**Scientific Revolution, Orienting Constructs, and the Challenge of Parapsychology**

Revolutions in science are all upheavals in no small part because generally they alter some very basic constructs that we natively experience as useful and invariant. We develop these constructs in our individual histories. They have also been articulated and passed down through countless generations, because they are intuitively sensible and help make experience regular and predictable. As George Kelly pointed out, we all naturally organize our experience using dichotomous, bipolar constructs. (kelly, 1955) Many of our personal constructs are idiosyncratic, our own unique creations that we forged out of our own unique histories, but some are deeply consensual because of the deep similarities in all human experience.

Some dichotomies are so useful, and so basic to our sense of reality, that I would like to call them *basic orienting constructs.* By this I mean that they are fundamental to our sense of ourselves and of our relation to the physical and interpersonal world in which we live. They are closely tied to our very sense of reality. We use them without reflecting on them. They are what Kelly called *preverbal,* in that we formed them in a very early period of development, and while we can put them into words (at least to some extent), they function wordlessly and implicitly, as foundation stones in our psychological structures. We presume them and build upon them. We usually do not know they are there unless something threatens to invalidate them, and then we experience this as very disturbing. While the invalidation of such a core construct is disturbing, it can be tolerated ultimately if the invalidation leads to a *relativization* of the construct. That is, if the construct can be seen to obtain as usual in certain contexts but not hold, or be changed, in others. Then one can assimilate these contextual rules and a sense of basic order can be reestablished.

While all of this has not been studied enough empirically, I think we can hypothesize that the following constructs are among those that are especially useful in organizing our basic experience: *up-down, here-there, now-then*, and *in-out*. We can think of them both in terms of personal experience and in their significance for the developing concepts of science.

*Up-down* is a very pressing issue for a baby. Adults are up, and he or she is down. She struggles to get up and falls down. It is clear from seeing others that being up is possible so she continually struggles to master up, then rediscovers cruel gravity with its down. She isn’t deterred for long and continues the struggle with the inner experiences of muscles and limbs, jerks and pushes, rises and falls, and soon enough, masters being up. She will never forget this basic mastery of being up and not down. When she develops in the finest ways she will know it is toward becoming an “upright” person. When she stumbles on a stair-step she will instantly be humbled and remember the perpetual mocking possibility of being down.

Piaget (Piaget, 1953) has taught us about the development of *here-there* and *now-then*. The infant looks at mother, then mother is absent. It is a wonderful moment when the baby comes to understand that mother still exists at such times but is in another place – she is there. Here is where the child is, and “there” is another place where mother still is, but out of sight. Other things can be “there” and not “here” as well, she comes to understand. A little later comes the first relativization of *here-there*. The child comes to understand that “here” is different for everyone, and one person’s “there” may be another person’s “here.” As with every such achievement, even as adults some grasp it more firmly than others, and any of us can lose hold of it at times.

*Now-then* is also a struggle to attain. For the infant, there seem to be many endless moments, where what is of interest is present. Then she comes to think of the toy elephant when it is not present. Ah, she knows that it is somewhere (in some “there”) and starts to search. But she cannot find it in any there. She asks her dad who says that we left it in the restaurant. She wants to go find it. Not now, he says, later this afternoon, when we are shopping. She bumps against this “later,” another kind of “there.” But this is a “there” in another kind of space, a space of time. How does one search out this kind of space? Often one must wait. How difficult it is to master this kind of search, without defeat and forgetting!

She has something else to say to her dad. She tries and tries and he doesn’t get it. For him her words are garbled and hard to understand. She struggles with her mouth-muscles and her word-thoughts and tries and tries. She knows her thought but he does not. Her thought is inside her, but outside of him. She has previously learned that one kind of “there” can be “inside” the toybox with its closed lid. Her head is like this. She knows that what is “in” is only in until it can escape and then be out. A little later she relativizes *in-out* and understands that other people also have an inside which is unknown to her, and other places have an inside which is outside for her. It depends on where (and who) you are.

# Relativization of orienting constructs

All of our basic orienting constructs can and ideally must be relativized. We come to understand that our first form of them is only a special case, one among others. As we come to understand the exceptions, our ability to negotiate in the world becomes more nuanced and adaptive. We are natively equipped to achieve this relativization of our basic constructs, as Piaget showed, and we often struggle mightily to do so. Everyday experience prompts us to some relativizations more than others. In many cases, one can go a life time and not run into the need to develop an elaboration of some basic construct. The specialized insights and observations of scientists require them to take the process of elaboration and relativization further, and then others try to follow them, understand what they have done with these basic ideas and why they have done it.

