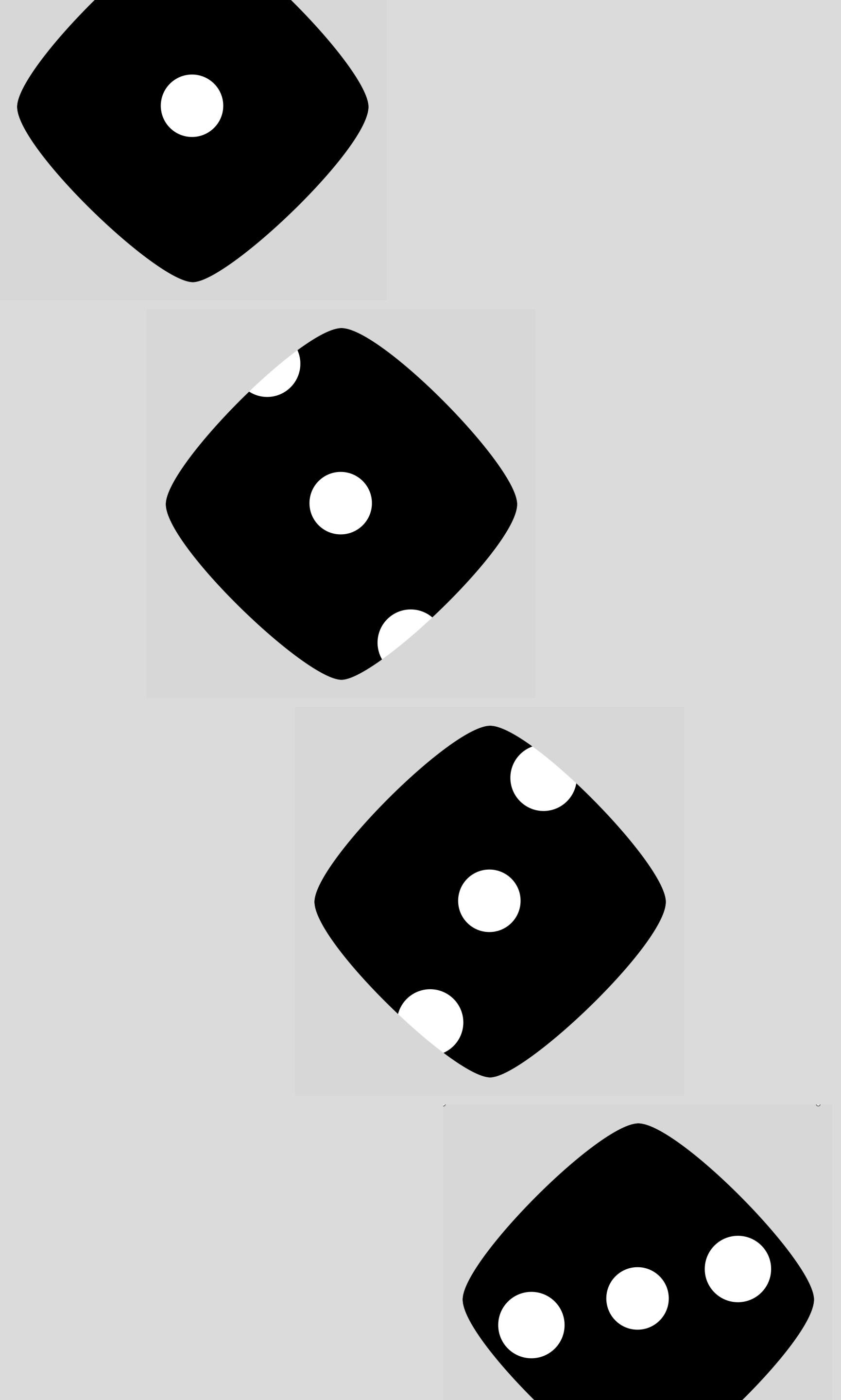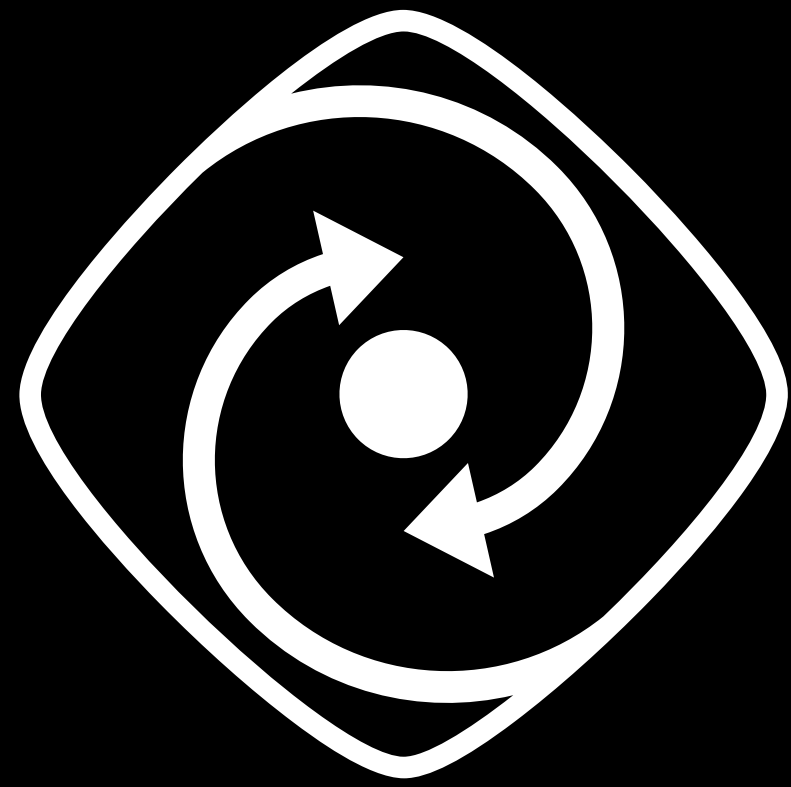
STATIC VERSION
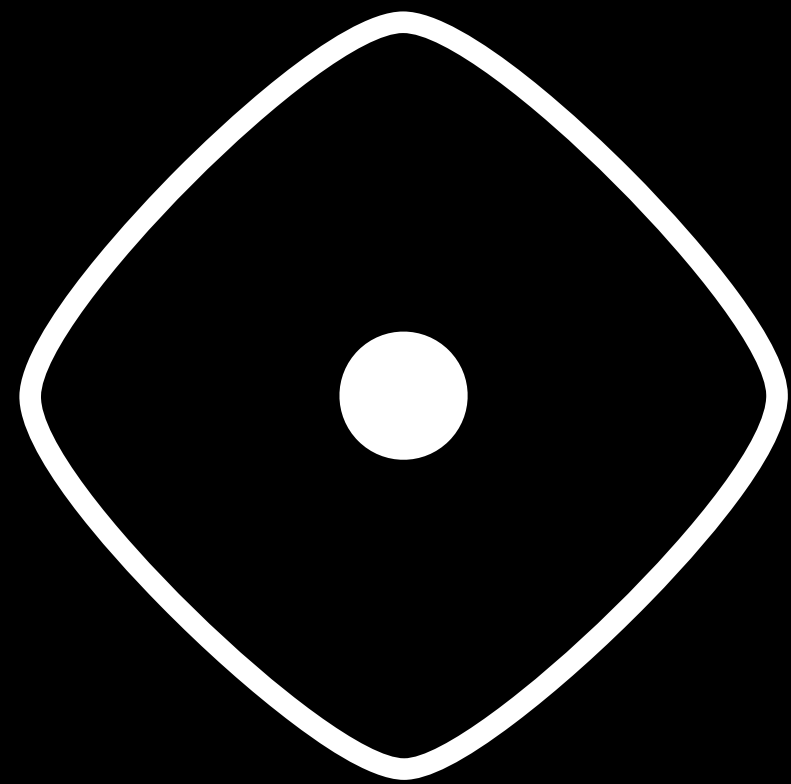
**FIRST FRAME OF
ANIMATED VERSION**

STAND IN

USING STATIC WITH ANIMATED ICONS

Animated icons demonstrate the concept within a loop. The animated icon may not be activated initially. You can imagine how annoying it would be if several animated icons were looping simultaneously, each one competing for attention. To avoid overly distracting displays, animated icons use static icons as their non-activated state as a default. That is because the initial frames of the animated icon will not likely indicate much if anything. Indeed, some initial frames may be a blank marquee. Thus, static and animated icons are expected to be **used in tandem** in most usage scenarios.

DURATION

HOW LONG THE ANIMATION PLAYS

An animated icon takes 2½ seconds to loop. Assuming a 30 frames per second playback rate, the concept has to be demonstrated across 75 frames of animation. **Standard duration** allows for synchronized playback of multiple animations at once; a common rhythm making them easier to parse. That specific duration is slow enough to get the basic point across, yet fast enough that viewing multiple icons does not try the patience of viewers. In tests, 2½ seconds balances that constraint in a way that can be fluid and not hurried. The brevity also adds discipline to icon composition, making sure the animation gets to the point quickly.
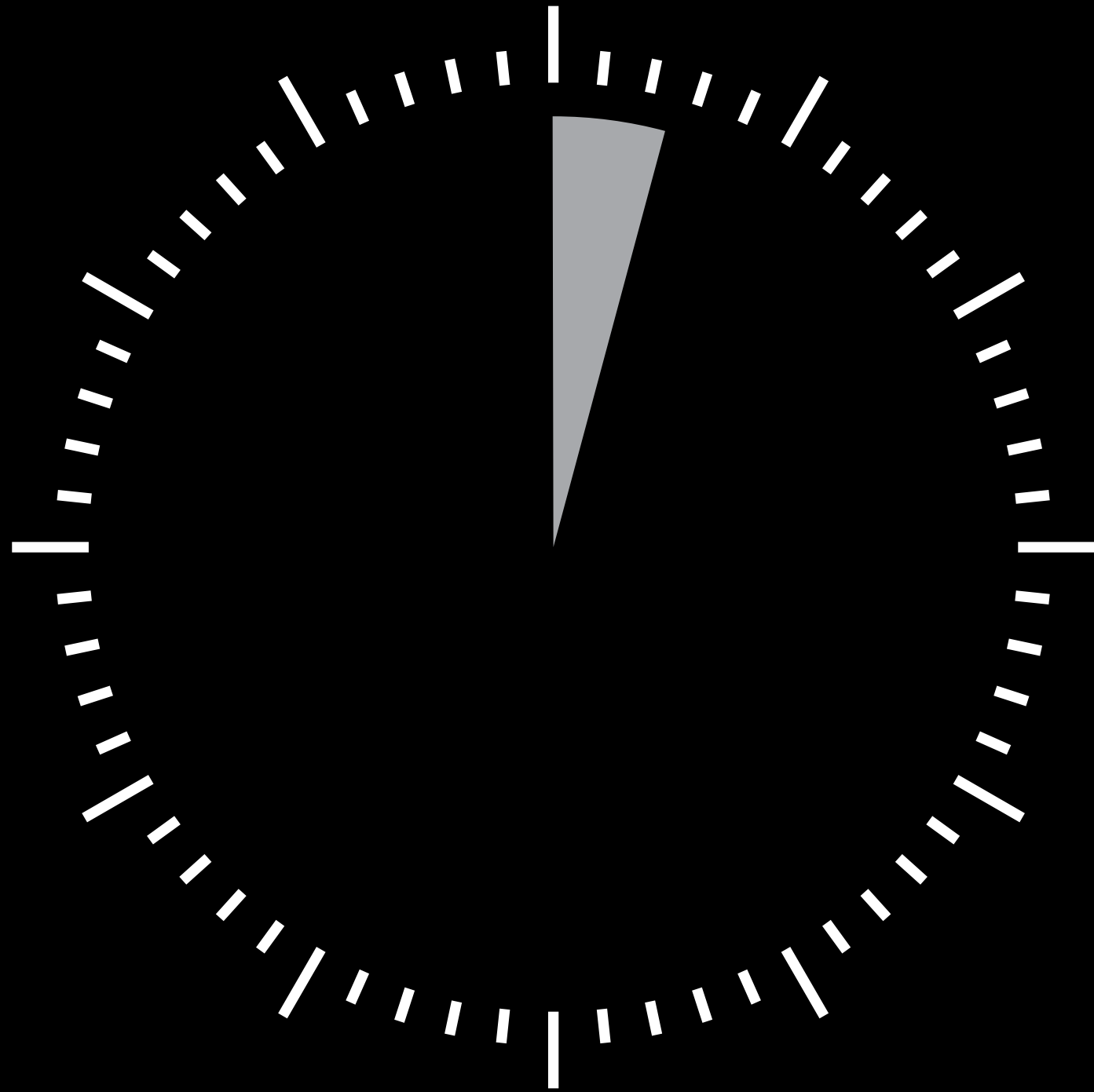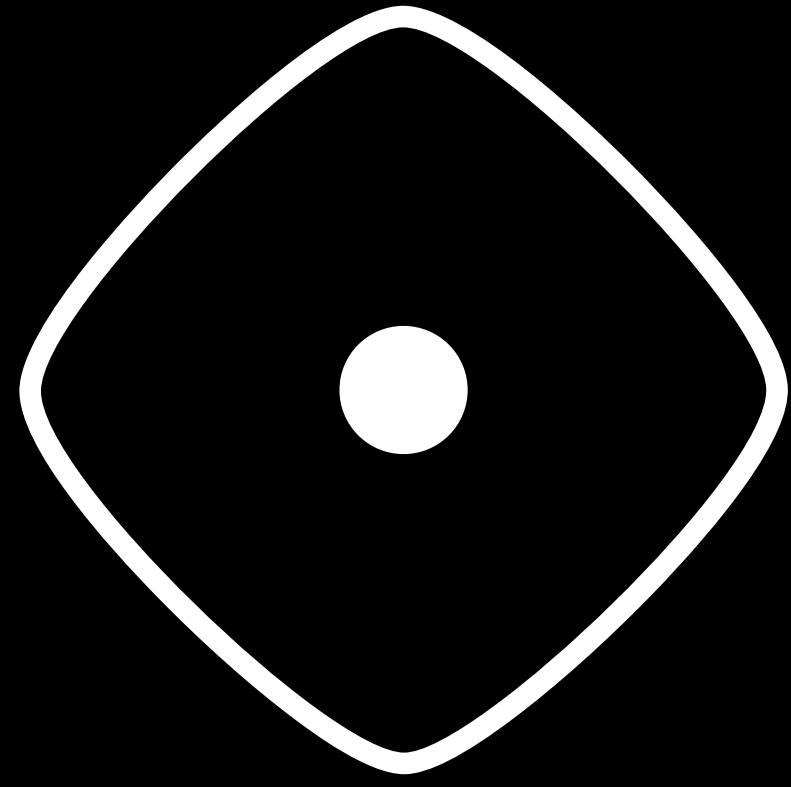
**FIRST FRAME OF
ANIMATED VERSION**
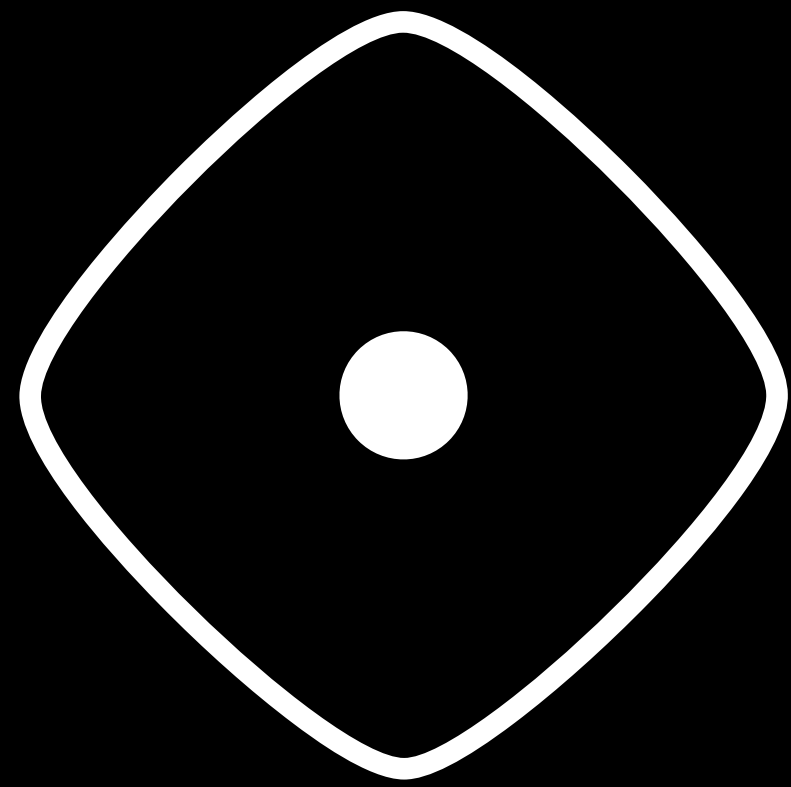
**LAST FRAME OF
ANIMATED VERSION**

