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Comment on: "Isomorphism: A Bridge to Connect Gestalt Therapy, Gestalt Theory, and Neurosciences" by Margherita Spagnuolo Lobb

First, I should say upfront that I feel most qualified to comment with regard to classical Gestalt theory, based upon English language publications, and occasionally, translations. I have no expertise in neuroscience or Gestalt therapy. But since Dr. Spagnuolo Lobb's goal is to reveal isomorphism as a sort of common denominator connecting Gestalt theory, Gestalt therapy, and recent neuroscience, the success of that mission rests substantially upon the accurate depiction of this often misunderstood concept, whose meaning rests in its relation to the larger theory of which it is a crucial part. If Gestalt-theoretical isomorphism is the paper's lynchpin, my comments focusing upon that theoretical foundation may be worth considering. Also, full disclosure compels me to note that I was a student of Mary Henle, whose views on the relation between Gestalt theory and Gestalt therapy are well known to most readers.

Spagnuolo Lobb's topic is a worthy and even daring one, and she is quick to note the immensity of her challenge. She faces two main tasks. The first is obviously to make a good case for her prime thesis. But success on that front hinges upon satisfaction of a second duty, which for me takes precedence over the first: That is to get Gestalt theory right, or, at the very least, to do no further harm to the concept (and the theory) that has already suffered so much misrepresentation in the literature. The author acknowledges the sad history of misunderstanding with respect to the concept of isomorphism, and seeks to avoid further confusion by maintaining clarity with regard to classical conceptions, and by identifying any subsequent departures from original meanings. This is a tall order, particularly for a Gestalt therapist whose background in Gestalt theory is admittedly limited.

So what is Spagnuolo Lobb's prime thesis? I struggled at times to connect the dots, but gather that she views the discovery of mirror neurons as a kind of confirmation of isomorphism, which thereby reinforces the idea that we can move past the kind of dichotomous thinking that hinders both scientific understanding and genuine therapeutic change. This transcendence of dichotomies seems to drive

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home for her the truth of Gestalt therapy and its theory of contact. She illustrates the power of this view with an excerpt from a clinical exchange during a psychotherapy training session. She additionally draws attention to the current theory of embodied stimulation, developed by one of the initial discoverers of mirror neurons, Galese, which accords with early Gestalt theorizing.

Her success in conveying her main thesis seems to me, at best, mixed, partly because the concepts and views she seeks to connect (or expose connections in) were not themselves presented with sufficient clarity to begin to see how they might relate to one another. Nor was it easy to fully grasp many of her conclusions, which didn't always seem to follow from her stated premises. My biggest concern was her presentation of Gestalt theory, which appeared often cursory, and at times misleading.

If indeed the "single starting point" (Köhler 1947, 3) for all science is phenomenology, I might as well begin my discussion there. I won't quibble when she refers to Gestalt theory's development of a phenomenological perspective "based on accurate description of the immediate experience of situations-(stimulus) by individuals". However, she later defines phenomenology as "the science which studies the phenomenal field, that is to say, *how direct experience of the world occurs*" [my italics]. The latter part of this statement in fact describes what phenomenology decidedly is not. Köhler is quite explicit that any such causal speculation fully departs from phenomenology: **"**It is most essential for phenomenological statements that they never be confused with hypotheses or even with knowledge about the functional genesis of phenomenal data". (1938, 64)

My other apprehension here is that the author acknowledges only phenomenology as a research method of Gestalt theory, and seems largely to confine its subject matter to perception theory. Phenomenology may provide science an unavoidable starting point, but scientific work surely cannot end there. Views and concepts elucidated within the phenomenal realm will be applied to realms beyond the reach of direct observation, certainly including the physical world (1938, 88). Is there a bolder departure from (or act of faith in) phenomenology than the principle of psychophysical isomorphism? Likewise, the subject matter of Gestalt theory extends far beyond its initial application to visual perception, to include cognition, memory, values, social psychology, aesthetics, etc.

I was also confused by the author's statement that:

> "The phenomenology of Gestalt Psychology seems to bring the field of consciousness and the phenomenal field together, identifying phenomenal reality (one's experience, the inner world) as its main subject of research and distinguishing it from the transphenomenal or meta-empirical reality (the biological, physical and social world, transcendent as regard to consciousness)" (Spagnuolo Lobb, this issue, 44).