According to the theoretical physicist Carlo Rovelli, (Rovelli, 2011), Anaximander questioned

whether or not *up-down* was necessarily invariant for everyone. Some had considered that the earth might be a thing floating in space, but reasoned that this could not be because if the earth were such an object (perhaps a ball, or – as he imagined, a cylinder) it would fall. Anaximander questioned this assumption. Even if the earth is surrounded by space, why should it fall? Perhaps things fall *toward the earth*. If that is what falling is, then there is no need for the earth itself to fall. Thinking a little further, it’s clear that if things fall toward the center of the earth, then up and down became notions relative to the earth. “Down” must be relative for people, a bit different for everyone depending upon where on the earth they are. You may remember when you were very young and standing perhaps in North America, how you struggled to understand that someone in Australia would be standing upside-down. Anaximander, Rovelli argues, was the first to relativize up and down in a way that everyday experience does not require. Copernicus and Galileo fleshed this out with astronomical theories and observations and confirmed the elaboration of *up-down* that made it relative to the place of the individual person. This made our naïve use of the construct useful only as a special case – as applying only to where one is. Now we all have come to see up and down as relative to the center of the earth, or of anything with mass and gravity. The earth became a ball and not a flat plane, and it was removed from the center of the *up-down* universe, all because the meaning of up and down became abstracted away from the immediate experience of the single person.

Einstein relativized the constructs of *here* and *there* and *now* and *then*. Here and there were no longer separate points in an invariant space, but space itself became bent as a function of mass. The naive sense of here and there could no longer be used scientifically, and anyone with even superficial scientific education has come to understand that they are poles of a construct with limited, personal applicability. He also relativized *now-then*. Space-time became one thing, a fabric that is bent. Locations were no longer invariant, fixed distances in a fixed space. They changed as a function of relative velocity. And the notion of “now?” We have always known how two things can happen at once. After Einstein we have to know that things can happen at once from the standpoint of one point in space-time, but not be simultaneous relative to another point. Quantum mechanics further relativized the idea of *now* and *then* and *here* and *there*. Events do not simply follow one another along a fixed line of time with fixed and equal units. *Now-then* is useful within the scale of personal living, but one comes to observations that show that time is also bent, can join back to itself with simultaneity. And *here-there*, with its assumption of simple location? Before it is measured, an atom exists in many different places at once. Once measured, it occupies a single “there” as our native construct suggests that it should.

And now parapsychology. I believe that parapsychology relativizes the idea of personal *in-out*. Science is not well-prepared for this, although the importance of the observer in quantum mechanics may also threaten to introduce it. There is still debate, apparently, about how literally to understand the contribution to nature of conscious observation.

The issue becomes inescapable, though, in the renegade findings of parapsychology. We see that in and out do not always retain their normal relationship. In parapsychological phenomena, I may experience another person’s feelings as if they are my own, or see another person’s event as if I am involved in it. His in and therefore my out, has become in some way my in as well. Some object may be hidden inside another room, while I am outside. Yet if my responses allude to that thing to an extra-chance degree, it has become in some sense inside my experience while outside it. And my intention, instead of remaining within my personal sensory-motor system may be expressed beyond that, both in the responses of other people, and in the behavior of physical objects (My in-tention may also be an ex-tention). What is in and out become relative, normally working fine but in these cases not, and this alerts us to some limitations of our normative personal experience of this relation.

One thing this implies is that we live intimately in a universe of *meaning* that exists “out” as well as “in.” As Plato thought, meanings exist beyond the person and are not simply constructed by the person or by groups of people. In psi, we engage meanings that supersede any physical conduction to the self. Yet we engage them, we are affected by them, we express implicit references to them. It seems that we find them much more than make them, and we find them far beyond the normal bounds of the body and the current moment. An ESP target in an experiment is nothing more than an intention of the experimenter, as far as the subject can know. It is in a “there” or a “then” that is adamantly sealed away. If precognitive, it is an intention without specific content at the time of the apprehension. It exists only as meaning – a meaning to which no one in the present has access.

