

Chapter 5

Remarks on the ontology of living beings and the causality of their behavior¹

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5.1. Two arguments for the ontological difference between corporeal and psychic reality

Aristotle developed two good arguments for why one cannot identify psychic or mental states with bodily states or somatic processes (for instance neural activity in the brain) that are still broadly used today. The first argument states that things that are the subject or substrate of psychic states are essentially different to those that can be the subject of bodily states or somatic processes. The second argument says that between a psychic phenomenon and a simultaneous bodily process no isomorphic structural outline and therefore no analytically productive mapping can be undertaken.

To begin with the first argument: while *all* bodies taken simply as such, no matter how large or small, are subjects of somatic processes and bodily states (as already implied by the term “body”), only a very small selection of them can function as subjects of psychic states, and in these later cases, only when each is *taken as a whole*, and only if they fulfill extremely restrictive conditions regarding their internal structure and external demarcation. Aristotle very deliberately refuses to assume (as Plato and Descartes did) that psychic phenomena have an extra *psychic* subject of their own – for instance, a “res cogitans” or “soul” as a separately existing entity, because he clearly recognizes that such states (everything that we call “psychic” or “mental”) only appear *as embedded in the vital context* of living individuals who, as far we can see, are themselves complex bodies.

Although these complex bodies, according to Aristotle, have a soul or are animate, the soul is not an independent entity besides the complex body, but rather a special manner of existing that this body has as a whole:

[1] Hence the rightness of the view that the soul cannot be without a body, while it cannot *be* a body. That is why it is *in* a body, and a body of a definite kind. It was a mistake, therefore, to do as former thinkers did, merely to fit it into a body without adding a definite specification of the kind or character of that body [...] It comes about as reason requires: the fulfillment (*entelecheia*) of any given thing can only be realized in what is already capable of being that thing, i.e. in a matter of its own appropriate to it. From all this it is plain that soul is a fulfillment or account (*logos*) of something that possesses a capability of being such (*de An.* II 2, 414 a 19-28).

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Psychic and mental states can only be ascribed to this totality in its way of existing: the *whole* human (and only the whole) thinks; the *whole* deer (only the whole) scents something; the *whole* blackbird (only the whole) sings. All mental and psychic states are biographical in nature. That is, they only appear as *embedded in life episodes* of living individuals in their totality. As long as these individuals are corporeal, the ultimate subject of psychic and mental states is indeed—although complex and highly integrated—a *body*. This is at least Aristotle's position.

But the bodies that can be, on the one hand, subjects of somatic or physical states and processes and, on the other hand, subjects of psychic or mental states are essentially *different*. While *all* bodies and bodily parts in any partition serve for the first kind (and the segregation of 'one' of them from the other and its surroundings is a matter of arbitrariness), only those highly complex bodies in so far as they are alive can be considered for the second kind, their segregation from the environment being definite by its living unity.

For this reason, in one and the same complex body there can be states of both kinds: first, physical states, and these can apply thoroughly in all parts of the body; and second, psychic states, but only in the body as a *whole* and therefore always embedded in life episodes of the whole individual. In support of this view of Aristotle that is, in my opinion, also an exemplary position for contemporary debates, I want to mention briefly two quotes from *De anima*, although there are many other passages in the philosopher's work that are equally relevant:

[2] Yet to say that it is the soul which is angry is as if we were to say that it is the soul that weaves or builds houses. It is doubtless better to avoid saying that the soul pities or learns or thinks, and rather to say that it is the man who does this with his soul (*de An.* I 4, 408 b 11-18).

[3] The view we have just been examining, in company with most theories about the soul, involves the following absurdity: they all join the soul to a body, or place it in a body, without adding any specification of the reason of their union, or of the bodily conditions required for it. Yet such explanation can scarcely be omitted; for some community of nature is presupposed by the fact that the one acts and the other is acted upon, the one moves and the other is moved; but it is not the case that *any* two things are related to one another in these ways. All, however, that these thinkers do is to describe the specific characteristics of the soul; they do not try to determine anything about the body which is to contain it, as if it were possible, as in the Pythagorean myths, that any soul could be clothed in any body [...] (*de An.* I 3, 407b15-24).