If I am correct that the field of consciousness and the phenomenal field are the same thing, how indeed can they be brought together? Also, the author lumps the "social world" in with the physical and biological worlds, as transphenomenal realms beyond the reach of direct experience. Since the human social world is hugely experiential, I don't know why it should be entirely cast out of the phenomenal world. These instances stir concern in me that the author's demarcation between phenomenal and physical worlds may not be fully clear and consistent. (For example, if "the inner world" is phenomenal, in what realm is the corresponding "outer world?" Does she consider it phenomenal as well, or physical (and if it may be both, how so)? Is it understood that we can have no relationship with the physical world (including the biological world of brain events) except by way of its phenomenal representation in percepts and ideas?

Of course, the central, bridging concept for the entire paper is isomorphism, whose long history of misunderstanding she notes, with some commitment to try to avoid further misrepresentation. I find problems here too. She does little to flesh out the principle, and overlooks basic aspects of Köhler's phenomenological account that are directly related to the topic at hand. Consider these attempts to define and describe isomorphism:

> "Hence, we can explain isomorphism: we perceive the world through brain structures and functions which reproduce its essence" (Spagnuolo Lobb, this issue, p.42).

Later she tries to "simplify" its meaning, that:

> "when we are aware of something, something equivalent is happening in our central nervous system. Thus, there is a similarity (to be defined) between phenomenal field and neurophysiology" (Spagnuolo Lobb, this issue, p.43) .

Looking for further "definition" of the "similarity" between phenomenal and physical realms, I see this:

> "Wertheimer and Köhler agree that neurophysiology and phenomenology are the isomorphic domains. In other words, every experience has a corresponding neurophysical structure which makes it possible." (Spagnuolo Lobb, this issue, p.43).

These characterizations of isomorphism leave room for sharper clarification. The idea that phenomenal events have corresponding neural correlates is hardly a controversial idea, but the principle of isomorphism is anything but uncontroversial. Spagnuolo Lobb's reference to a "structural" aspect is certainly a step in the right direction, but it is modest and undeveloped. The similarity between conscious experience and its neural correlates to which Köhler referred is a *hypothesized* (not presumed) similarity between structural characteristics of the phenomenal field and the corresponding structure (or functional relationships) of underlying brain events. (Spagnuolo Lobb's footnote reference to isomorphism in its initial math-

ematical context, referencing Hofstadter, comes closest to capturing this meaning.) But there is virtually no discussion of either the structure of phenomenal experience or its corresponding neural substrate, as would apply to mirror neuron research.

But allow me to add my own *mea culpa* here. The article by Eagle & Wakefield (2007) referenced by Spagnuolo Lobb, which initially recognized mirror neuron research as bearing out early Gestalt thinking, described two general areas of that research, concerning observers' experience of (1) intentional behavior, and (2) emotional expressiveness, of others. In addition, they preserved a distinction they (I think, aptly) discerned in the writings of Köhler and Koffka, which, "in effect…identified two forms of isomorphism: an internal or intrapersonal and an external or interpersonal isomorphism" (2007, 60). They note that mirror neuron research applies most immediately to the former, external form, though the internal form provides the grounds for the external. The discussion that follows will be confined to psychophysical isomorphism, which seems to correspond to their "internal isomorphism." This seems partly justified since it is the fundamental form (and the basis for the "external" version) and also appears the focus of Spagnuolo Lobb's attention. Because of this focus on "internal" isomorphism, I concentrated on perception of intentionality, and, regrettably, largely ignored the issue of perceiving expressed emotions, which would have required more unpacking of the "external" isomorphism concept.

Köhler's most comprehensive discussion of isomorphism is in his 1938 magnum opus, *The Place of Value in a World of Facts.* There he focuses upon what he refers to as requiredness (his overarching term indicative of value, interest, attraction, repulsion, fittingness, etc.) as a structural property of most phenomenal fields, and looks to see what neural processes might possess those same structural characteristics. In the particular case of requiredness, one part of the field is attracted to – or repelled from – another part. Since the mirror neuron research under consideration here involves the experience of intentionality, it would represent an instance of the requiredness for which Köhler seeks the neural correlate. In fact, Köhler's analysis of phenomenal requiredness would seem to speak directly to such experience, and it would seem to supply some useful context both for Spagnuolo Lobb's discussion, as well as the earlier article by Eagle & Wakefield (2007), which first drew attention to the mirror neuron discovery in helping substantiate the prescient views of Köhler and Koffka.

Köhler's (1938, 1944) account of phenomenal requiredness addresses two main topics: first, concerning the general characteristics of requiredness across the board, and, second, concerning the source and direction (or object) of requiredness in a particular phenomenal field.