# Psi is where science is losing its mind

I must bring up another issue, that of anxiety and madness. As I said above, the experience of some core construct being invalidated (even in the service of ultimate relativization) is distressing. Another wise aspect of George Kelly’s thought was his assertion that anxiety is the experience we have when we sense that our constructs are not working well. This happens whenever we run into events that we did not anticipate, and that, using our ways of understanding, we *could not* anticipate. We are invalidated scientists, except that we are not in a laboratory, detached from life. We are standing in life, and unable to make our accustomed sense of it. This makes us feel anxious. If anxiety gets great enough, and central constructs are failing badly enough, this feels crazy, and we start to look and sound crazy to people around us. This implies that every step of the elaboration and relativization of our important constructs is preceded by some anxiety. Perhaps by a lot of anxiety. The process can feel crazy. We may not remember it that way after the fact, because we tend to remember only the cognitive achievement, not the unformulated distress preceding it (We remember what we cognitively process). In a recent article by the philosopher Frank Parkinson, I read that the astronomer Cecilia Payne-Gaposchin said of her first encounter with General Relativity that it was so disorienting as to feel at first “almost like a nervous breakdown.” (Parkinson, 2014). Even now, theoretical physicists are casually referred to as “crazy” by many people, because of their strange ideas. And parapsychologists are referred to as “crazy” even by other scientists, who are used to the relativization of constructs in other areas, but not the sort of elaboration that we require of in and out.

One reason we have trouble with this is that we all have one particular native experience of the relativity of in and out, and we know that it can be troublesome. Every person can easily be dual, in the sense that we can engage in an inner dialogue, usually taking a particular point of view against something else adversarial, or longed-for, or perplexing. In the mind, we can quarrel with some opponent existing in fantasy, or implore a lover to come back, or ask some difficult person to explain himself. However, we can also switch sides, argue the other case, identify with the other perspective. Then in and out have shifted their locus.

The potential trouble with this ordinary activity comes up when a person is too confused and in the process of construct break-down (anxiety). Then he or she becomes distressed. Inner dialogues become pressured and emotional, or scattered and bizarre, or dissociated and hallucinatory. The person experiencing such break-down if it is severe enough also becomes distressing for others. There is too much switching of positions, too little consistency and coherence, too little consensuality within the self and with the rest of us. All of us want a smoothly functioning perspective that works and can be shared and used by all of us more or less equivalently. We want to see eye-to eye with each other and within ourselves. If one become too conflicted or fragmented or obsessively ambivalent or non-consensually self-absorbed this leads to the experience of distress and make others uncomfortable as well. One seems odd and unpredictable. Such a person becomes a center of anxiety, and it radiates to others. All of us work best when we function within our native *in-out* framework, keeping a position within our dichotomies. When this breaks down for a person, it’s a sign of trouble and feels like trouble. All the psychiatric “diseases” were invented to describe flavors of this problem.

In the case of science, the anxiety is usually, but not always, less intense. When the utility of such a basic construct as *in-out* breaks down for science within scientists it leads to conflict, intellectualized anxiety, and hostility (which Kelly defined as the attempt to extort validation for one’s constructs, evidence-be-damned). It also leads to deep pondering, new experiments, new theories.

So there can be a conflation between the scientific breakdown of *in-out* and the personal breakdown of it. The person who is psychotic has in and out all screwed around. She hears others’ thoughts, is even attacked by them. She is transparent, and unable to keep her thoughts from everyone around her. Or she is petrified into rock, and believes that she will never again be able to leave the inside and reach the outside. Actually, all the basic orienting constructs may break down when a person breaks down. The past and future and present can become confused (*now-then*), bodily orientation in space may become weird (*up-down*), what is going on elsewhere may be confused with something happening to oneself, or vice versa (*here-there*).

Each of these revolutions, when they were brewing in science and before they were consolidated, must have felt crazy to scientists, as if science were losing its mind. This is a mild analogy to the personal experience of mind-losing – but not too mild, distressing enough. In science, we look back later and see that it was growing-pain, it was really only mind-relativizing in order to accommodate contrary observations and dueling theories, and struggling to form better understandings. In the healing process of psychosis, too (which is actually interrupted by neuroleptic drugs) one can look back from a broader and wiser perspective and see why the self as it was at first desperately needed to break down and reform. (“I was far too arrogant,” one post-psychotic man told me recently. “It wasn’t working, but I didn’t see it. Something had to break.”) But the process, personally and scientifically, can be terrible.

Everyday life still functions best with the ordinary ideas of *up-down*, *here-there*, *now-then* and *in-out*. Science now knows that our everyday experiences of these matters are only special cases of a bigger reality. Parapsychology has added *in-out* to this painful, disruptive and creative process.

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