We can call this first argument for the difference between psychic and bodily processes in short the argument of different selectivity of the subjects: while psychic states select exactly one body with a certain inner complexity and definite demarcation against its environment, bodily processes in principle always diffuse into their surroundings and are selected under the artificial aspects of an observer.

In the course of contemporary philosophical debate with neuroscience a similar criterion was again formulated by Bennett and Hacker in their book *The Philosophical Foundations of Neuroscience* (2003). The authors mentioned referred to the false conclusion that stems from ignoring this argument as the "mereological fallacy," (Hacker, Bennett 2003, pp. 68 ff.) which consists in the inconsequential transition from

the activities of the whole organism to those processes related to them in some relevant part (such as brain regions) of this organism. According to this fallacy, it seems as though our brain (or certain parts of it) ‘thinks,’ ‘sees,’ or ‘feels.’ We begin to ask ourselves how it is possible that besides electrochemical neuro-activity there are other states, namely psychic or mental ones, in the brain or elsewhere, or whether we should assume that a ‘person,’ ‘soul,’ or ‘mind’ is something completely different in us that accomplishes these activities (seeing, thinking, and feeling).

The second argument, which was also brought up by Aristotle, refers to the interior structure of life episodes and the psychic states and processes that are embedded in them, which seems to be completely different to the structure of bodies.

While in the case of bodily processes, the individual, momentary states of the parts involved actually make up the whole process accumulated spatiotemporally, in the case of life episodes we cannot dissect the whole event into spatiotemporal details and moments without losing something. Rather, the episode or psychic state (for instance an itch or a sight impression) disappears completely when we go below a certain extension of the spatiotemporal regions in which it appears (cf. e.g. Stump 1999, pp. 417 f). This can be expressed as follows: life episodes appear in space and time but cannot be sharply distinguished spatiotemporally in the same way as their bodily symptoms. However, if I'm not mistaken, this kind of distinguishability belongs essentially to all *corporeal* states and processes. Aristotle concluded that life episodes or psychic events could not themselves be presented or understood as somatic complexes, but require a peculiar scientific approach and treatment. I quote a related passage from the work *On Generation and Corruption*:

[4] An additional absurdity is that the soul should consist of the elements, or that it should be one of them. How are the soul's alterations to take place? How, e.g., is the change of being musical to being unmusical, or how is memory or forgetting, to occur? For clearly, if the soul be Fire, only such properties will belong to it as characterize Fire *qua* Fire; while if it be compounded, only the corporeal modifications will occur to it. But the changes we have mentioned are none of them corporeal. The discussion of these difficulties, however, is a task appropriate to a different investigation (*GC* II 6, 334a9-15).

What Aristotle says here about the ‘matter of the soul’ or fire, as was supposed at the time, also holds good *mutatis mutandis* today for the very much discussed ‘soul matter’ of neural activity in our brain. This activity, in its somatic profile, cannot account for the properties and sequences of activity that we discover in psychic phenomena within the vital context, like for instance meaning something (intentionality) or to feel a certain way (experience quality). It's difficult to see how to interpret what actually seems to happen, as embedded in a life episode (like remembering something), as a somatic process. According to Aristotle, we should rather do what is still common practice today, namely, speak of a mere *correlation* between what happens somatically and what happens in a life episode²; a correlation in which the spatiotemporal interior

² The correlation of psychic states and brain states is itself a product of theories and cannot be an immediate object of experiments; immediately determinable are the correlations between short term behavior events and cerebral activity. On this topic see Kurthen 2006, especially p. 28: “This is the structure of these experiments: primarily we have the investigation of a relation between an instruction and a behavior; secondarily, on the one hand, relations between the instruction and those thoughts it involves against the background of cognitive science and, on the other hand, a relation between a behavior event and those brain processes that accompany this event (or even just their indicators, as in an

differentiation of both sides clearly cannot be mapped onto each other. This is why one side behaves as a somatic complex but the other one doesn't.