LOOP

REPEATING ILLUSTRATION

An animated icon loops through the illustration of the concept. Thus, if looking at the animated icon for 10 seconds, the animation will play through four times. To avoid disjointed transitions from the end of the loop back to the beginning of the loop, the icon is expected to begin and end with the same state. That means items that stay on the stage for the entire duration must return to their original positions. Items that move onto the stage must eventually move off somehow. Items deposited on the stage must eventually be **cleared**. Let's look at three examples (next page).

EXIT & RETRACT CLEARANCES

Objects can enter and exit from the sides. Deposited lines may retract afterwards.
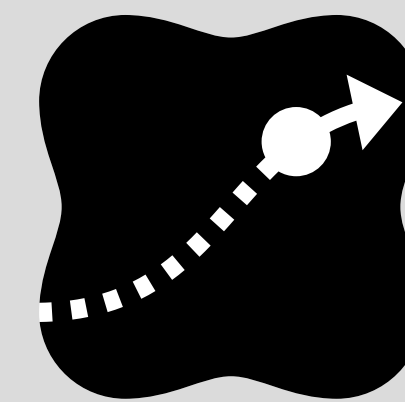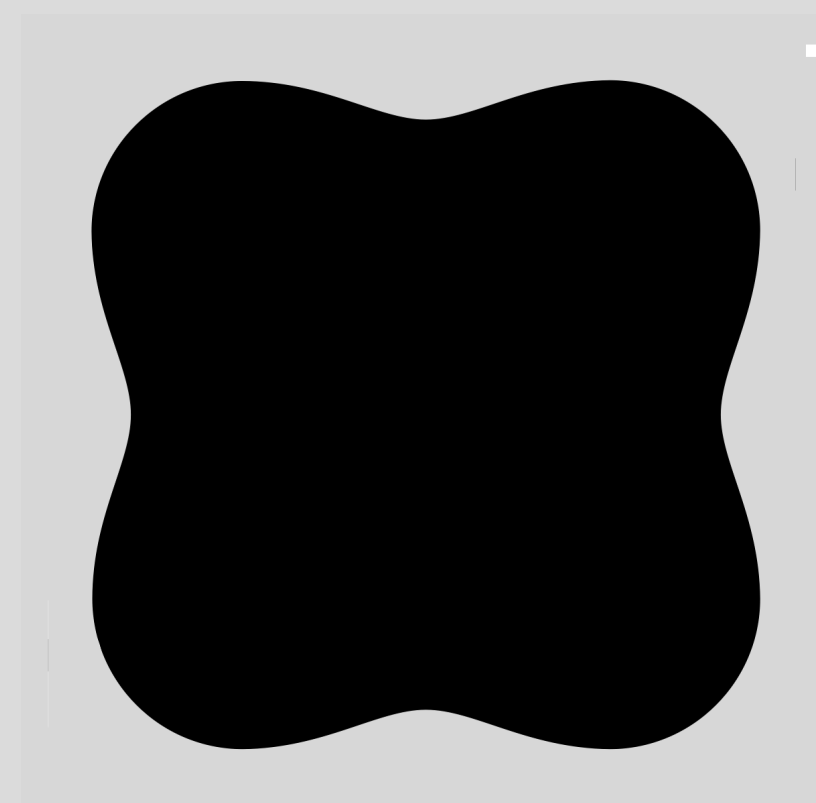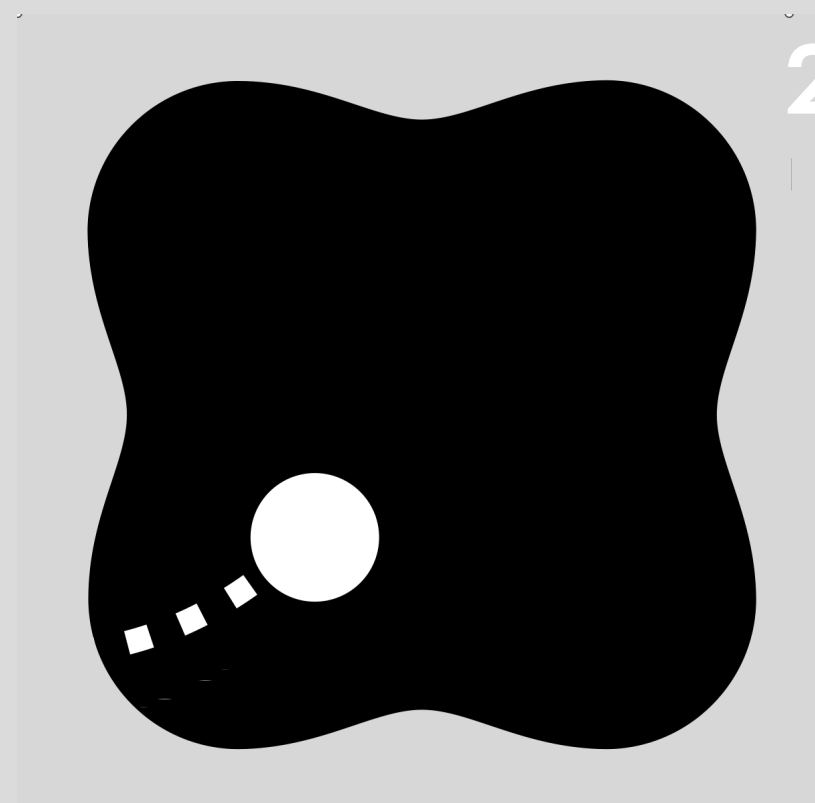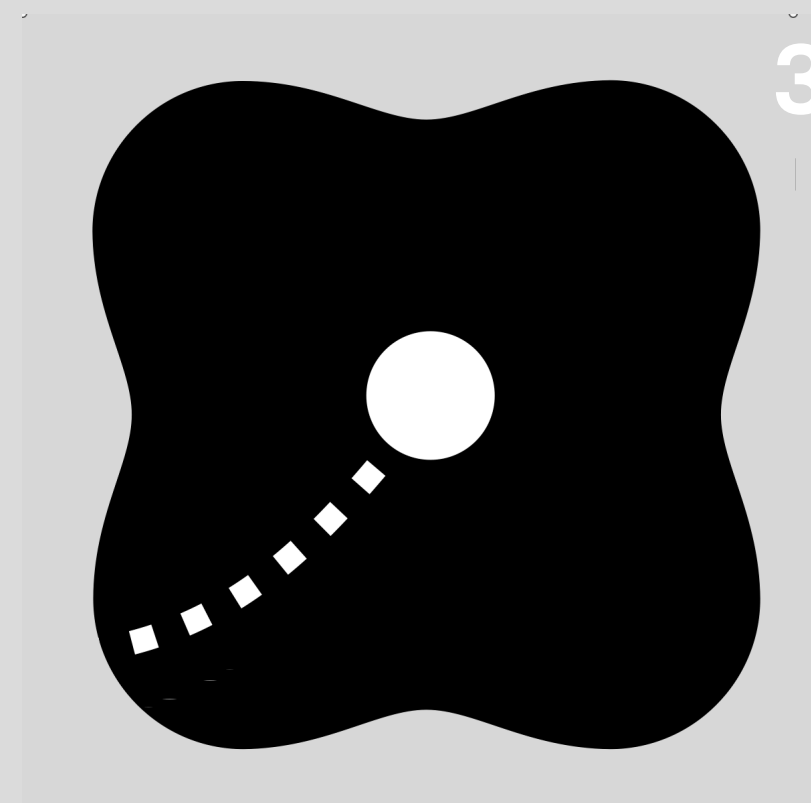
START

