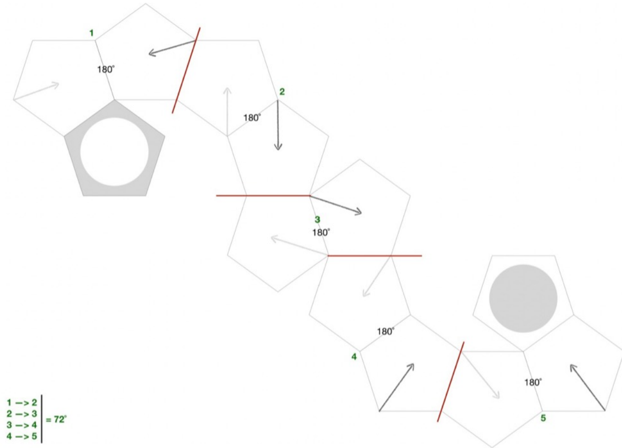


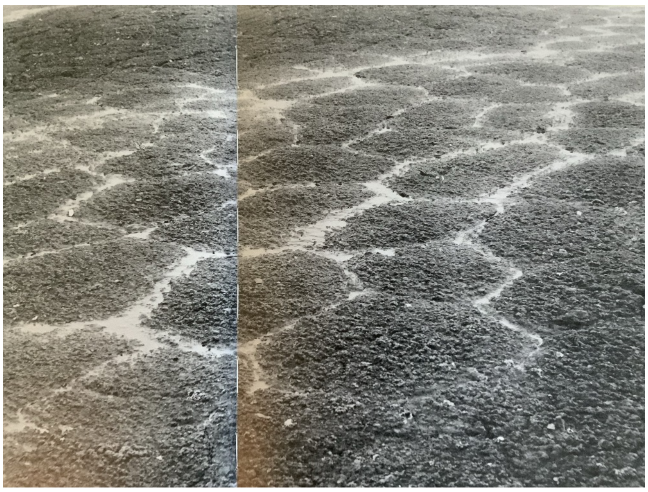
Box 1—Above, two versions of what I call the Seahorse strip (which is a particular cut of a dodecahedron, a 12-faced polyhedron). To the left a strip coded by the algorithm ENTER (green)-background (red)-purpose (blue)-EXIT (green). A topological model developed from tiles (Penrose) featuring the between-space of a reversed figure-ground relation.

In studying the "seahorse-strip"—seen as one way of cutting a *dodecahedron* (different from e.g. the bi-floral section) into a flat pattern—for the purposes to make it communicate to readers a rule for dropping text-code into the pentagons (used as boxes), it can come out as a Möbius-strip iff. the pentagons are used as *tiles* (Penrose) that model the strip. This is done by defining the strip as an interstitial space between the first and last tile/pentagon of the strip, in which the relation between first and the last tile establish the rule that each pair should be at an 180˚ angle.

The local rule—only applying in the between-space—is that each 180˚ pair will follow each other, but with a 72˚ rotation: since there are 5 pairs in the between-space, it means that the angle of rotation of a pentagon to look outwardly the same (which is 72˚), will inwardly make a difference as when a text-code is dropped into each of them, as in the top left "seahorse". In the right seahorse, a set og guides are added to show how the tiling features in *topological* terms (i.e., it looks like the kind of schema that are often found in topology to explain a Möbius-strip, Klein's space or a Torus).

In this aspect, tiling may be the equivalent in topology to writing in language. The first and last tile in the right model above, indicate not only the 180˚ turn, but feature a figure-ground reversal. It adds a semantic reversal occurring when the 2D strip is mounted into a 3D polyhedron: the dodecahedron proper. The reversal in question: when text-code is dropped into the tiles/pentagons of the 2D cut, the grid *holds* (and in this sense defines) the rotating text-code; while in the mounted 3D dodecahedron it is the text-code—as available to reading—that holds the pentagon-grid.

From this we can understand that when we have an object on a table, an iPAD docked to a gooseneck use as an object camera, and a video-projection of the object on the all at the opposite end of the room, the two—the object and the projection—are something else than just two variants of the same. Their *modus operandi* is completely different: while the 2D projection features a *distributive* mode (ordinal), the 3D object is *operational* (cardinal). Which might be the principal defining difference between the a material object and a digital image.



Box 2. A polygon field photographed by Hanna Resvoll-Holmsen on Spitsbergen in 1908. It is classified as a tundra phenomenon. The photo is extracted from a selected collection of her photographs. National Library of Norway (1923).

But we are not interested in the 2D and 3D modes separately. We oscillate between them, and this is directly linked to our ability to grow, develop, explain material memory. That is, changes in the twilight zone of *oscillation*. It is what, for instance, makes phenomena such as polygon-fields (*left*)—as documented by Hanna Resvoll-Holmsen during her fieldwork in Spitsbergen in 1908—readable in terms of memory, and not merely in terms of the pattern of pentagonal shape, that we see in the photo.