[5] the alteration of that which undergoes alteration is also caused by the above-mentioned characteristics, which are affections of some underlying quality. Thus we say that a thing is altered by becoming hot or sweet or thick or white; and we make these assertions alike of what is inanimate and of what is animate, and further, where animate things are in question, we make them both of the parts that have no power of sense perception and of the senses themselves. For in a way even the senses undergo alteration, since actual perception is a motion through the body (*dia tou sômatos*) in the course of which the sense is affected in a certain way (*Phys.* VII 2, 244 b 6-12).

Aristotle seems to be very conscious of the fact that the change of states in a series of life episodes is not spatiotemporally distinguishable in the way a sequence of bodily states is. He determines therefore that the first only appears 'through' or with support of the second, although it is not to be identified with it. Compare a famous passage in *De Anima*:

What we mean is not that the movement is *in* the soul, but that sometimes it terminates in the soul and sometimes starts from it, sensation e.g. coming from without, and reminiscence starting from the soul and terminating with the movements or states of rest in the sense organs (*De An.* I 4, 408b15-18).

In other words, all the spatiotemporal differences which make up movement or alteration of bodies according to Aristotle do not really apply to the characteristic features which mark correlated psychic states. So bodily processes and psychic phenomena are not mapping to each other in a distinctly traceable way.

Indeed, that which definitely has different properties (here: different spatiotemporal distinguishability) cannot be identical according to Leibniz's principle of identity. Nevertheless, it doesn't follow for Aristotle that psychic or life episodes belong to a non-corporeal substance of its own. Rather, the substance to which they belong is a certain complex body that simultaneously exemplifies different kinds of states.³ Every psychic event (thought, sensation, feeling) is, according to Aristotle, a culmination (climax, emphasis) of being alive that the whole system generates. That is, it is a particular character within the framework of certain life-episodes, which in turn are *versions* of its being alive as a whole. Even mere life—for instance, in sleep or

fMRI experiment). The relation between thoughts (the actual phenomena of sensation in the monkey, the actual episode of memory in the human) and brain processes appears at least in a tertiary perspective – and therefore at a highly theoretical level, not directly at the level of 'data' – as the relation between the supposed mental 'component' of a behavior and the brain processes measured directly or indirectly."

³ This was reformulated by Peter F. Strawson as an argument for the special ontological status of self-conscious persons, but is valid in a reduced form for all living systems from a certain level of development: "What I mean by the concept of a person is the concept of a type of entity such that *both* predicates ascribing states of consciousness *and* predicates ascribing corporeal characteristics, a physical situation etc. are equally applicable to a single individual of that single type" (1959, p. 101 f.). Strawson has certain reasons to apply the concept of person primitively and exclusively to individuals with self-consciousness; he especially rejects the analysis of person as "animated body" or "embodied anima," as if these were simpler and the person were composed of these. At the same time it seems necessary to use the double aspect of such predicates also for non-personal living beings without having to consider the "animated body" as a composition of body and soul.

unconsciousness—requires the coordinated activity of the whole body and its parts: metabolism, circulation, muscular tone, nervous dispositions, etc.

A sensation, a pain, a dream, a calculation, catching a ball or keeping balance are climaxes or *culminations* of being alive sustained by this active basis. Just as the mere being-alive relates to the integrated detailed states of the whole body and its parts, so does the culmination relate to the integrated *variations* of those detailed states of the whole system. This is what Aristotle calls self-accomplishment or fulfillment (*energeia* or *entelecheia*). Every accomplishment of a psychic function is such a culmination or an operative state of the whole system. But both, *prôtê* and *eschatê entelecheia* (cf. *Metaph.* IX 8, 1050a24) are embedded in life episodes and require therefore the whole complex body in its interior organization, the whole living individual.

5.2. The somatic as symptom of the psychic

Psychic states are thus necessarily understood as states in their own right; but they do not belong as such to an incorporeal substance of their own. They exist in correlation with certain bodily states of the *same* corporeal complex substance as a whole.⁴ This relation I call horizontal dualism, because it is *not* a vertical relation of *layering* two different substances and their different classes of properties, but rather an intertwining of two orders of the same material in one single substance (as a fugue of two melodies with different rhythm in a musical piece).⁵

Indeed, both happen within the same horizon, namely the spatiotemporal horizon of corporality in general. However, some are internal culminations or, as Aristotle says, self-fulfillments (*entelecheiai*, *energeiai*) of the complete bodily system as a living unity; the other are partial states that are consistently spatiotemporally distinguishable, and relate as “ink” to the readable syllables of life episodes.

