

# compendium of time-based design principles

## line, plane, volume, hypervolume

This case study analyzes four movies that play an important part explaining the differences between static and dynamic visual languages. The goal of the each movie is to visually communicate the meaning—semantic and symbolic—of a geometric figure. The task is to convey and to represent each basic visual element by means of kinetic typography.

The text comes from Jorge Luis Borges' short story *The Book of Sand* (London: Penguin Books, 1988). A second reference is Paul Klee's sketches and notes on the dynamics involved in making forms (Paris: Éditions Hazan, 2004).

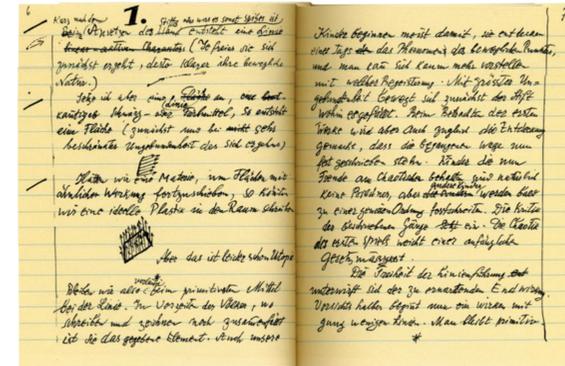
I have been working with Maria Fabila, the undergraduate student involved in this project, who designed these movies.

We live in a world that is socially and culturally media-dependent. Design practice, criticism and education today face new challenges due not only to innovations in technology—affecting both how we produce and how we communicate—but also to new paradigms in media communication. New technologies have increased the possibilities of communicative expression and visual communication design is at the forefront of this phenomena.

This poster presents ongoing research on a *Compendium of Time-based Design Principles*. The *Compendium* examines time-based design as a system, and proposes a model for exploring dynamic properties and structural relations within the system. The methodology involves gathering, analyzing, and generating dynamic lexicon that includes both visual and aural elements. The elements and their relationships are organized by principles and catalogued as theoretical and practical components. Two aspects of the language are scrutinized: motion of forms (what moves), and forms of motion (how they move). Ultimately, the goal is to develop a laboratory of dynamic visual possibilities capable of both instructing and instigating the viewer to create time-based visual pieces.

A main argument of the research is that designing for the space-time continuum requires the consideration of three categories of properties: spatial, temporal and kinetic. These are the properties of visual motion: what changes in time. Because we are dealing with visual changes what undergoes transformation are the same optical attributes that we already know from visual languages: position, size, shape, orientation, color, tone, and texture.

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▲ Diagram designed after the one in Edwin A. Abbott's 1884 novel *Flatland* (London: Penguin Books, 1998). The book is a mathematical fantasy about life in a two-dimensional world and the inhabitants' inability to imagine a third dimension.

◀ Spread from Paul Klee's notebook compiled during his courses at the Bauhaus in Weimar 1921–1922. The pages show his sketches and notes examining the dynamics involved in making forms: from point to line, to plane, to volume (Paris: Éditions Hazan, 2004).

▶ The beginning of Jorge Luis Borges' short story "The Book of Sand" in *Collected Fictions* (London: Penguin Books, 1990).

The *line* consists of an infinite number of points;  
 the *plane*, of an infinite number of lines;  
 the *volume*, of an infinite number of planes;  
 the *hypervolume*, of an infinite number of volumes...  
 No—this, more geometrico, is decidedly not the best way to begin my tale.  
 To say that the story is true is by now a convention of every fantastic tale;  
 mine, nevertheless, is true.

### line

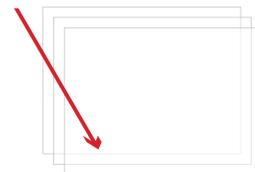


Lines are one dimensional. A line can be described as an infinite number of points adjacent to each other. In this instance, the points are the letters of the sentence: "The line consists of an infinite number of points."

This movie explores the effects of high speed. The lines swiftly move horizontally across the screen. When we see an object moving fast there is a tendency to perceive it blurred and unrecognizable. If on one hand, the lines of text are unreadable at high speed, on the other, they denote the visibility of lines.

There are three parallel streams of letters that continuously move. The relationship between the visual field and the motion suggests that lines can be infinite. The locomotion of type happens in both directions: from left to right and vice-versa. The motion stops five times for a short period of time so that the viewer can read the words in the order that they appear in the original sentence. The rhythmic structure of the movie is: horizontal locomotion, pause, horizontal locomotion.

### plane

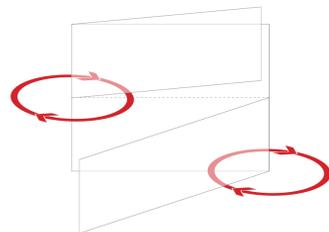


Planes are two dimensional enclosed surfaces. A plane can be described as an infinite number of lines adjacent to each other. In this instance, the planes are the words of the sentence: "The plane consists of an infinite number of lines."

This movie explores the visual properties used to represent surfaces, such as scale, color, tone and texture. The property animated is tone: each word appears with a tonal value in the black scale that changes once the next word is revealed. The end value is the same for all words. Type size, placement in the screen, and initial tonal value varies from word to word according to their hierarchy in the sentence.

The movie is in a loop: the sentence is first presented and then erased. The result is that we read it twice. Because the final tonal value of words is the same, after the first completion, the words/surfaces fuse into a complex planar texture. This texture is then deconstructed by revealing back each word, that once again disappears until we are left with a blank screen. There are two rhythmic structures in the movie. The micro rhythm at the word level is provided by a fade in, a pause, and a fade out. The macro rhythm is a compound of two symmetrical temporal sequences: the first reveals the sentence and the second erases it.

### volume



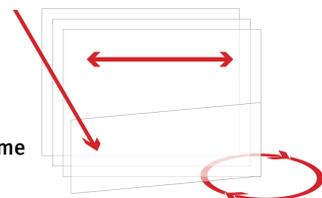
Volumes are three dimensional objects. A volume can be described as an infinite number of planes adjacent to each other. It can also represent by planes in all dimensions enclosing empty space.

This movie explores the possibilities to move around or inside volumes, and the spatial relationships with it depending on the point of view of the observer. The movie is divided into two symmetrical zones. Each zone presents the entire sentence—"the volume consists of an infinite number of planes"—by animating the property of orientation in the "z" axis.

The rotation happens in opposite directions, such that we can only read in one of the zones, since in the other, words are reversed.

The movie plays with the ambiguity of mirrored views. At the center point in time of the movie the two zones encounter: the word "infinite" can be read by portions coming from both the top and bottom zones. At this point the focus reverses: in the beginning of the movie the message is communicated from the top zone, and in the second section from the bottom one.

### hypervolume



Hypervolumes are complex figures with more than three dimensions. Geometry and other mathematical branches have devised ways of representing n-dimensional figures. However, it is hard to imagine them, in that our visual systems can only interpret three dimensions. Are hypervolumes abstractions?

In Abbott's 1884 novel *Flatland* (London: Penguin Books, 1998) the characters live in a two-dimensional world, and are unable to think of a third dimension. Is it possible to question that we might lack imagination of what the next dimensions looks like?

The movie attempts an answer by exploring a collage in space-time. The visual field and the temporal structure are divided into several non-uniform sections. The movies for line, plane, and volume are used in this collage. The movies are presented at different scales, orientations, positions, and starting at different points in the temporal structure.

The sentence is presented with type in cyan. The property animated is tone, but rather than a continuous change over time, it is a discrete change of values either 0 or 100.