**OBJECT LEAVES
LINE IN ITS WAKE**
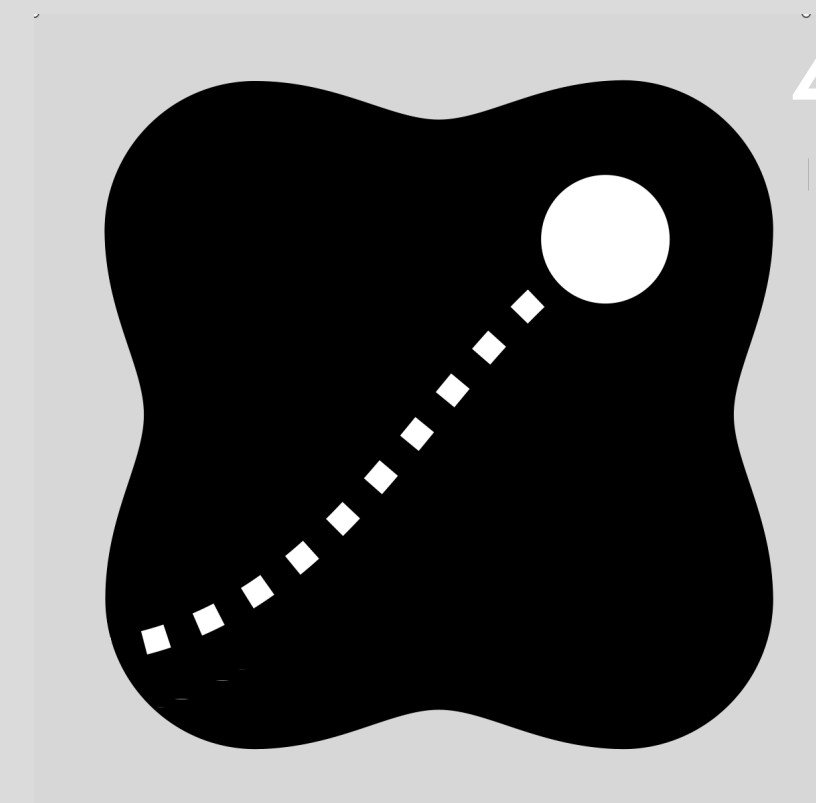
**TRAIL LINE RETRACTS
AS OBJECT EXITS**

FINISH

54
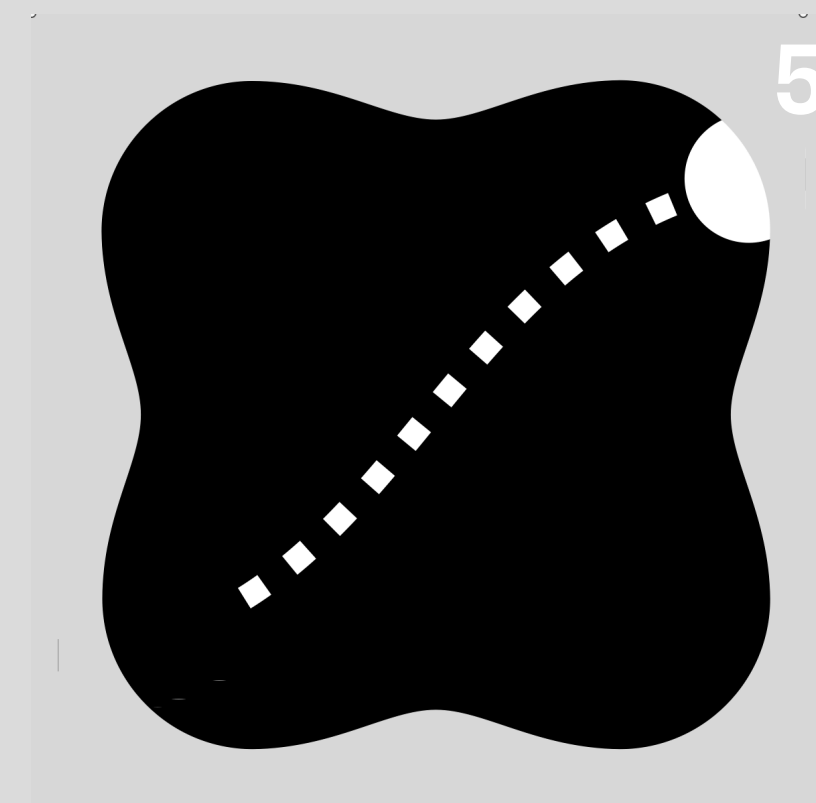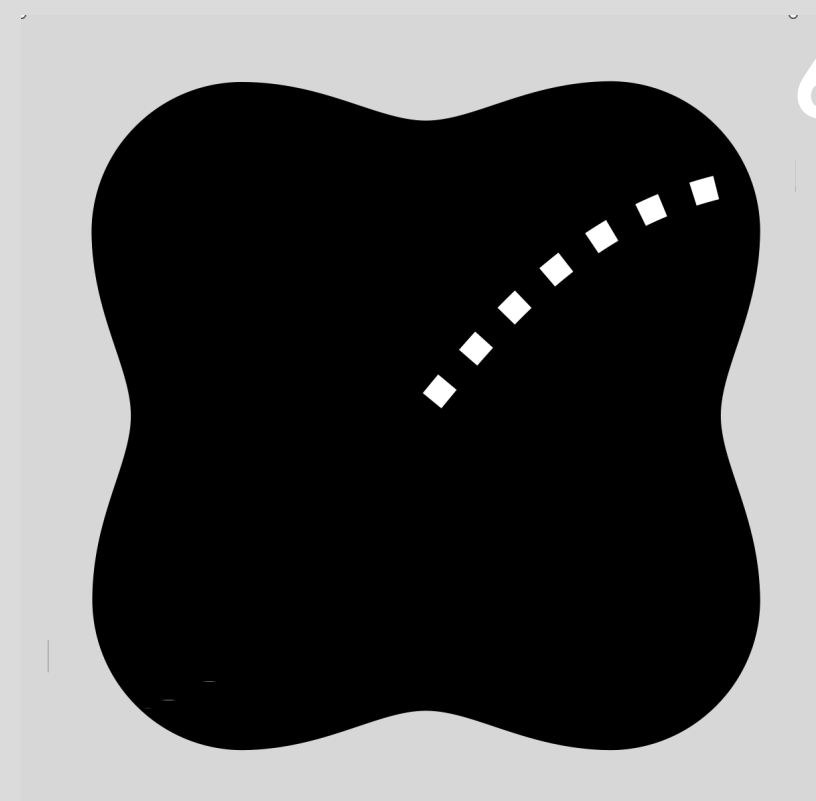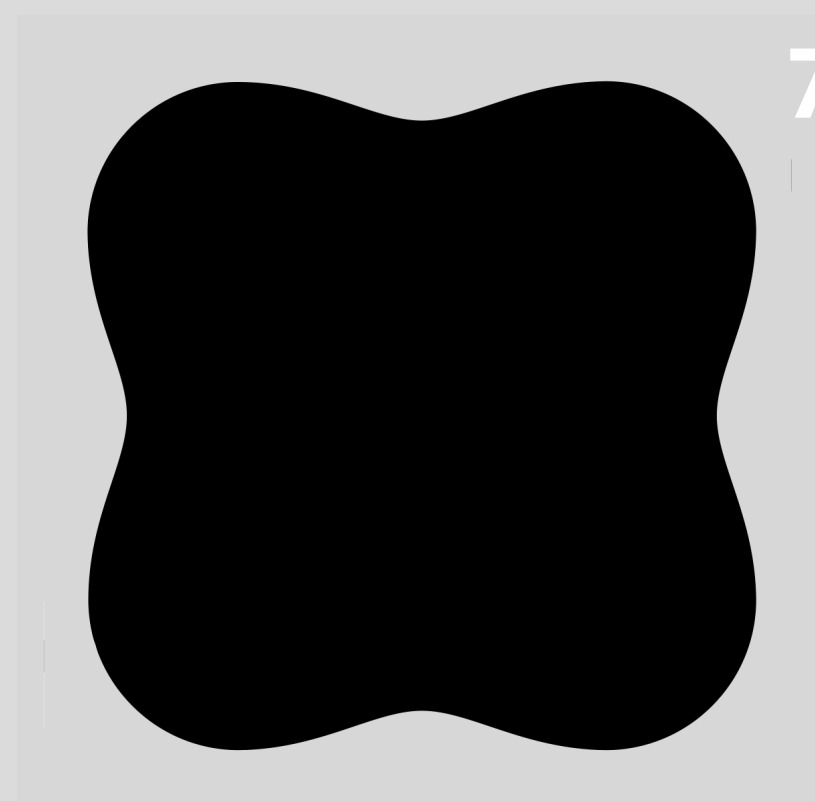
FADE CLEARANCE

Items that enter but do not exit off sides can fade away.
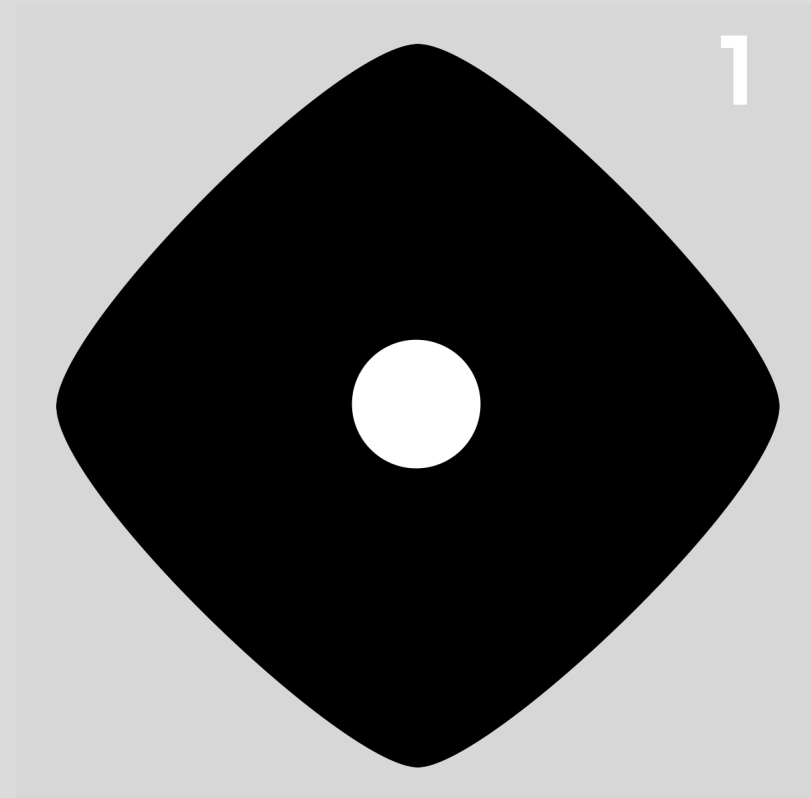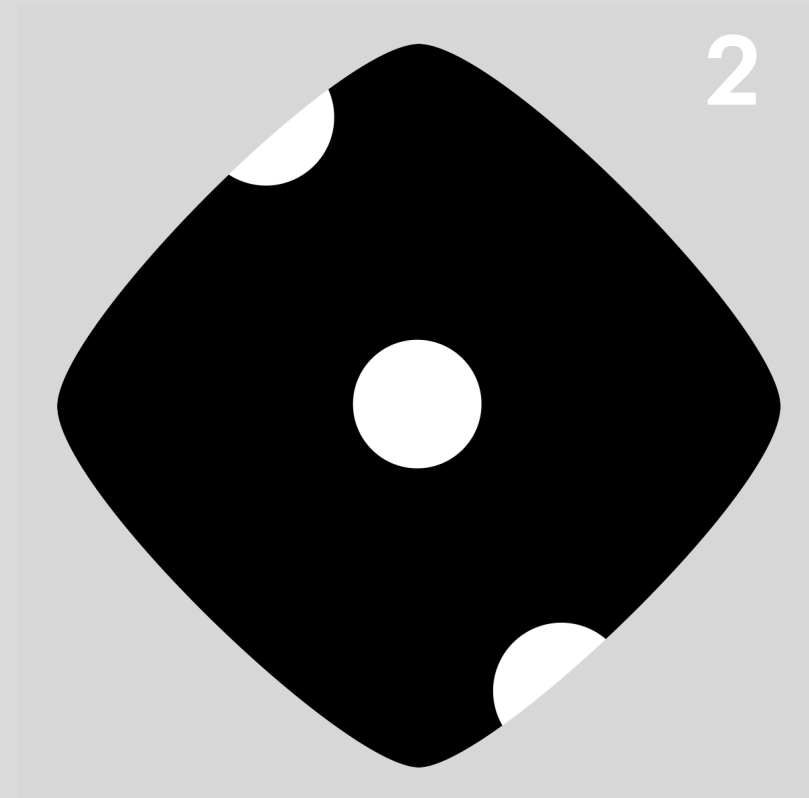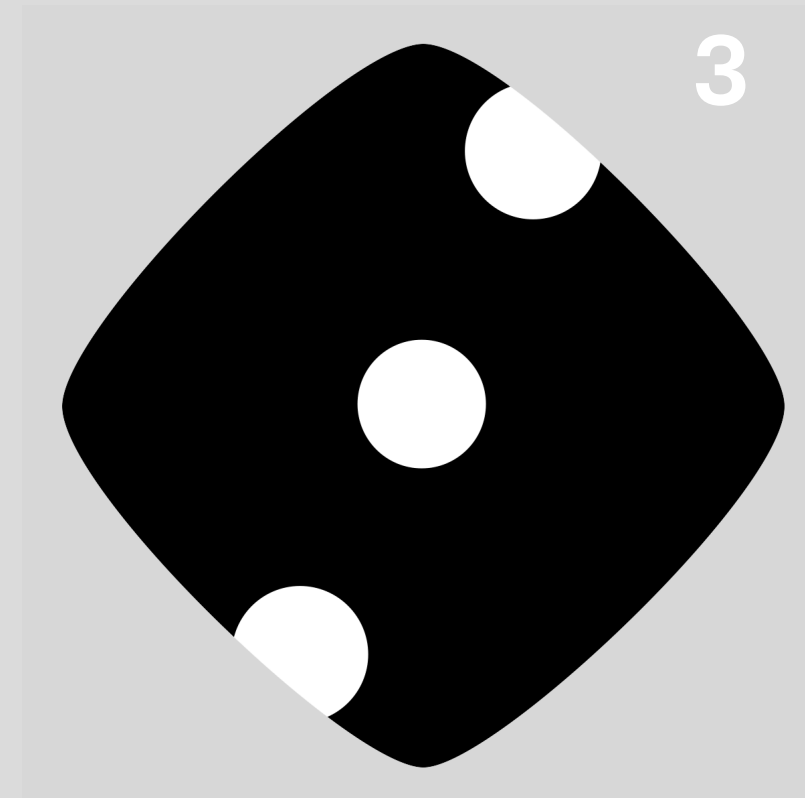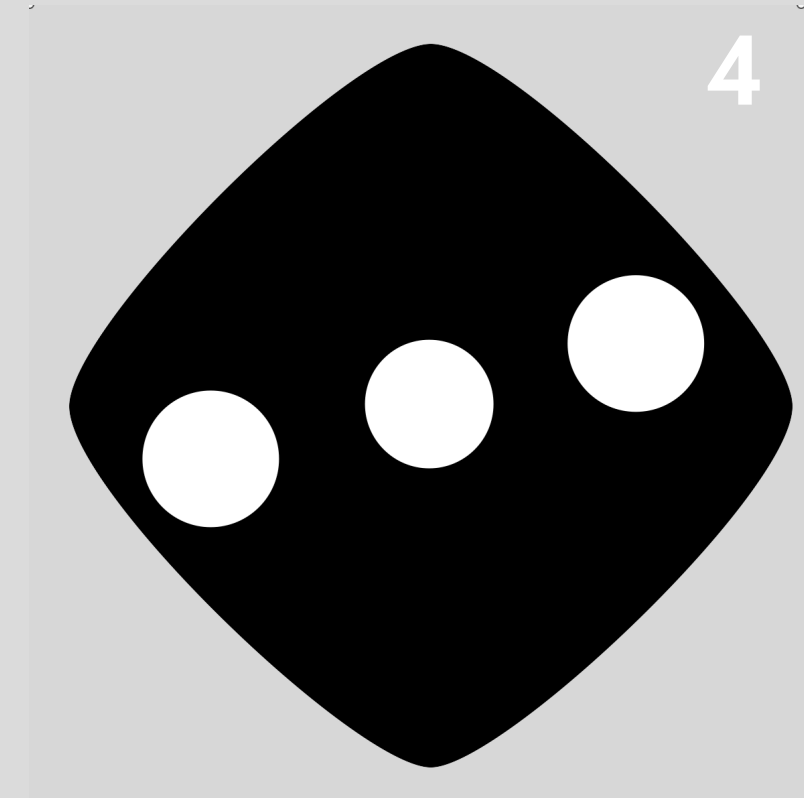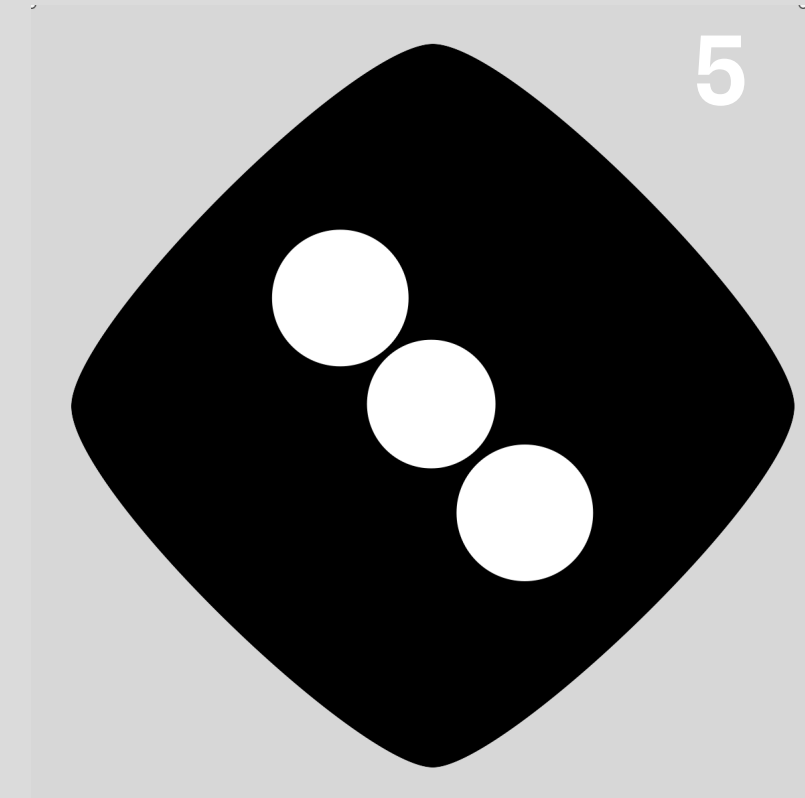
START

