

## Appendix B1 – The Lever Experiment

### The lever-body

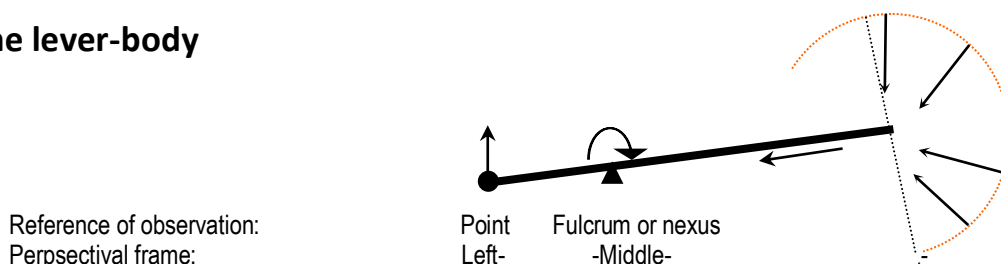


Figure 36. The lever, showing 3 viewpoints (perspectives)

The following is a cognitive experiment. The lever is considered the simplest ‘machine’ – a machine ‘works’, moves; here it acts to lift a weight. Now imagine that the parts of the ‘object’-lever described in figure 35 are parts of your body. Identify with this object as if it is a ‘living being’, a physical body, like yours – imagine you are the lever, your ‘body’ has the shape of a lever, and is split into 3 operational parts: a point on the left, a line-axis terminating on the right, and when your lever-body moves around (around the fulcrum), this movement translates as a spinning. Now try to feel ‘what it is like’ from the various points of view of the parts. Here is an example:

When the body-lever moves, the left part feels lifted, and the ‘force’ seems almost perpendicular to the axis (‘normal’ in mathematics). This is what ‘going somewhere’, being ‘oriented’ does, topologically: it acts along an invisible axis. The stone it supports feels heavy on the point of the lever. This is like the heaviness of the body when we ‘work’ and ‘fight gravity to stand’. When the body-lever moves, the right part feels ‘influenced’, and experiences phenomena of that relate to sweeping a field, as well as of the sort that happen in a transporting conduit, or a container that receives energy. The above analogies, metaphors and similarities are direct expressions of the iconic images, of the geometry, and could be multiplied endlessly. Many correlations or correspondences could be established to all sorts of realistic contexts, including causal links (eg the ‘force’ that ‘moves’ or ‘lifts’ or ‘influences’). The point of the exercise is to show that these 3 terms can be understood to be different names for the same global shaping change seen from different, limited perspectives, or topologic deployment into the various ideas related to various contexts. In particular, these projections can also image the general way in which perspectives are developed into ‘three fundamentals’ in any domain of knowledge or experience (eg point, line, field; or position, speed, acceleration; or body, mind, spirit; or linear, relational and non-linear shift, etc.). Each part of the lever corresponds to a different way of geometrically ‘framing’ the situation, which is a basic geometric operation based on defining an ‘observer’ (external, internal,

nexial) that chooses a frame of reference. Which reference we choose depends on our perspectival tendency, on what is most obvious or most common in our experience, and what our learning trained to see preferentially. This experiment can also serve as a mapping of epistemic, ontological and methodological positions. (See also <B2\ The 3 stars Experiment>). The 3 parts of the lever constitute 3 cognitive positions, modes of framing, or ways of observing with perspective, and they procure different interpretive frames of reference. Below is another example, a particular application of this threefold geometric projection.

### God's action

Perspectival framing is learned actively through what we are taught as children. For example, my son, when he was seven years old, explained what he had learned at school about God's actions in the following way: "If I get in the way, or behave badly, I get in trouble with God." He drew himself in between a bow-and-arrow and a target circle, in a fulcral or nexial position, in the middle. He was learning a way of projecting geometrically how the world works according to our conventions (figure 37).

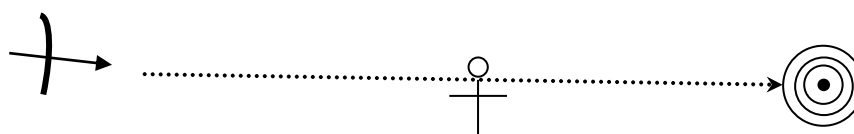


Figure 37. A child's view of God's action: iconic projection

His drawing expressed a very general 'Scientific' geometry of projection: a vector-and-field system, with the vector on the perspectival Left- (what we habitually call linear thinking and associate with 'left brain' neocortex activity), the field of influence on the Right-. His story had a particular context, but the iconic geometry is general and found in all the fields I reviewed. Iconic projection is inherent in our *educated* thinking and visualising experience (our mental models of the world). Also, it applies not just explanatory constructions, but also to experiential descriptions. The conclusion imposes itself that the iconic geometry is not just a 'mind construction', but also a perceptually based interpretation rooted in the *shape* of our *physical* body, which governs its functions and operations. Notice that the image depicts not God, but God's action or intent with respect to humans, and a timed development or causal link. This image is a snapshot of the underlying animated geometry that images topologic 'deployment', and my son's explanation is an instant schema of one of the kinds of conventionalised representations we attach to it ('linear thinking' and 'black and white thinking' are common denomination for this one).