In turn, the growth, development and explanation (*anaptúxis*) of material memory happens through the come-and/go (oscillation) in the interstitial space between 2D and 3D: what French/American artist Marcel Duchamp called the infrathin (Fr. *inframince*). But there is still the question of how materiality—as the subject matter of *interception*—relates to dimensionality: or, the *hyperdimensional rotation* that is performed when we move from the 2D strip to the 3D polyhedron. Since it is quite obvious that digital technology can work to simulate, substitute and erase materiality.

That is, to work in the other direction than the *anaptúxis* of material memory. Digital technology can work in the direction of what one might call—from lack of a better term—the *loss of the other*. In the infrathin (the zone of come-and-go between 2D and 3D) we can acquire a notion of 'the other': but it is provisional and operates like a placeholder for a *specific* other: that is concrete material instances such as *that* paper polyhedron model, or, Sigurd Strøm and Bjørn Blikstad's experiment with a negative double curved surface based on a forcing algorithm on steel-strip polygons: Ø-form.

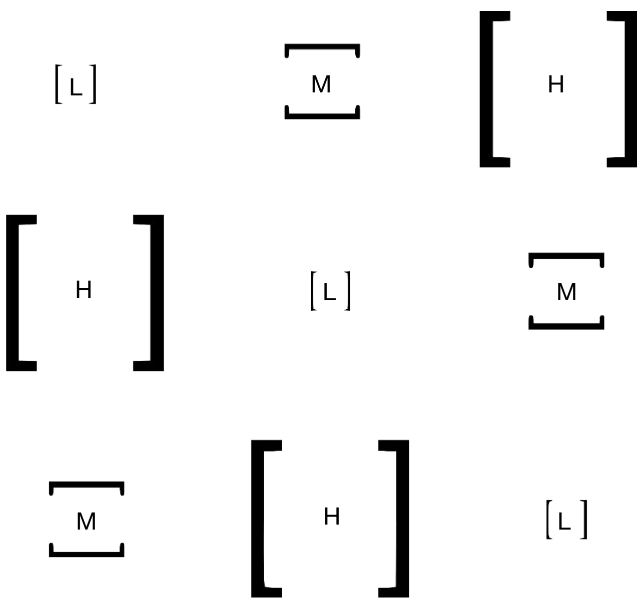
In my collaboration with them on Ø-form the oscillation was not between 2D and 3D, but between 3D (Ø-form) and 4D: the latter featuring the performance pattern of a 9kg medicine ball, in a pattern of **1**. low, **2**. medium and **3**. high throws; in the following pattern: **1-2-3**, **2-3-1**, **3-1-2**. The exercise was always done with a group of 4 people (it was obliquely inspired by Samuel Beckett's choreographic piece **QUAD**). When one series was completed, the person who received the ball, passed it to the person in the diagonal-opposite corner. S/he would start a new round: in opposite direction.

In sum, a topological model similar to the right figure in **Box 1**. In this case, the hyper-dimensional rotation was not between a material object and a surface (evidently), but between a 3D object and an embodied topological model (4D). This is a different case of material memory: having being part of this experiment no doubt is the main reason why the questions we asked endured, and continued in the present inquiry. That is, a material memory in the sense that is pretty standard in research: not knowing in advance what we are looking for, there is the embodied memory at work.

Hence, there is a dialogue between material and embodied memory, with a defining importance to what we call *design*. The flowering—growth, development, explanation (*anaptúxis*)—of a co-generative process involving *both* material *and* embodied memory. So, what we have here is a theory of design embedded in design. It is *not* an alien form of knowledge. But it is *other* in relation to forms of theory that have come to dominate in art schools (art history and aesthetic theory). It is *other* in the sense that it is not different from these: but has nothing to do with them at all (whatsoever).

As a placeholder it is the equivalent in mathematics, of the *empty set* **Ø**: it is neither equal nor different from theory in the sense of art-history or aesthetics theory. It is a logical/mathematical premise for these to *communicate* (operate and distribute) in the perimeter of the design project. If not given the proper attention, we run the risk of evolving design thinking that does not communicate with art history or aesthetic theory. Topological modelling is what establishes the foundation of distributive and operative intelligence: not only at the object level, but at the level of granting theory a purchase in design.

In simple terms, *modelling* defines a middle ground between design-thinking as a reflective practice in its own right, and theory in the mainstream understanding (art history, aesthetic theory). That is, modelling as a shared domain between theory, practice and drawing. That is modelling as something beyond attractive metaphors to explain advanced technical plans. Modelling is here to cultivate *anaptúxis.*



Box 3—the GATE diagram (above) features the throwing pattern in the Ø-form experiment with Sigurd Strøm and Bjørn Blikstad. It is a generic pattern featuring a visual equivalent of a Magic Square (that is, with matching sequences in the horizontal and vertical directions, with the exception of the diagonal in small brackets. L-M-H is: Low, Middle-High. *Material memory* transposed to *embodied memory* is a 4D pattern.