Köhler enumerates eight general characteristics that phenomenal requiredness exhibits all or much of the time, beginning with three traits by which it satisfies "the essential conditions of a specific organization or gestalt" (1938, 75). *First*, there is "a definite context, comprising definite items in the field which are experienced as belonging to the context" (p.75). For example in the case of a person's attraction to an ice cream cone, there are three facts: a phenomenal self, a phenomenal object, and a specific interest (positive or negative) which issues from the self, selectively, to the object. *Second,* this vector of directed interest is a system property of the context. Thus, without an interested phenomenal self and an interesting phenomenal ice cream cone, there would be no requiredness. *Third,* parts that compose a given context have properties which depend upon their place in the context. For example if the requiredness were reversed, say by a sick stomach, the same visual presence could induce disgust instead of appeal.

Köhler notes some additional features of requiredness: *Fourth,* one part of the context "refers" to another part with a specifically demanding character. *Fifth*, requiredness *often* exhibits a perfectionist or correctionist character. Thus, if the ice cream cone is not already in my mouth, it needs to be (and, I add, might need to be chocolate). *Sixth*, acceptance or rejection *often, but not always* rests upon "definite characteristics of those facts which are found to fit or not fit each other in given contexts." In such instances, there may be "insight into the actual foundations of requiredness" (1938, 257). If we see an overwrought parent lashing out at a frightened child, the basis or justification of our negative response might seem to be fully given in the situation as perceived. However, there are other times when such insight seems lacking, even when the requiredness is intensely felt.

That enumeration may seem to have exceeded current needs, but it may come in handy later, and at least it is now again on the record. More immediately relevant to the current topic is a second aspect of Köhler's phenomenological study, concerning the experienced source and direction (or target) of requiredness in a particular phenomenal field. So far, we have a context in which a vector issues from a source to a specific object or target elsewhere in the context. The main example given was a case of subjective requiredness, in which a vector issues *from* the self *to* its object, the ice cream cone. This scenario accords with traditional explanations of value experience (i.e., act theory of value), which would restrict all value experience to subjective requiredness. (By this view the *appearance* of valuative demands arising from objects of experience, rather than from the self as subject of experience, may be explained on the basis of some hypothesized projection or unconscious inference from the subject onto some experienced object.) However, this subjectivist view (which at times seems bizarrely far-fetched, cf. Köhler 1944, 364, and which may have devolved in part from a blurring of the distinction between physical and phenomenal realms, cf. Köhler 1938, 71f) is regularly at odds with phenomenology.

Thus Köhler notes that value demands routinely stem, not from the self or subject within the phenomenal field, but from phenomenal objects in the self's field. Köhler offers various examples in which the self is not the source, but the target of felt demands (1938, 76f): The homeless person stretches out his cup to us and we find it hard to resist his demand. The obligation to complete an assignment presses upon us. We are captivated by the charms of an attractive person. (Such examples of objective requiredness prompt a second look at cases of subjective requiredness earlier discussed. Upon closer analysis, it seems that subjective requiredness may inevitably be predicated upon the experience of value in the object. Phenomenology indicates that subjective value involves not a subjective response to an otherwise neutral object, but instead a subjective response to perceived objective demands. Thus my interest in the ice cream cone seems utterly well founded, given its delightfully compelling taste and cool sensation.)

One final class of examples appears to relate most directly to the phenomenal events associated with mirror neuron activation. Here the phenomenal self is neither the source nor the target of a value demand. Instead a vector springs from one phenomenal object to another phenomenal object (neither of which, interestingly, need be a person). Here the phenomenal self may experience positive or negative requiredness even though he or she is not an immediate participant in the original gestalt. If the sight of a man approaching the self in a demanding attitude has value properties, Köhler asks, why shouldn't the sight of him striving for shelter in a rainstorm. (Note the similarity of this example to mirror neuron research into perception of intentionality.) Or consider the "avoiding attitude of chimpanzee who finds himself near a strange looking thing" (94), where it may be perfectly obvious what their reaction is in reference to. Whether it is a person or a thing makes no real difference. One other example in the area of thought: We read an argument which we find is logically flawed. While it appears wrong objectively, independent of our subjective interests, we are far from indifferent spectators. We thus may become irritated or offended by the illogic. These examples illustrate a further point, that, in addition to the objective context whose parts may seem to fit or clash, there is a larger context which includes the self, who may respond to the properties of the objective context with a subjective vector, positive or negative, whose source is the phenomenal self and whose target is the phenomenally objective situation. Thus in the case of negative requiredness, we may feel provoked by the wrong-headed thinking to make a note in the margin, or in the musical example, it may occur to us to shoot the piano player (That last thought is my own).