## Appendix B2 – The 3-stars experiment

*Materials:* paper pad, pen, and the animations <6 Homothetic centre External> and <7 Homothetic centre Internal>.

### Representing the 3 stars of Orion's Belt

The following experiment will help demonstrate that the 3 fundamental perspectives introduced in <B1\ Lever experiment> are valid and accurate representations, and yet differ in their details, and particularly in spatial orientation. The crucial implication is that when researchers observe ‘the world’, the observing operates in one of these 3 modes, and the representation produced by one researcher does not match those produced by using the other 2 modes, yet all are technically valid. Making drawings will allow the reader to experience directly the fundamental differences between the 3 basic possible views which, for our purpose, can be understood as: objective (external), subjective (internal), and nexial (‘inside’).

The 3 stars of Orion's belt are particularly apt for this experiment. They are the object of a controversy concerning their possibly being the origin of the ground plan of the Great Pyramids in Egypt, and how the architect might have derived the construction plan from the sky configuration. One of the stars in this trio is not quite aligned to the other two: the axis is skewed. Standing outdoors under the sky, looking at

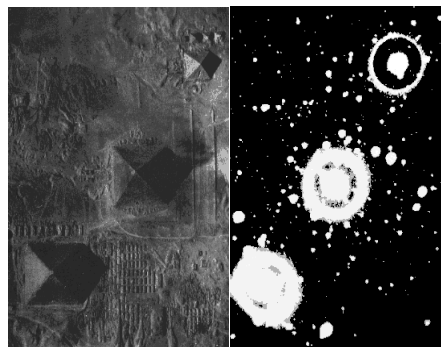


Figure 38a Orion's belt and pyramids  
[www.astronomycafe.net/qadir/q2427.html](http://www.astronomycafe.net/qadir/q2427.html)

these stars when facing North or facing South, appears to invert. the skewed axis and the order of the stars. Try this:

The 3 stars are reproduced below (figure 38b), in an image that can be photocopied. Pasting this copied image onto the ceiling will produce an effect equivalent to that of standing outdoors under the night sky. Before pasting the image, define a ‘North’ on the image, and note it, as well as the other three directions. Whether you face North or South as you ‘stand under the stars’ doesn't matter,, but choose one fixed position to look up at the image of the stars. You are now going to draw what you see on a pad of paper, three times, each time onto a different sheet, according to the following three sets of instructions For each drawing,

reproduce the stars and their relative positions, as well as the 4 directions, East, West, South, North. You will have produced 3 maps, which will be compared.

*Instructions:*

1. Stand with your paper pad, look up at the ceiling, and then look down onto your paper. Draw what you see on a sheet of paper.
2. Lie down on the floor, holding your pad in front of you, up in the air, itself in front of the image pasted on the ceiling. Look at both the ceiling picture and your paper, in the same line of vision, and draw again.
3. Imagine now that you are an Egyptian architect who wants to build 3 pyramids in a configuration, on the ground, that 'looks the same' as the 3 stars he sees up in the sky, as if he *is* one of the stars (after death, may be). Imagine yourself to be the middle star, standing among the other two stars in the sky, one in front of you, the other behind. Draw again all 3 stars and the 4 directions.

Now compare your 3 pictures. Match the shape and skewed axes of the 3 stars, and the orienting cross of the 4 directions. Try to make the 4 directions on the three images match. Start with North, and then match the other directions. What do you find?

*Comments:*

1. In position 1, you are a self looking at the 3 stars and you look alternatively up at the stars and down at your paper [note the 'inverting']. Imagine the edge of your field of vision as a spherical surface touching the ceiling at the top and your piece of paper at the bottom, and you are at the centre of the sphere (your observing self, which is located in the head, is a this centre). Paper and ceiling are on the opposite sides of a diameter of the sphere. The 3 stars on the ceiling are projected onto the spherical 'internal' surface of the ball that is your observed world in this moment. You can make the ceiling picture and your drawn picture correspond directly, simply by sliding, in imagination, the ceiling image, which is above your head, along the spherical surface, down towards in front of you, then further down to the surface of your paper pad, below your head. The up and the down determine the equivalent of a subjective view similar to that of 'Heaven and Earth' or 'Above and Below', with 'man' in the 'middle'. Both pictures of the stars and drawing are 'within' the sphere, but only on a surface (the internal surface). This is a 'view from within' (Varela & Shear, 1999), which makes the observer's viewpoint the centre of geometric projection. This centre is located in the head and bound to sensory perception. This is an *intrinsic* centre of

projection. This way of projecting to represent the observed produces a mind reality that is 'a mirror of reality' (or inversely, reality appears to be a reflection of consciousness).