GRAVITATIONAL PULL INWARDS

OBJECTS CONTINUE TO SPIN AROUND
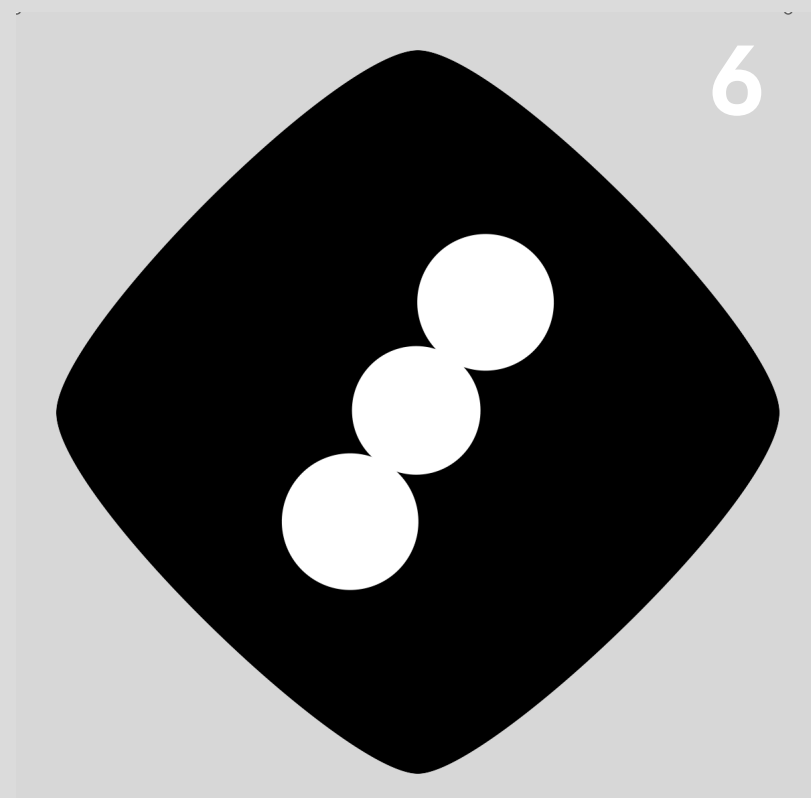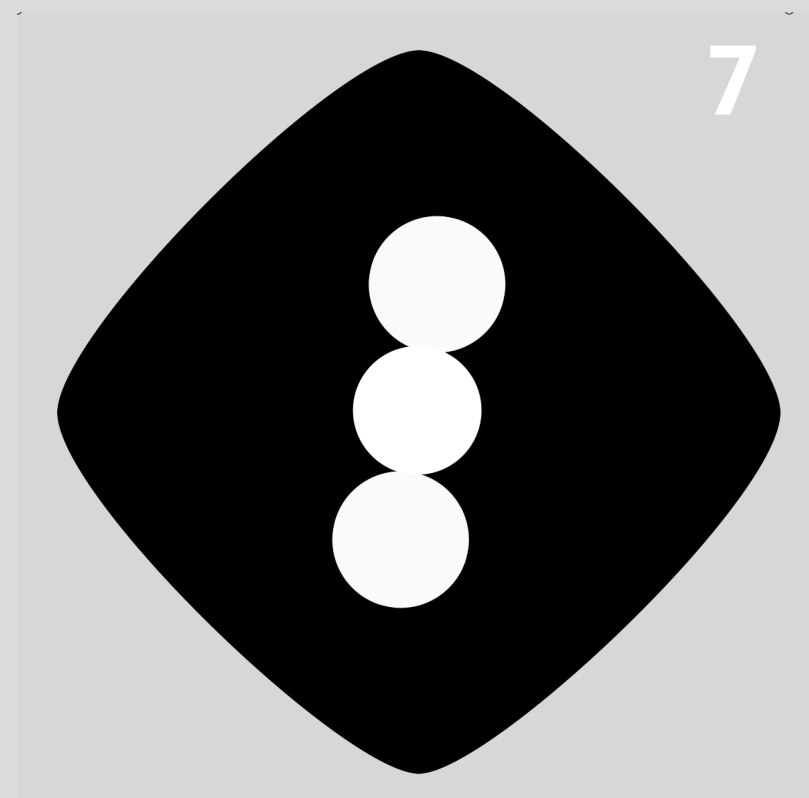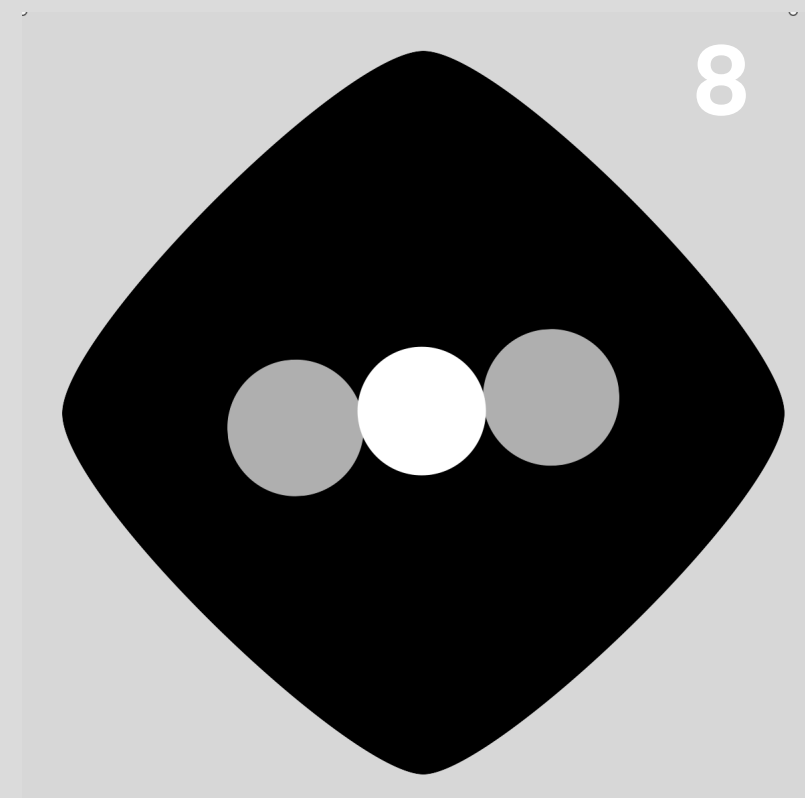
OBJECTS BEGIN TO FADE WHILE SPINNING