This review provides an overview of essentially one half (the phenomenal half) of the problem area Köhler tackles in *Place of Value* – the other half being a more speculative discussion of what the neural correlates of that phenomenal activity might be. The main points from it to apply to our current topic concern, *first*, the

articulated structure of the phenomenal field associated with the cases of perceived intentionality (as illustrated in mirror neuron research). Isomorphism posits that this same structural organization (differentiation of part-structure, presence of system properties, etc.) will be present in the neural correlate of the experience, manifest in physical processes and functional relations in the physical world, matching the differentiation of the phenomenal event. *Second*, the (phenomenal) self's experience of requiredness, (or fittingness, or value, or intentionality) is just as real and immediate and direct when the experience of intentionality extends from another phenomenal person (or thing) and is directed to (or away from) some other person (or thing) than when it springs immediately from the heart of the phenomenal self. The fact that this experience of intentionality does not initially reference the self needn't at all diminish the immediate felt reality of the event for the phenomenal self. *Third*, the difficulty we may have in accepting the notion that requiredness or intentionality can arise from phenomenal objects (i.e., other parts of the phenomenal field besides that region associated with the self) may reflect a failure to distinguish between the *physical organism* in whose brain the neural correlate of this experience is active, and the *phenomenal self,* representing merely one portion of the phenomenal field, in this case bearing witness to a scene of directed interest.

There are a few more points that can now be made with respect to Spagnuolo Lobb's thesis. First, the experience of intentionality on the part of another appears comfortably subsumed within Köhler's phenomenological examination – as a case of experienced requiredness issuing from one phenomenal object (in this case, a person) toward another (person or thing). Köhler's example of the sight of a man seeking shelter in a rainstorm seems to match closely the mirror neuron scenarios. It would seem difficult to evaluate the bearing of mirror neuron research to gestalt theory and its principle of isomorphism without considering Köhler's phenomenological analysis. In the case of the man in the rain, the experience of intentionality, the fittingness of the shelter to the problem of getting drenched, is woven into the basic organization of the visual field (by observer and observed alike), not (seemingly) added to it later. The fact that the experience of intention and value on the part of the soaking wet man is mediated by purely physical processes outside the influence of perceptual organization (e.g., light waves conveying this image) does not mean that those value characteristics cannot register, more or less intact, in an observer's experience of that scene of highly motivated and directed activity. Also, it is only by elucidating the structural characteristics of the phenomenal field that one can know what to look for on the neurophysical front, and thus to be able to test the theory of psychophysical isomorphism. Isomorphism, after all, predicts that the same structural characteristics of phenomenal experience will likewise manifest in its neural substrate.

This brings us to a second point, concerning the neurophysical realm, and how best to interpret mirror neuron findings with respect to isomorphism's neurophysical predictions. Concerning that mirror neuron research specifically, it seems highly doubtful that mirror neurons can alone represent the neural correlate of the experience of intentionality in another person. Might not that experience entail some neurophysical representation of the perceived situation, on the basis of which the mirror neuron fires? I quickly admit to being out of my element when discussing modern neuroscience, and do not presume that neuroscientists themselves are necessarily over-interpreting these findings, but I do here find myself in surprising agreement with a scholar of neuroscience of a decidedly non-Gestaltist orientation, Patricia Churchland, who doubts that mirror neurons are themselves responsible for understanding the intentions of others. She writes: "A neuron, though computationally complex, is just a neuron. It is not an intelligent homunculus" (2011, 142, quoted in Wikipedia).

Moreover, I see nothing in Gestalt theory that would predict the existence of mirror neurons. Gestalt theory is, after all, a field theory. Its principle of isomorphism postulates a neurophysical *field* corresponding to the phenomenal *field*, in which are represented, for example, segregated physical regions (corresponding to different perceived objects) whose part-structure maintains the same functional relations as parts of the neural field that phenomenal parts and relations exhibit in experience. Of course mirror neurons do not in themselves represent the macroscopic brain states and processes hypothesized by Köhler as the neural correlate of phenomenal events. Nor do they appear to support Köhler's nomination of "cortical fields" – involving "electric currents which originate and spread in brain tissue as a continuous or volume conductor" (1969, 103) to be the neural correlate of phenomenal fields. Note here that Köhler's postulated isomorphism does not rest entirely upon his narrower hypotheses about cortical fields: "If actually some other process plays the part which has just been ascribed to electrical currents, our argument must be applied to this other action" (1950, 72). And whether mirror neuron activation might be part of any larger, macroscopic field process, is a question that is entirely over my head.