The culmination would not be possible if the foundation for it were not given, the “being alive” of the whole individual. According to Aristotle, for all psychic events or psychic states, we should keep in mind the difference between “primary” and culminating *entelecheia*, between the foundation-giving actualization or activity and the summit-building one. The first one, that is, the primary *entelecheia* of the whole system is, according to Aristotle, the defining concept of the soul; the second one, the *entelecheia* that is brought to culmination, is the common expression for all kinds of soul functions, which Aristotle sometimes also calls *praxis* or *chrêsis* [use made of something] (cf. *De An.* II 4, 415a19 und *PA* I 5, 645b14-22; *Metaph.* IX 8, 1050a23-b2.). The relation between soul and psychic state is not that between an underlying subject and a property, but rather the relation between basic disposition and performance or between basic form and developed culmination—like the distinction between the base and the maximum of a mathematical function (e.g. a parabola). While *primary entelecheia* is the self-propagating generic trunk of life-activity in each individual (to be identified with what Aristotle calls “the soul” of a living being)⁶, the culminating activities or particular life episodes are like different graftings on that trunk which bear the mental and psychic states as their varying features.

I think that this Aristotelian image of psychic phenomena can be transferred to contemporary debates without infringing upon principles of modern scientific thought.

⁴ I have described this in more detail as an Aristotelian model of a possible solution to the body-soul problem from a contemporary perspective in: 2006b, pp. 85-106.

⁵ Cf. for this concept of a weak dualism in the same horizon of the corporeal in general, Buchheim 2006a, pp. 38-49.

⁶ Cf. *De An.* II 1, 412^a27 f.: “That’s why the soul is a *primary entelecheia* of a natural body having life potentially in it.” (transl. slightly modified T.B.).

Psychic states can never be identified with somatic states and processes that are determined on bodily parts and are added up out of bodily parts into particular regional patterns of activity. Rather, they are embedded without exception in life episodes that are biographically relevant, that is, they characterize the life-sustaining and life-configuring behavior of the whole organism.

Within these life episodes there are individual psychic phenomena that can best be described as “operative states” of the whole system that accumulate in operations of the living being in question (for instance motor, aesthetic, linguistic, cognitive operations). The sameness and variability of psychic states involves the sameness and variability of the operations—this is, in any case, my thesis. The characteristics of psychic states indicate the kind of life episodes to which they belong and the kind of operations that can be achieved through them. If you can’t hold your balance, you can’t ride a bike; if you can’t see, you can’t paint; if you can’t add, you can’t multiply or calculate a complicated equation; if you can’t hear the beat, you can’t dance, etc.

It is always certain operative complete states with a certain psychophysical profile that enable incorporation in certain activities and operative sequences, and with them the *progress* of corresponding actions. An action or operation fails if the operative states do not possess the corresponding psychophysical profile that represents the key to the progress of the action. We will never cross the thresholds of certain actions; others are crossed only after a long time and practice; while still others are crossed after only a short time or even from birth. The culminations of our life episodes are accordingly simple or demanding, rare or commonplace.

I have already mentioned the expression by which I want to refer to the pairing relationship between psychic-biographical being and simultaneous bodily correlate (be it a state of the brain or of circulation or of the skin, or other somatic organ states): corporeal states are *symptoms* of the complete situation (‘life situation’) of a living being characterized psychically. All psychic states and processes are (according to the first argument) characteristics of a life situation in which the whole living being finds itself; all somatic states (according to the second argument) are only certain symptoms of this situation, and together they do not make up the psychic state. We also do not know exactly which groups of symptoms accompany which psychic events and clearly such correspondences do not always exactly recur.⁷ Unreasonably, we tend to consider just neuro-physiological symptoms as complete correlates of psychic or mental states. However, this is barely justifiable.