FINISH

FLASH CLEARANCE

Residual items are "flashed" off the stage.
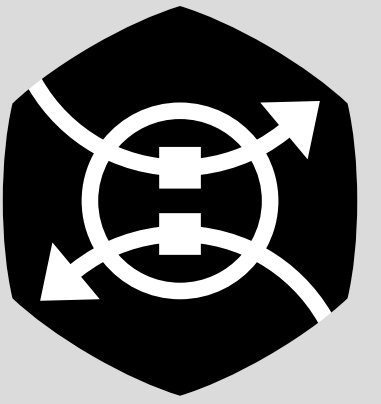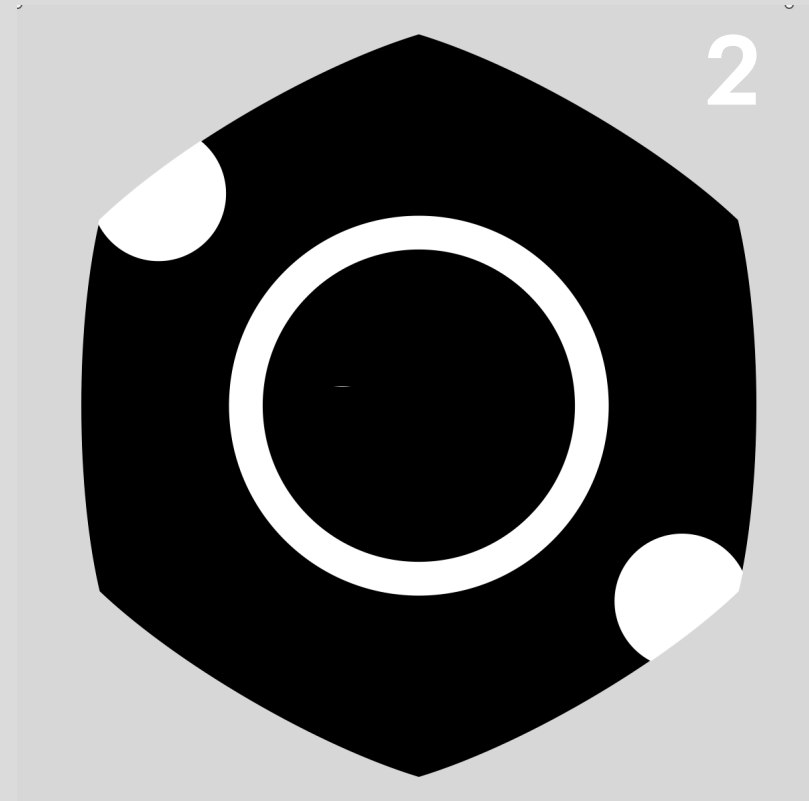
START

POINTS INDICATE ACTIVITY
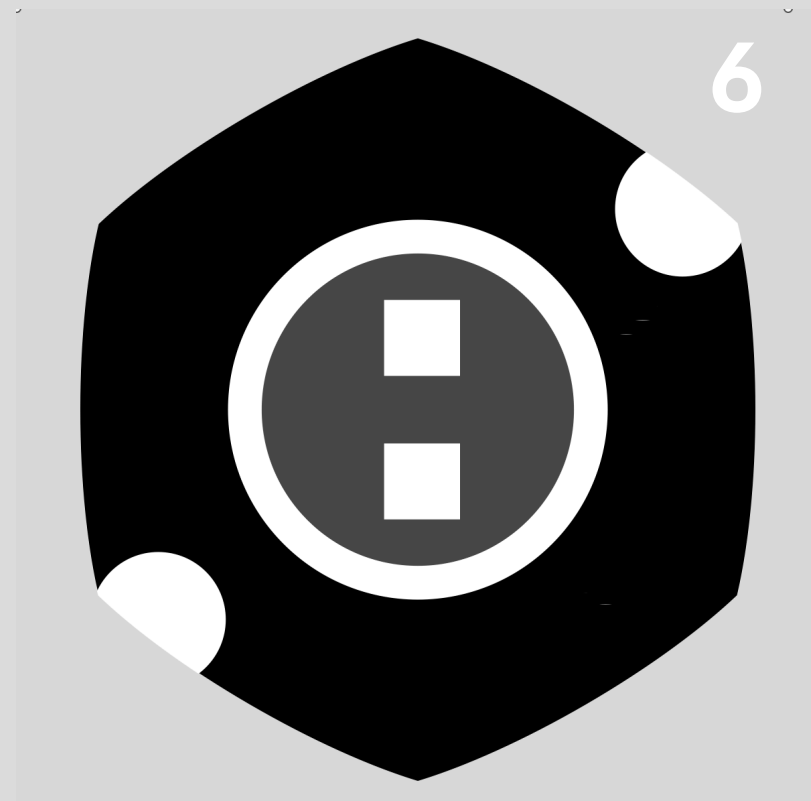
DOMAIN SPACE BEGINS TO FLASH
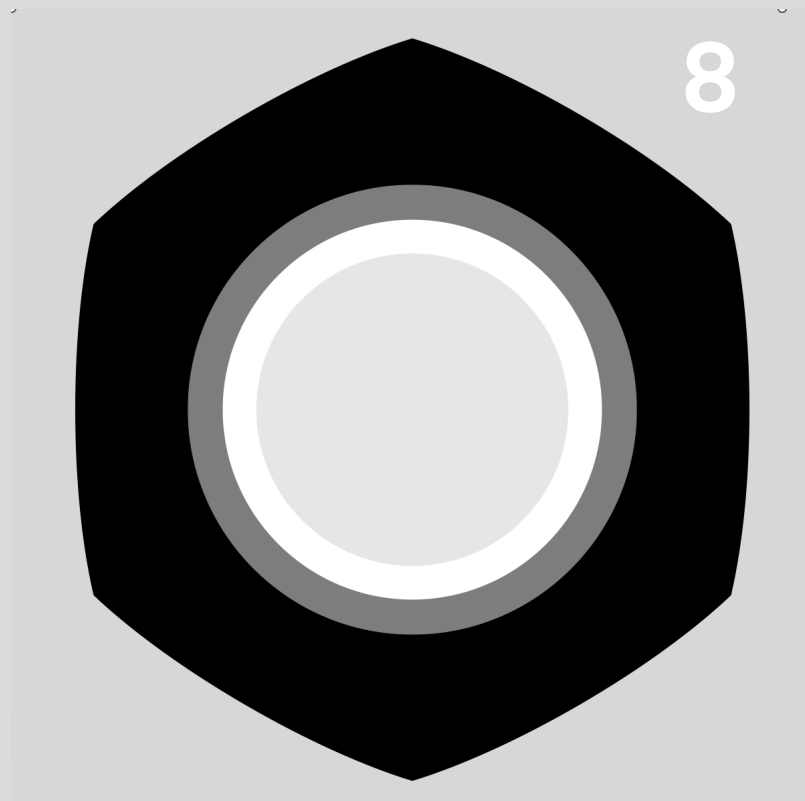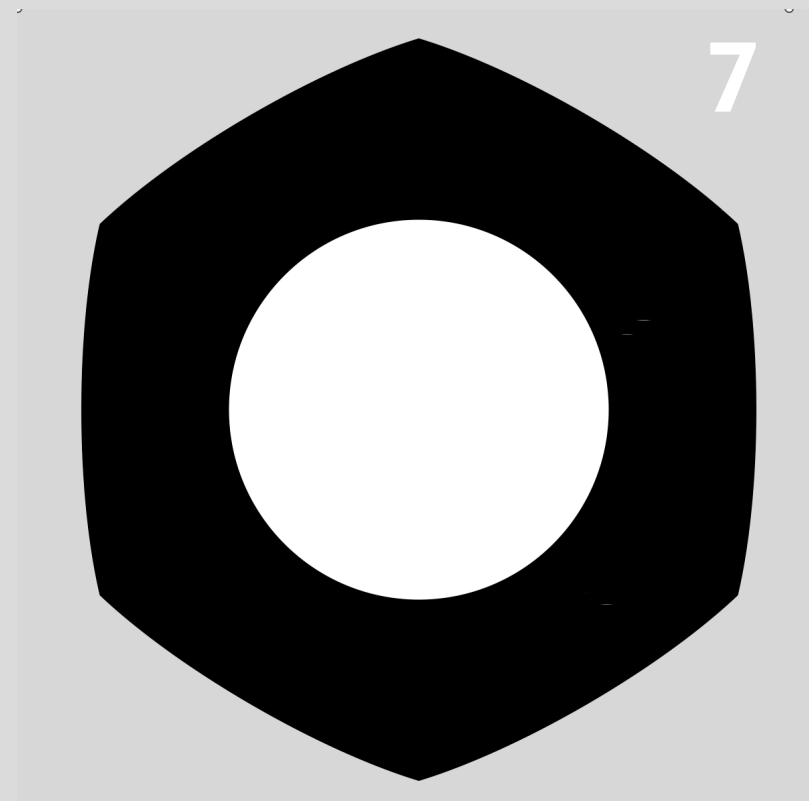
FLASH EFFECT STARTS TO FADE

FINISH

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ARROW (STATIC)

**MOVING OBJECT
(MOTION BLUR USED IN
THIS STATIC DISPLAY TO
SIMULATE MOTION)**
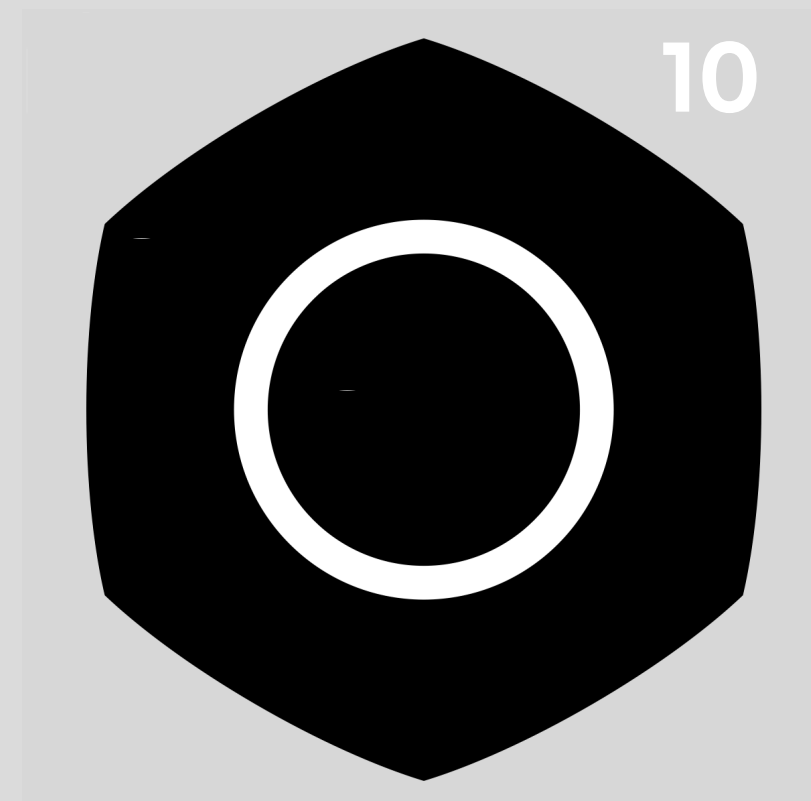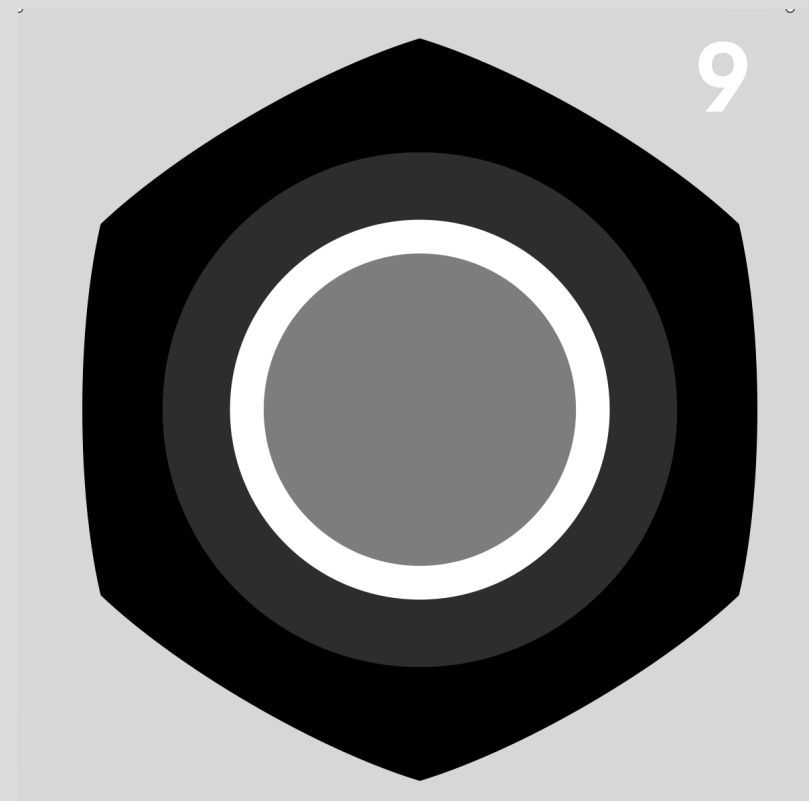
DIRECTIONALITY

ARROWS BECOME SUPERFLUOUS

As those examples suggest, the use of arrows to indicate directionality or causal effects is no longer necessary. With animation, objects can move through space in particular directions or paths without symbolic reinforcement. Object can also act on each other without resorting to arrows to imply action. **Motion** also renders symbols of movement unnecessary; that is, kinetic symbolism can be replaced by the actual motion being expressed.

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COMPLICATIONS

ANIMATED PICTOGRAPHIC OBJECTS

Some of the complication shapes can be animated to better indicate their function. For example, if an eye complication suggests that part of the system monitors other objects, the pupil of the eye can track with those other objects in real time. As another example, if a sector complication suggests that one object consumes another, like a video-game Pacman, then the animation can show that gobbling up. The next page shows an example.