You will notice that if you match the picture of the 3 stars and your drawing, the north and south are inverted compared to the way we represent them in Occidental culture. This is the way the Chinese represent the 4 directions (South at the bottom). This is a symptom of their dominant cultural bias toward the subjective, the emotional, the social, and 'inner alchemy'. The transformation from one image to the other involves movement.

2. In position 2, you looked at the sky in an objective way, by 'putting it in front of you', 'putting distance between observer and observed', or 'posing it like a problem', and did the same for your drawing paper. A metaphor could compare the ceiling image to a problem, and the drawing made to a solution to symbolise their geometric relation. If you try to match the drawing and the reality on the ceiling, you find them inverted again, but differently than for position 1. In this case, the observer is a centre of *extrinsic* geometric projection, again onto surfaces. This objective – and objectifying – perspective corresponds to the detached mind-view of the normal scientist and the intellectual philosopher. This stance is typical of the Western mind-body differentiation: the senses look down onto the body-object rather than sense internally, and the doctor observes only objective symptoms (taking only indirectly account of subjective internal sensations, and not at all another, global, way of observing one's 'life' without distinction). The transformation from the ceiling image to the paper drawing involves a direct transfer of patterns, as is commonly found in psycho-somatic explanation, as well as brain-mind explanation of physical symptoms.

The differences between the positions of 'intrinsic' and 'extrinsic' centres can be intuitively apprehended by viewing the two animations <6 Homothetic centre External> and <7 Homothetic centre Internal>.

3. In position 3, you imagine yourself to be the middle star, you see where the other 2 are placed relatively to you, and then you place them on the paper in that same way, relative to your own position. This is a 'nexial' perspective (or that of a fulcrum): you were 'inside the image' of the 3 stars, and what would happen to all three of them would happen to you. Your lived universe was 'you and the 2 other stars', and the observer-actor-receptor is at the core of volume or mass that 'surrounds' the observer. The fact that is it someone's view of 'the world' (the 3 stars) that is being drawn is clearer from this position than it was from the subjective and objective positions. You *were* one of the 3 stars, and perhaps were more

conscious that it is *your* observing and drawing that made the projections, rather than attributing to them an absolute reality. Another way to formulate this is that in this position, we ‘know by being’ (being one of the stars), or ‘by doing’ (performing the drawing, doing the observing).

When I had my son, Archie, do these drawings. I did not give him instructions. He spontaneously took this third observing position and drew a ‘nexial’ picture. This position corresponds to a more ‘primitive’ viewpoint that does not discern observer from observed, self from world, but the attribution of ‘real’ or ‘natural’ or ‘human’ qualities to the representation is not primitive at all, but learned. Adopting either of the other two views requires even more intellectual or experiential effort.

If you keep playing with the three images, matching the star pictures, but also trying to match the 4 directions, you may find as I did that the 3 drawings simply cannot be made to match completely. They are different representations of the same reality observed (the picture on the ceiling), with different details. Yet none is less valid than are the others. There is no way of evaluating which one is ‘better’. They simply are useful for different purposes. These views may, then, be simply considered ‘different modes’, each offering a different perspective. We use a process similar to this when we ‘walk in someone else’s shoes’ to feel ‘what it is like’, and thus free ourselves from judgement and from invalidating others’ views, their persons and even their entire life realm. A ‘multi-perspectival’ view allows one to let go of values in situations in which their differentiating and separating properties are damaging rather than useful.

If, instead of printing the image of the 3 stars provided here and following instructions, you had gone outdoors to look at the night sky, your first drawing (one of the 3 types) would have disclosed your preferential mode of observation. This mode is what gives you the preferential view you have of the world, your ‘fundamental’ values and beliefs, your ‘perspectival bias’, which a habitual characteristic, learned and internalised in childhood, along with ways of conventionalising (for example a human ‘self-world’ view or a scientific view of body-environment). I was educated and trained intellectually, in childhood, in the objective, Left- perspectival style (French emphasis on the Cartesian tradition), and this remains the ‘twist’ (perspectival bias) my brain-mind takes when it is ‘pushed’ into a ‘survival mode’ or a ‘hard work’ mode.

Below is the image to print and paste onto the ceiling.