It is possible, of course, that particular patterns of neuronal stimulation are typical to a greater extent for particular psychic states or mental performances, and so the former are symptoms that are necessarily paired with the latter, while other somatic symptoms seem interchangeable. On the other hand, much research on brain injuries shows that very different areas and therefore also different neuro-symptoms are required for the same psychic functions. The often mentioned plasticity of the brain indicates that there isn’t a special set of neuro-symptoms that is exclusively correlated with a psychic state or even identified with it. Symptoms remain a concomitant phenomenon and they are not themselves the whole matter of psychic life.

⁷ Aristotle also pointed out this curiosity: [6] “It seems that all the affections of soul (*ta tês psychês pathê*) involve a body – passion, gentleness, fear, pity, courage, joy, loving, and hating; in all these there is a concurrent affection of the body. In support of this we may point to the fact that, while sometimes on the occasion of violent and striking occurrences (*pathêmata*) there is no excitement or fear felt, on others faint and feeble stimulations produce these emotions, viz. when the body is already in a state of tension resembling its condition when we are angry. Here is a still clearer case: in the absence of any external cause of terror we find ourselves experiencing the feelings of a man in terror.” (*de An.* I 1, 403a16-24).

5.3. An example of the causality of the psychic as such

The false limitation, in my opinion, of the bodily symptoms of the psychic to the so-called “neuronal correlate” has led some to suppose that psychic states or mental performances are mere epiphenomena or causally irrelevant appendices of neuronal processes in our brain—a sort of superstructure or a shadow of what happens in the brain and makes us feel this or think that, etc. I am convinced that this is a one-sided reversal of the actual dependencies. It often seems the other way around, that specific symptoms—also neuronal—only follow a certain life situation and its psychic characteristics. When we don't even notice that our blood pressure is too high or that this or that brain function is impaired, then nothing changes in the established course of total behavior. It is only once we become aware of certain signals that we can see that also certain neuronal symptoms change. A very interesting experiment that Jose M. Carmena and Miguel A.L. Nicolelis made some years ago at Duke University documents in an impressive way what I want to claim here (see Carmena / Nicolelis et al. 2003, pp. 193-208).

The team of Nicolelis und Carmena studied the behavior of monkey subjects operating robot prostheses through so-called Brain-Machine Interfaces. The question they wished to explore was which neuronal populations and states of stimulation underlie fine-motor operations of the arms or prosthetic arms. To this end, they let the monkeys play a computer game that they controlled with a joystick. The task was to hit, as soon and effectively as possible, a blinking point that appeared on the screen. During the game, the monkeys' brain activity in certain brain areas was recorded, with a relatively fine definition for those neuronal populations that were supposed to elicit the control movements of the arms.

The monkeys learned to play the game pretty quickly and they liked to play it. At the same time the brain signals, additionally conditioned by a simple learning program, were applied to control a robot arm that began to make movements that were similar to the monkey's. In order to pinpoint the neuronal signals relevant to motor control, the contacts between the monkey's joystick and “his” computer were interrupted after a certain time and the computer was instead fed signals directly from the monkey's *brain*. That is, the monkey's arms were not in fact controlling the game anymore, but the brain directly. At first this arrangement led to a serious decrease in the game performance of all monkeys; but following a significant change in behavior and a reorganization of the neuro-active symptoms, game performance rose again to almost original levels. In an attempt to compensate for the sudden decrease in performance, the monkey would first make protruding movements with its arms that were too big. Gradually, after this strategy failed, the relevant neuronal populations and their stimulation curves changed until finally this neuro-activity led to results that were similar to previous levels, but that were achieved in a different and newly organized way. The monkeys realized pretty quickly that the movement of their arms was causally irrelevant and henceforth controlled the computer game without arm movement, through brain activity alone.