TRACKING EYE

Eye tracks object. Projecting and retracting sight-line reinforces act of detection.
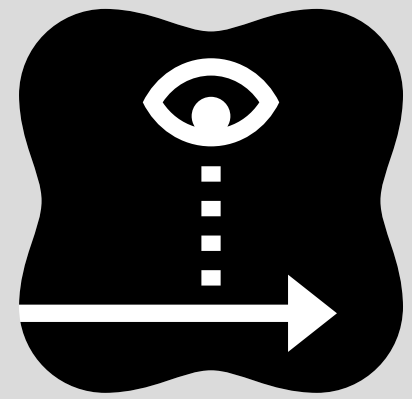
MONITOR
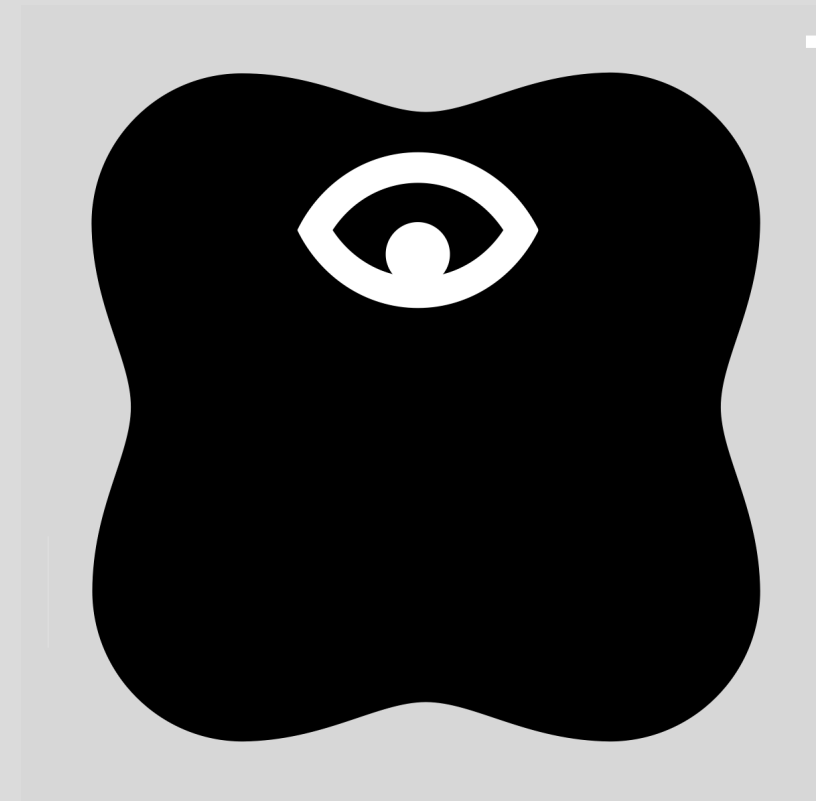
START
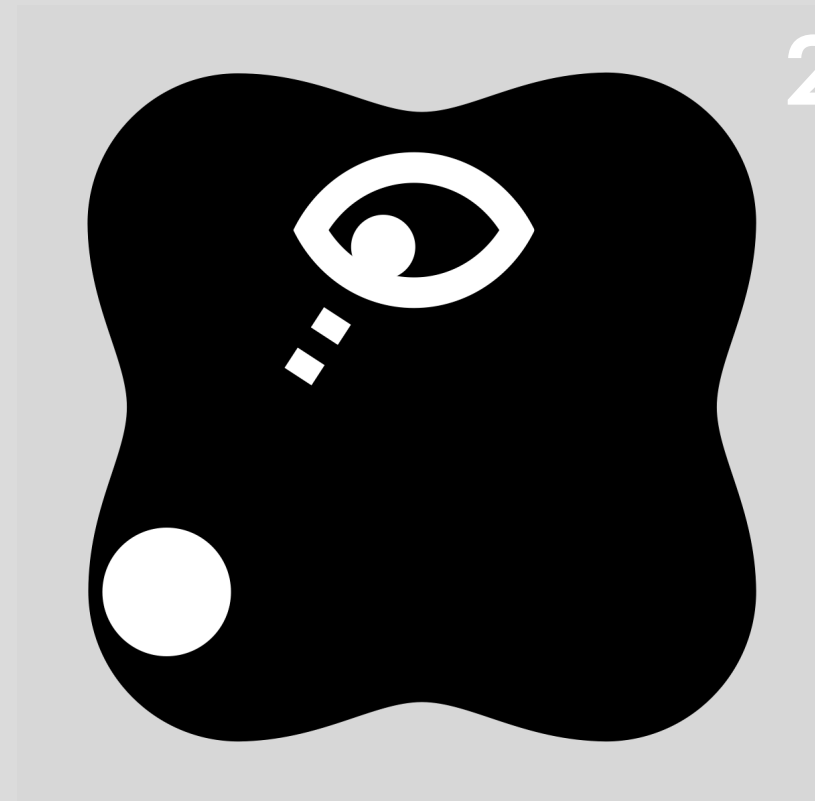
PUPIL MOVES, SIGHT-LINE PROJECTS OUT
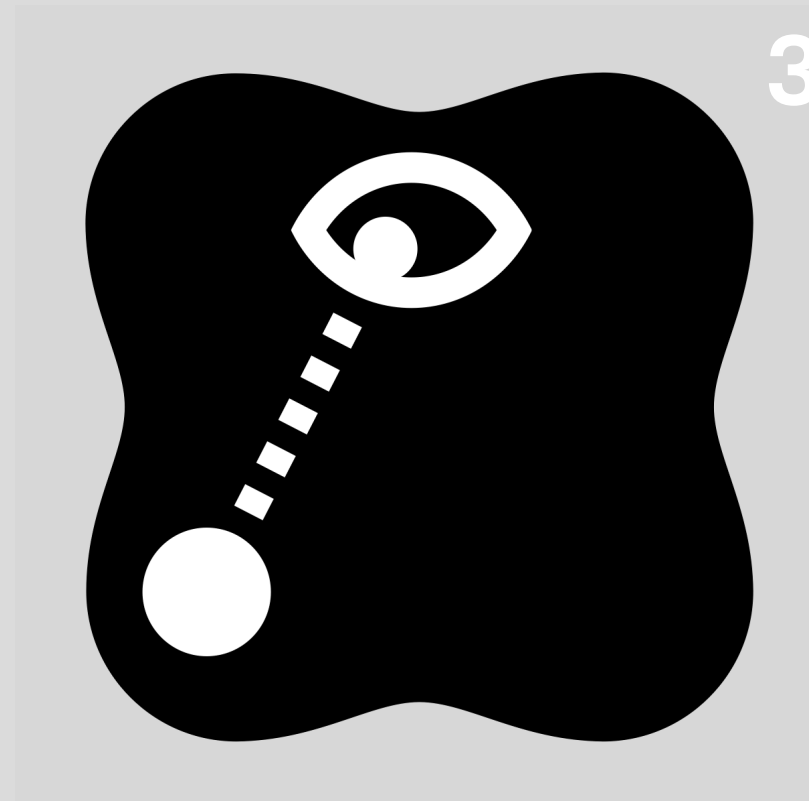
DETECTION
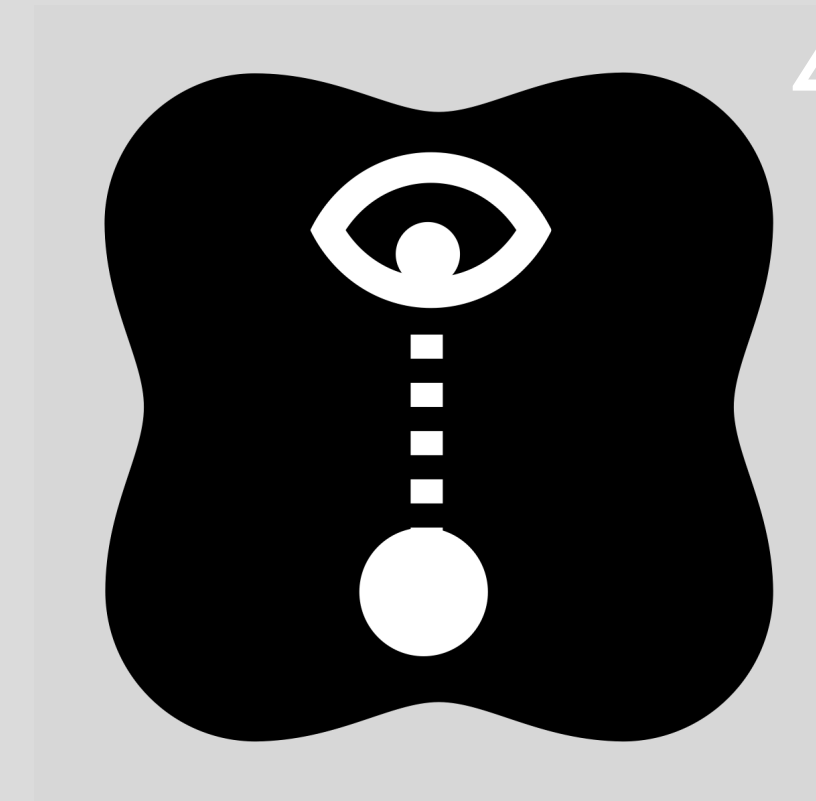
PUPIL AND SIGHT-LINE FOLLOW OBJECT