Mirror neurons in themselves seem not to confirm psychophysical isomorphism, certainly not the proposition of a neural field showing the same structural properties as its corresponding phenomenal field. But even if mirror neurons are neither necessary nor sufficient to substantiate Gestalt isomorphism, if indeed they do little to answer the question of *how* neural processes are capable of giving rise to some phenomenal events, their discovery nevertheless suggests *that* perhaps something fully consistent with Gestalt theoretical thinking is going on in the person's perception of the world and others within it – what Eagle & Wakefield describe as a "general non-inferential perceptual directness of our understanding of other's mental states" (2007, 62). Resonance? Empathy? Tuning forks? I

think also of the Presocratic doctrine of "like is known by like." Whatever it is, it dispenses with reliance upon seemingly far more arcane, *ex nihilo* theories of investiture of meaning – by way of projection, induction, Helmholtzian unconscious inference, etc. – onto a world presumed to be barren of meaning and order to begin with. A kind of metaphysics of negation.

Let us move on to Spagnuolo Lobb's discussion of the need to "overcome dichotomies," which provides an opportunity to address a number of important themes in Gestalt theory, and also to encounter a couple of sad ironies. The author introduces this topic in Section 2, in connection with isomorphism, which for her provides an opportunity or justification for "overcoming dichotomous thought." She refers to an article by Henle (1987) – published in fact in this journal – which describes various dichotomies which Köhler broke out of. While Spagnuolo Lobb does not precisely identify the dichotomies at issue for her (it would appear to be mainly mind-brain or phenomenal-physical distinctions), Henle has decidedly different dichotomies in mind.

Of the four dichotomies Henle examines, I mention only one: nativism-empirism. Henle notes that when Gestalt theorists criticized then dominant empiristic theories of the day (which for example might explain perceptual achievements as due to unconscious inferences from past experience), they were mistakenly assumed to be nativists, since that was considered the only alternative to empirism. Of course Gestalt theory, while recognizing the essential contributions of genetics as well as learning, concludes that "neither inheritance nor learning, nor any combination of the two, is sufficient to account for any psychological effect" (Henle 1987, 140). A third explanatory principle is involved throughout human activity, to which psychology to this day remains largely oblivious*: invariant dynamics*. Köhler (1938, 1950, 1969) revisits the theory of evolution to explain. Evolutionary theory is most obviously a theory of change, but it also entails a principle of invariance. The invariants here are general principles (e.g., 2nd Law of Thermodynamics), forces (e.g., electrical or gravitational fields), and elementary processes (e.g., electric currents) in nature. Action in physical systems accords with these invariant facts and processes. In the emergence of living forms from inorganic nature, these invariant dynamics will remain constant. Evolution operates through the introduction of constraints to action (as a pipe might constrain the flow of water to one of two directions), but within the limits of those constraints, processes in living systems will proceed in accord with the invariant dynamics manifest throughout nature. Thus, for example, Köhler notes (in a comment not mentioned by Henle):

> "When man is thinking, he invariably follows, at least in part, *some* principles of action which hold everywhere, and can therefore not be suspected of being relative to his particular environment" (Köhler 1950, 74).

It was for me poignant to read Henle's statement later in her article (1987, fn 1) suggesting she had an opportunity to bring up psychophysical isomorphism in her discussion of Köhler's principle of invariance. She noted that:

> "This journal [has] published several articles critical of this hypothesis. Among other aspects that have been neglected in these critiques is its relation to evolutionary theory" (cf. Köhler 1938, 395f.).

Henle proceeded to press the need to distinguish isomorphism from different concepts bearing the same name. Most important, she wrote, "the hypothesis needs to be fully understood before it can be either accepted or rejected" (Henle 1987, 148).

Obviously Henle believes that we cannot fully understand isomorphism without recognizing its relation to evolutionary theory. She points us to a late section of *Place of Value* for an indication of what this relationship is. A page or so into that passage, Köhler makes an extraordinary statement, which Spagnuolo Lobb quotes in her footnote 4:

> *"The principle of psychophysical isomorphism follows from the principle of evolution* [Italics in text]. Isomorphism indeed represents the only way in which mental life can be dynamically interpreted, in which it can become a subject matter of physics" (1938, 396).