The development of this experiment clearly shows what kind of phenomenon seems to be causally subordinate to the other: the decrease in game performance changes the life situation of the monkeys that is characterized, let's say, through disappointment and anger about the results being suddenly worse. The anger produces an effort to improve the situation again. This effort leads to significant reorganizations of bodily symptoms: for instance, at first, to protruding arm movements with the control pole. Since this does not help, the neuronal populations in the monkey's brain, which by

now are firing chaotically, are selected in a different way than before: those that lead to signals that improve the game performance are *avored*, as they bestow renewed success in the operation sequence of the game; others are repressed and ebb away due to irrelevance. In this way, the monkey learns to control the computer game through slightly reorganized neuronal activity—that is, directly with the brain. What is important for us is that the reorganization of neuronal symptoms in the operation sequence of the game *follows* the biographically affected life circumstances with their embedded psychic states and not the other way around.

Because the monkey gets angry and attempts to return to the earlier successful state, neuronal activity is selected differently and the best variables for game success are favored. In general terms, we cross the threshold of the corresponding next step of a biographical operation by reorganizing the bodily symptoms that accompany its performance. When we balance an egg on a spoon and run to the finish line, we reach the next step and the finish line only if the somatic symptoms are constantly reorganized according to the success of the operation. Now this seems to be valid not only for balancing acts and arm movements that we have learned to control voluntarily and consciously, but also for neuronal populations and stimulation patterns in our brain, as the experiment above teaches. They also develop in relation to their conduciveness for following the steps of the operation at issue; we make variations chaotically and serendipitously until we advance, thanks to an appropriate neural population and activity, to the corresponding next threshold of the desired operation.

Our operative abilities of thought, for instance in calculating or reading, could certainly be built this way. And since the brain has such plastic properties, operations achieved successfully once or several times are retained as a good path for the fruitful progress of our life.

5.4. A proposal for a general model: psychophysical causality through “favoring”

In this way it seems possible to describe a general model for the causality of biographical episodes and the psychic states embedded in them: the organic body of a living being is not subject to a unitary causal succession from one moment to the next; rather it builds a structure of functional systems that are relatively strongly demarcated from each other but overlap and are thus capable of coordination. These systems in turn break down into multiple subordinated causal connections. For this reason, the bodily symptoms of different biographical episodes and the psychic and mental states embedded in them are often dispersed throughout the whole body, they build patterns and relations that are not immediately connected to each other in a causal connection relevant to the complete behavior but are rather symptomatic *expressions* of the behavior or operative state of the whole living organism, as was described above by means of Aristotle’s arguments.

This is why the sum of somatic symptoms, including neuronal correlates, is available according to the life situation and the biographically adequate way of behavior through which the organism is maneuvering. When we learn something, for instance, we expose our body to a situation for which it is appropriate to re-organize a particular subset of the somatic symptoms of our operation. For instance, we repeat a certain foreign word or sound until we can articulate it fluently and correctly. Or we try to stay on the bike saddle until it becomes easier to find balance at higher speeds. We create circumstances, then, for one another and also just for ourselves, in which particular symptoms, including neuronal correlates, are selectively favored, in order to advance to the next corresponding threshold of our operations. When we are practicing something,

we remain before this threshold, searching and chaotically varying these symptoms, until the threshold is crossed and the operation progresses.

As mentioned before, what is unacceptable is the view that these successful operative states (as formulated in Aristotelian manner, the “culminations” or *entelecheiai* of being alive) are *identical* with the corresponding somatic symptoms, neuronal patterns, etc., because in that case we would have to renounce the truth of the affirmation that psychic and mental states and sequences *as such* and in their non-somatic characteristics could be *causal* for the somatic continuation of our existence.

We cultivate thought because its symptomatic expression brings enormous advantages and improvements to our behavior and thus to the somatic profile of the course of our life. These advantages are due to our *thinking*, not to the neuronal firings that, without attention to operative rules of thought, could take a completely different direction in each person. Thought as such has certain characteristics, as is probably clear to everyone, that no purely somatic process or set of processes can possess. Some examples of these characteristics are:

- Intentionality (to mean something, significance)
- Subjectivity (experience quality; first-person perspective)
- Reflexivity (self-transparency; awareness that I am the one who is thinking)
- Integration of foreign perspectives (empathy, communication, speech-character)
- Negative attitude (in logical or practical contexts)
- Truth-orientation (thoughts aim at truth)
- Normativity (we take pertinent norms into account in our actions)

These and other characteristics must be able to leave their causal footprint in our corporeal existence.