SIGHT-LINE RETRACTS AS OBJECT EXITS
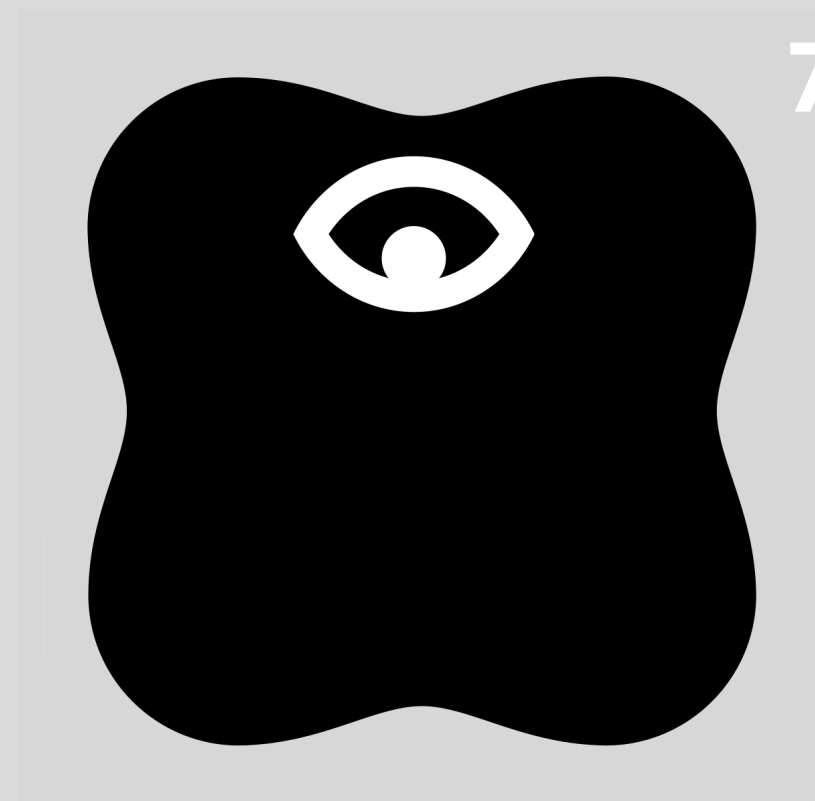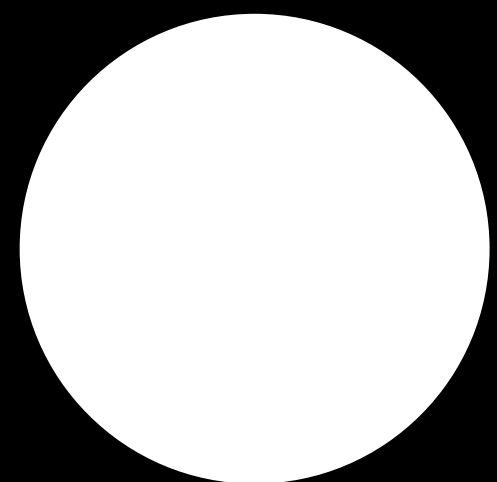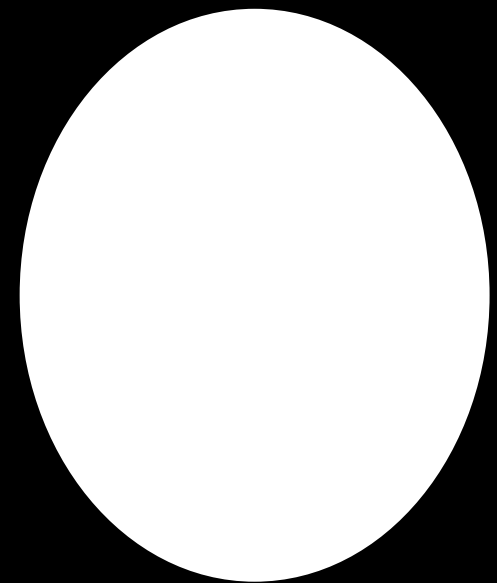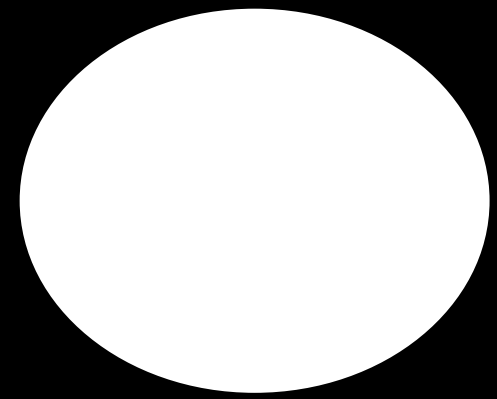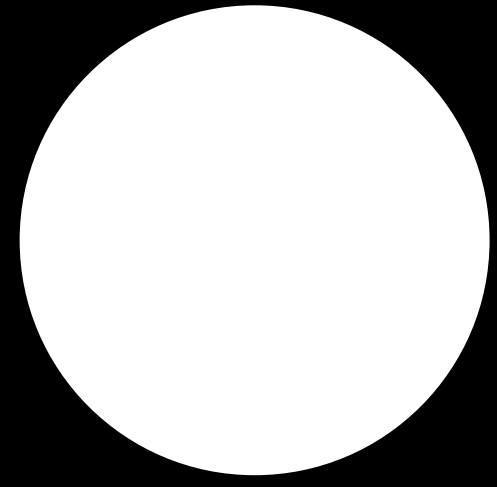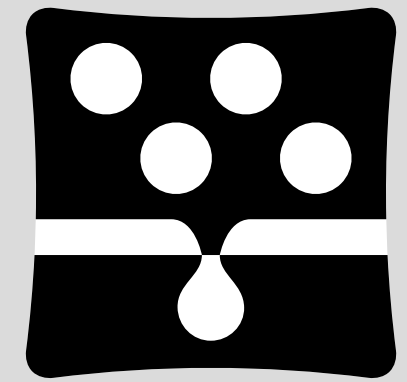
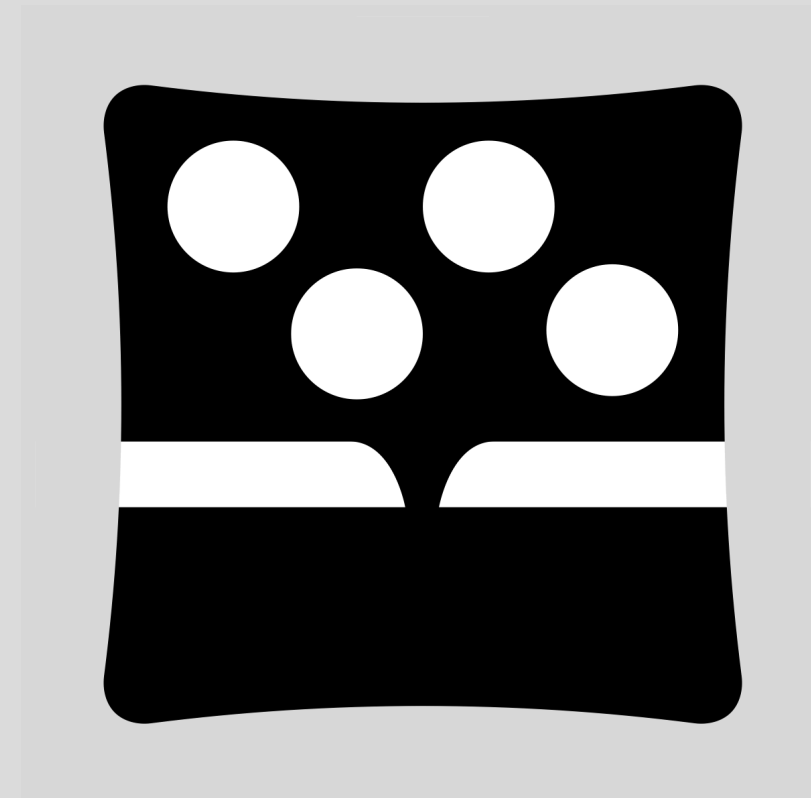**FINISH**

ACTION MORPHS

DEFORMING SHAPES

As mentioned earlier, objects can **deform to indicate action** or effect. With static icons, this can be a distorted basic shape that implies activity. It can also be a sequence showing various stages of distortion. With animated icons, the distortions can happen to the objects in real time to imply a change. Distortions can be drawn from classic animation methods used in cartoons. Even simple shapes can be turned into very expressive objects with a clever sequence of distortions. That provides animated icons with a far greater range of communicative possibilities relative to static icons.

ACTION MORPH

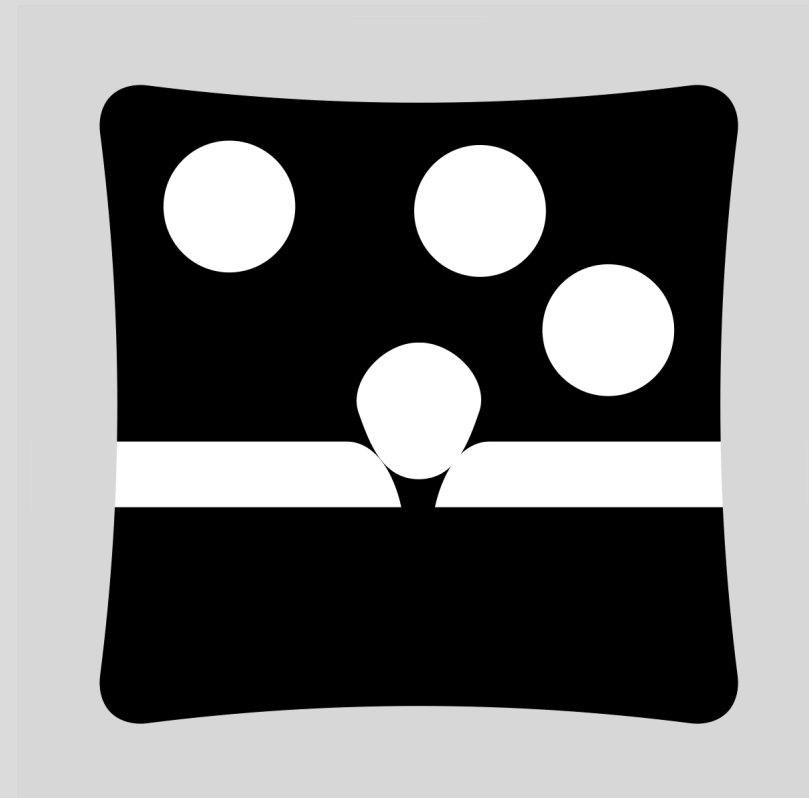Objects deform to imply action and qualities as they interact with other objects.
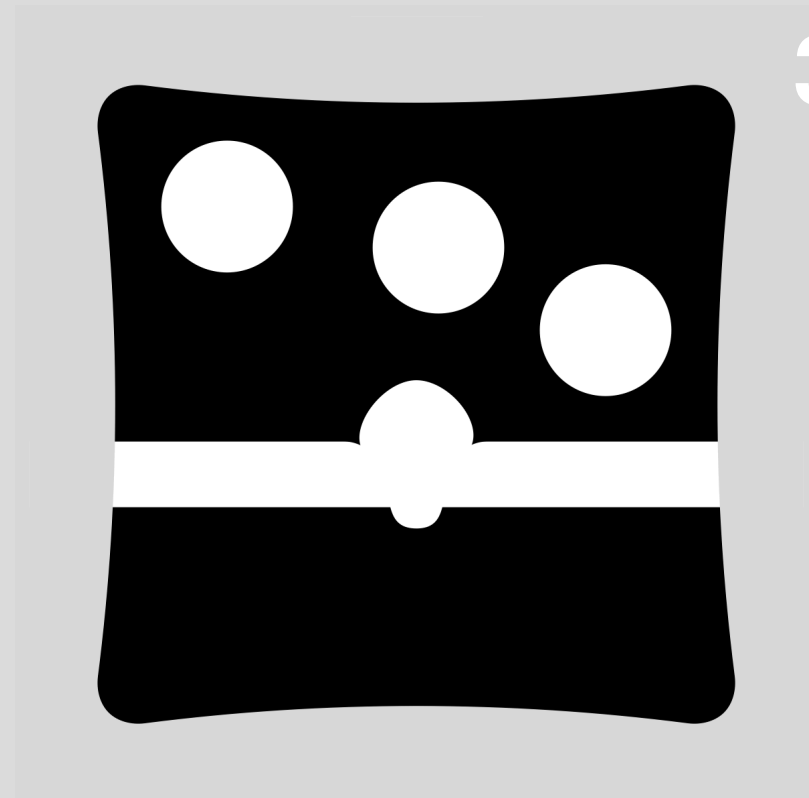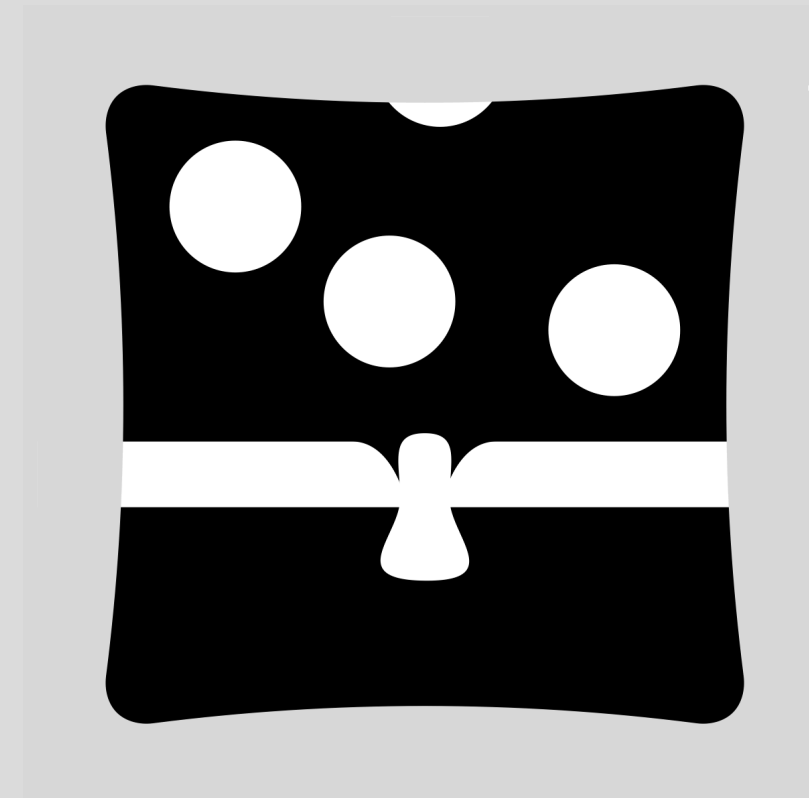
LEAKAGE