So, lo and behold, Köhler informs us that "evolution implies isomorphism" (1938, 398). How much smarter would I need to be to grasp the full import of Köhler's short statement that *the principle of psychophysical isomorphism follows from the principle of evolution*?

Let us return now to Spagnuolo Lobb's article. While I admired her inclusion of the Köhler statement, and her mention of invariant dynamics in the same footnote, I saw no trace of this thinking in the article itself. Indeed, though she touted Gestalt theory's emancipation from dichotomies, I wasn't sure she understood its rationale for breaking out of the nativism-empiricism dichotomy, or indeed whether she remained under the mistaken impression that Gestalt theory was nativist. My strongest moment of concern came in footnote 2, where she suggested that part of the appeal of Gestalt theory to '60s Cognitivism was its "attention paid to innate aspects of behavior." Another ripple of discomfort came when I read, "The survival function of this correspondence between self and world in terms of evolution is obvious" (Spagnuolo Lobb, this issue, p. 42) Perhaps so, but does she imagine that isomorphism arises out of natural selection? This was the very sentence which prompted her footnote quotation from Köhler. I worry that Spagnuolo Lobb may not be aware that the "principle of *evolution*" referred to in Köhler's extraordinary statement is in fact the "principle of *invariance*" he has discussed and developed at great length in the last half of *Place of Value*… (1938) and elsewhere (e.g., Köhler, 1950).

What seems more certain is that the dichotomy under direct attack by Spagnuolo Lobb is the one that Gestalt theory most strenuously insists upon: The distinction between the phenomenal and the physical object (cf. Asch 1952; Henle 1977; Köhler 1938, 1960, 1966). Though little is explicitly spelled out in her article, Spagnuolo Lobb apparently views the evidence of motor neurons as confirming psychophysical isomorphism, which seems for her to vitiate the distinction between phenomenal and physical. In fact, psychophysical isomorphism is a dualistic postulate. It was helpful to me to read this statement in the work of a Gestalt therapist Spagnuolo Lobb approvingly cites:

> "Gestalt therapy and Gestalt psychology are fundamentally different. Gestalt therapy is adamantly an holistic approach – the sensory-motor-affective unity of contacting is bedrock; Gestalt psychology, on the other hand, is dualistic. Gestalt psychology is based on the mind-body split of isomorphic parallelism – events in experience are structurally identical to but separate from corresponding brain physiology" (Bloom 2003, 69f).

Perhaps Bloom is largely correct. Certainly Gestalt theory accepts the generally non-controversial proposition that there is a difference between the mental/experiential realm and the physical realm (the latter including neurophysical systems underlying mental states, physical organisms with which phenomenal selves identify, as well as the broader physical world). In fact isomorphism is itself an acknowledgement of this distinction, by the very fact that it speculates on how the two realms might relate. But while Köhler sought to expose the deep kinship, the intimacy of the two realms (opening the imagination in revolutionary ways to the potentiality of direct access of physical states via phenomenal experience), his insights rested upon a thoroughgoing respect for distinctions between the two worlds, and his refusal to try to deny these distinctions by mere verbal artifice. Thus where Bloom (and Spagnuolo Lobb) may be mistaken is in the belief that the holism of Gestalt therapy, as though by fiat, can erase that distinction.

Summary

Here I comment on the article *Isomorphism: A bridge to connect Gestalt therapy, Gestalt Theory, and Neurosciences*, by Margherita Spagnuolo Lobb, focusing upon her depiction of some Gestalt theoretical concepts and principles (e.g., isomorphism, phenomenology) and considering some others (e.g., principle of invariance, invariant dynamics) relevant to her discussion.

Keywords: Isomorphism, Mirror Neurons, Phenomenology, Principle of Invariance, Invariant Dynamics, Mind-body problem.

Zusammenfassung

Der Autor nimmt Stellung zum Beitrag *Isomorphism: A bridge to connect Gestalt therapy, Gestalt Theory, and Neurosciences* von Margherita Spagnuolo Lobb. Er bezieht sich auf Spagnuolo Lobbs Darstellung einiger Auffassungen und Grundlagen der Gestalttheorie

(z.B. Isomorphie-Annahme, Phänomenologie) und untersucht einige andere (z.B. Prinzip der Invarianz, invariante Dynamiken), die für Spagnuolo Lobbs Auseinandersetzung von Bedeutung sind.
Schlüsselwörter: Isomorphie-Annahme, Spiegelneuronen, Phänomenologie, Invarianzprinzip, invariante Dynamiken, Leib-Seele-Problem.

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