Therefore, it is *insufficient* to say that mental dispositions *are* mere neuronal states (identity theory), that mental dispositions supervene on neuronal ones (without their own causal relevance), or that they have causal relevance due to their identity with neuronal states (anomalous monism). In all these models the characteristics of thought I mentioned are *causally depotentiated*. The causal explanation for what happens is not thought, but neuronal states. However, in the experiment described above, it was clearly the monkey’s *desire* to improve its game performance that was the cause for the reorganization of its brain activity. The monkey finds itself in a peculiar life situation that affects not only the state of its brain, but also its complete disposition as an agent with certain interests and experiences (which certainly possess intentional characteristics). This situation *favors*, as we said, the production of particular neuronal states and neglects others. A brain always produces whole *populations* of related micro-states that differ from each other in operationally relevant ways. Such variations can be accentuated because of their being more favorable for the progress of ongoing life-episodes or they can be eliminated through neglect.

The concept of favor or serendipity is meaningful and important in any case where change in a comprehensive context is systematically paired with change in the individual components or symptoms of the context. We find many examples of a causal pairing like that in economics and other ‘trend’ phenomena like the weather, fashion and style. In all these cases a particular change in the component involved can favor or compromise another particular change in the comprehensive context. And vice versa, a particular change in the comprehensive context can favor or compromise a particular change in its components. Also related in this way are the comprehensive life situations in which an organism finds itself and the symptoms of individual body parts that accumulate over certain operative states of the whole organism.

Thus, in my view, a model of psychophysical causal connection through favoring could look something like this:

- (1) We learn by maneuvering each other and ourselves into certain life situations and so creating circumstances that are adequate for particular productions and not for others, and which thereby modify our life situation. We are in turn able to incorporate these favored productions into similar situations as enhancing characteristics; that is, we can then maneuver ourselves again into these situations in order to become more secure through further favoring of the corresponding states, that is, in order to practice better performance (“favoring spiral”).
- (2) Such a favoring spiral is the grounding basis of operation. An operation is distinguished from a sequence of events because its individual phases are united by operative connections rather than immediate causation. That is, they are connected through a sequence or development of life situations through which favored bodily states (including neuronal states) are produced one after the other. Balancing a bowl full of soup so that it can be brought to the table is an example of such an operation. The muscular contractions and angles of the bodily components depend on sensations of how much the level fluctuates. If you don’t master the operation, the waves will inevitably build up because you allow adverse tensions free play—you have selected them wrongly.
- (3) Operation attempts slowly create passages and bridges of capacities or, even better, abilities. This means more or less long segments in which the sequence of life situations remains on track for the operation and does not slip out of hand as it does for the beginner soup-balancer. Favoring is already preparing for the situations that will follow the current one. That is why there is disappointment when someone does not master operations flexibly enough.
- (4) The fourth step consists in the fact that we almost always avoid disappointment, that is, we bring our operations to an end by adapting to the special situation through which we must “navigate” the sequence of life situations. It is still important for all human operations to create particular adequate spaces in which operations can be successful, especially if they are very complex. Also, for the same reason, we do much to help each other, as at the beginning of learning. So in general it is possible that we behave in a particular way in a causal sense *on account of* the specific characteristics of our mental dispositions like intentionality, subjectivity, contextuality, reflexivity and intersubjectivity of thoughts and volitions, etc.

If this model of mental causality is on the right track, then theories that identify the mental with what is physically describable are clearly false: concepts of supervenience as well as anomalous monism without psychophysical causality are insufficient. For this model demands an authentic causality of mental states, and while such states would indeed be states *of* physical-material beings, they cannot be themselves again purely somatic, i.e. physically describable and explainable states of such beings. If instead, in the described way, causally relevant mental states of certain material beings taken as a whole existed which aren’t to identify with their correlated corporeal symptoms, then an essential mark of the mental would be especially highlighted; namely that we can, do, and must enable *each other* to make such mental states an ever more important aspect of our lives. Since we must be originally “maneuvered” into life situations, this seems to me a key perspective for social neuroscience.

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