1 — START

2 — OBJECT MOVES TO OPENING

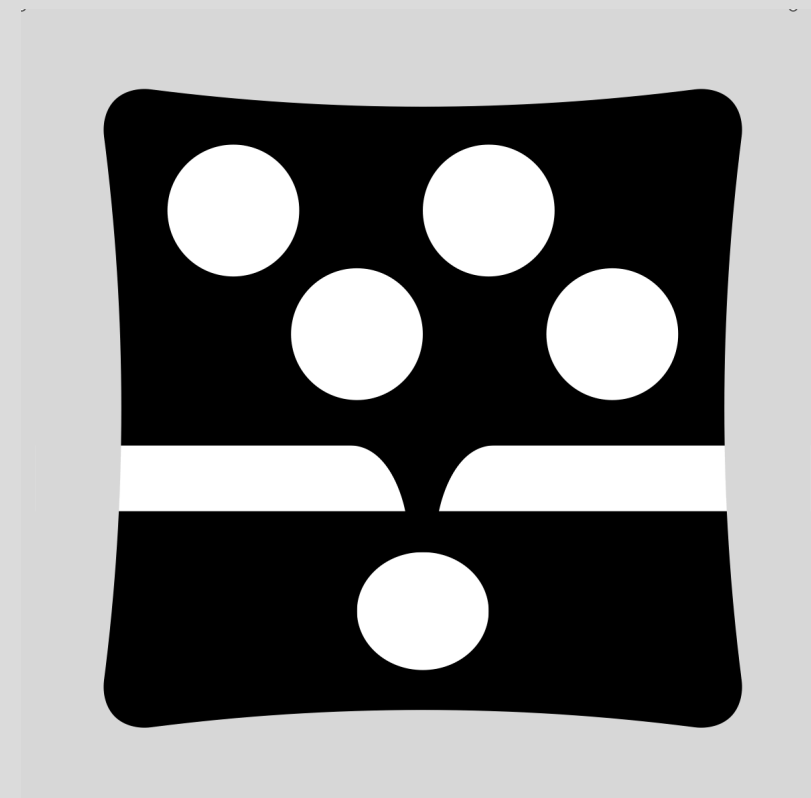**3** — SQUEEZING DISTORTION

4 — REPLACEMENT MOVES IN
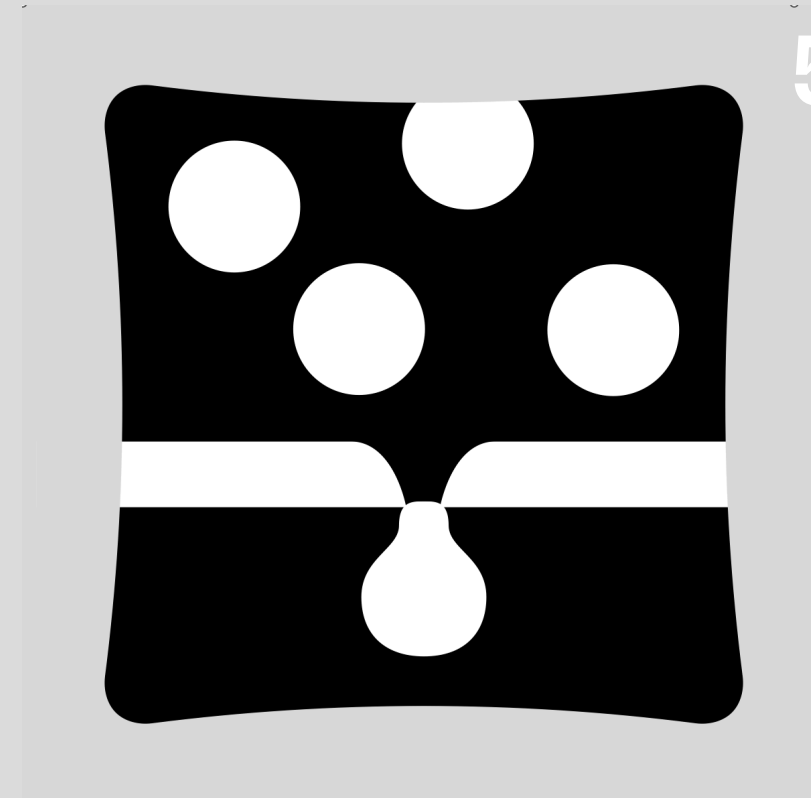
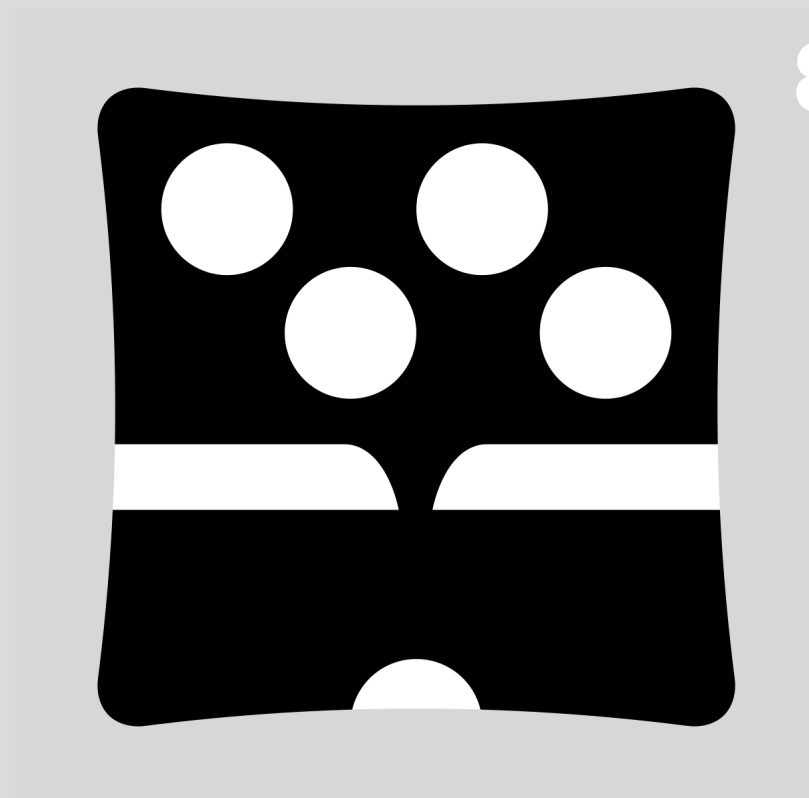**5** — OBJECT BEGINS TO REGAIN FORM

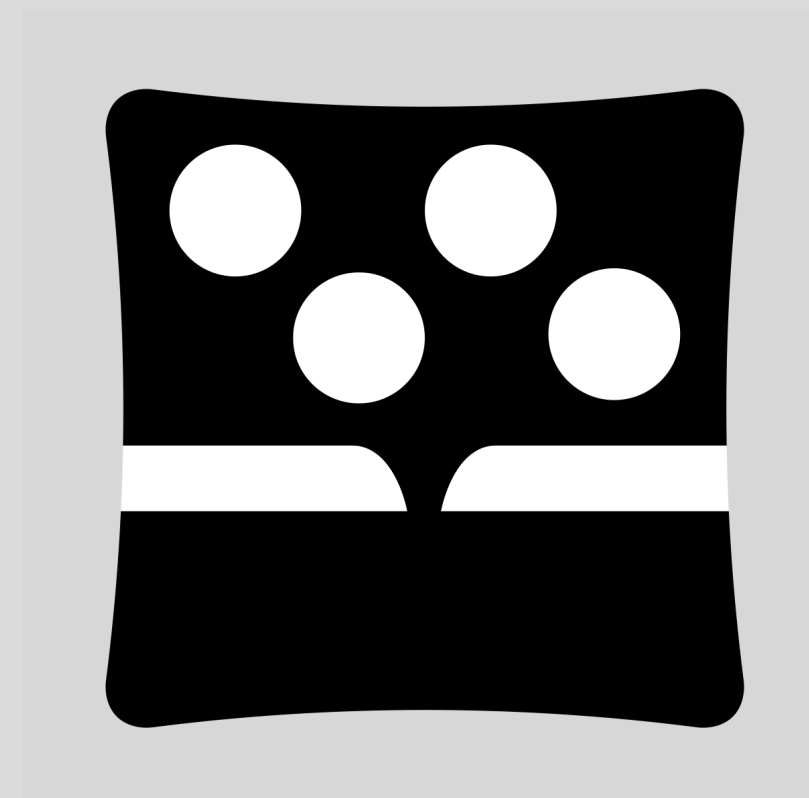**6** — "JIGGLE" DISTORTION TO REINFORCE RETURN TO FORM
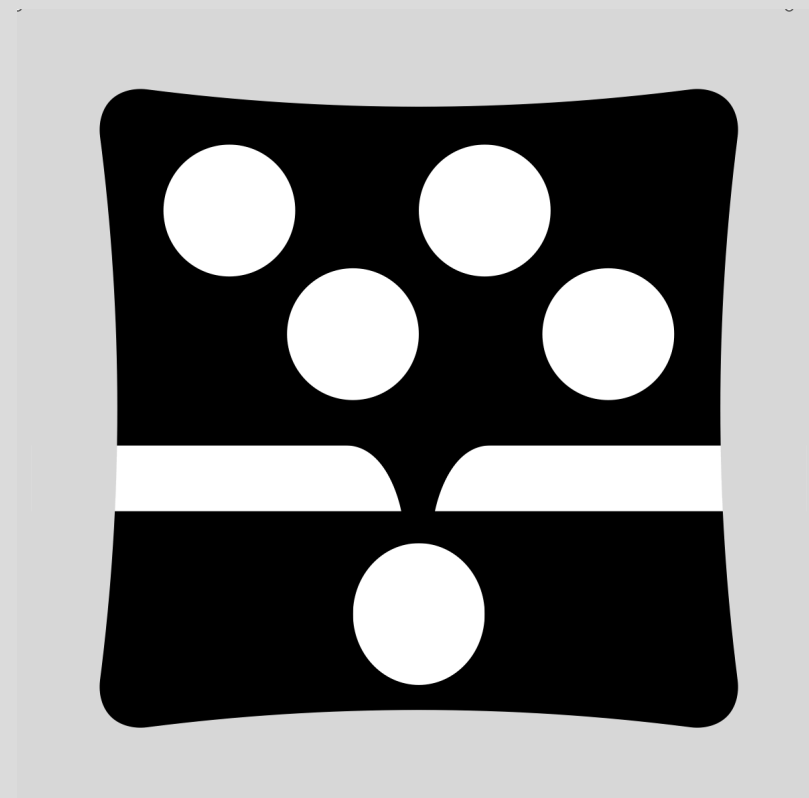
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**8** — OBJECT FALLS AS IT EXITS

9 — FINISH

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ACTION EFFECTS

IMPACTS AND HIGHLIGHTS

In addition to morphs, the area surrounding an object can imply an effect or state change. For example, a hallow may emanate out from an object while fading, to indicate a flashing object. These sorts of **effects** are common to motion graphics, computer interfaces, and video games to indicate that something has been affected. That sort of meaning can take the place of affixes used in static icons. They can also be used in combination with a morph to highlight a change.
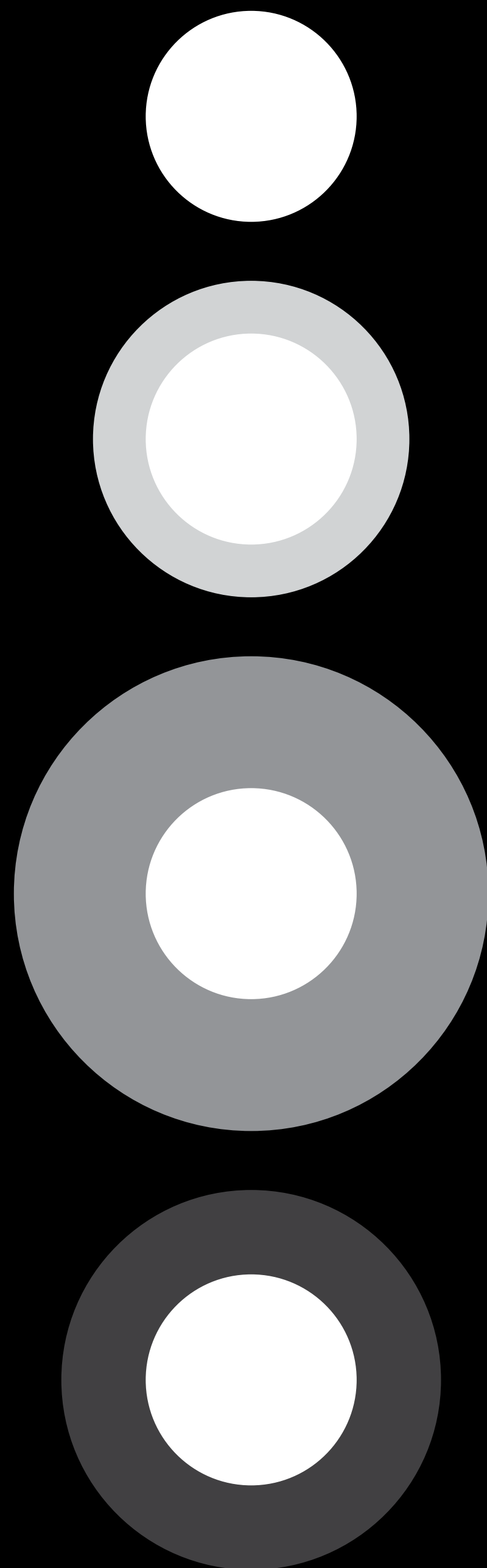
ADDITIONS

MORE SYNTAX TO FOLLOW

This brief run-down of the motion language of animated icon is not exhaustive. At the time of writing, usage of animated icons remains limited and work remains to be done elaborating the various possibilities. Future versions of this document will contain more specifications.
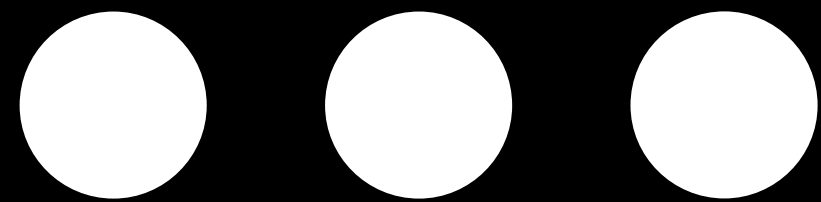
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