

Self-consciousness: How? When? Where?

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Purpose: To show how is it that that which we connote with notions of self and consciousness are configurations of sensorialities that arise in the flow of our living in recursive coordinations of doings which eventually they guide, and not entities independent of our doings.

Approach: Following the consequences of our condition of structure determined systems that do not distinguish in the experience whether what they live is a perception or an illusion.

Findings: That we human beings occur as relational dynamics of recursive coordinations of feelings in which self and consciousness occur as configurations of sensorialities in the evanescent continuous present of the the changing flow of our living which they also guide.

Practical Implications: Thinking, acting and reflecting in the awareness that self and consciousness are not physical entities or properties.

Key words: Self, consciousness, self-consciousness, language, human beings.

Preface

We human beings find ourselves doing whatever we may be doing (like asking this question) when we ask ourselves about what we do. The form of the question that we ask determines the operational and relational domains in which we want an answer. The form of the question that a listener hears determines the operational and relational domains in which he or she wants to hear an answer. The operational and relational domains in which our living occurs at any instant changes in the flow of our living as our living changes, and as our living changes our listening changes according to what is happening in our living. Thus, we may begin asking a question in a particular relational domain, but as, in the flow of our living, our listening changes, we may end by accepting an answer in a different relational domain, without even becoming aware of the change. It is to avoid this sort of confusion that I take special care in showing explicitly the relational domain in which I think the experiences which are lived or are connoted when we speak of *knowing* and of *self-consciousness* occur. Indeed, it is to avoid this sort of confusion that I am always careful to make explicit what kind of answers I shall propose or I shall accept in relation to questions that deal with what is connoted when we speak of *cognition*, *consciousness* and *self-consciousness*.

We human beings in the present

We human beings operate as self-conscious beings when we reflect on our living and on the kind of living that we live. Self-consciousness is a fundamental aspect of our operation as human beings because it is self-consciousness that constitutes our operation in awareness of what we do and of our possibility to choose both what kind of world we want to live, and of what we want do with ourselves and with others as we live the world we chose. We modern human beings do all that we do, even if we are not aware of this, as self-conscious beings. We use the words or notions of *consciousness* and *self-consciousness* in our western culture, whether in the domains of science, philosophy, art or daily life, under a fundamental epistemological attitude in which we implicitly or explicitly act as if they referred to some emergent property of the operation of the brain, or to some essential feature of the cosmos, or even to some intrinsic property of matter.

Notwithstanding this, with our present way of thinking, the manner or the manners in which the experiences that we wish to connote or evoke with the expressions “consciousness” and “self-consciousness” emerge, happen or operate in the flow of our living seem to elude our understanding. We cannot show them to be features of the operation of the brain, or prop-

erties of the matter or of the different forms of energy that compose us and/or the cosmos.

As molecular autopoietic systems, human beings are structure-determined entities. That is, we human beings are systems such that any external agent that impinges upon us does not specify what happens in us, it only triggers in us some structural changes totally determined in our structural dynamics. All that happens with, to or in a structure-determined system arises at every moment determined in it by its structural dynamics of that moment. This means that any external agent that may impinge upon a structure-determined system can only operate by triggering in the structural-determined system structural changes that it does not and indeed cannot specify.

A living system as a molecular autopoietic system exists as a dynamic molecular architecture operationally closed upon itself that as a closed network of molecular productions exists in a flow of continuous changes determined by its own dynamics, or triggered by its encounters with the molecular medium in which it operates as a totality and is thus realized as an organism. The part of the medium in which a living system exists as an organism, and in which as an organism it operates at every instant as a totality, is its *niche*. The niche acts as it encounters the organism in relation to which it exists, as an operational locality of the dynamic matrix of architectural molecular processes of the extended molecular network in which the organism occurs, and which we generally call the medium. That is, the niche is that part of the medium that moment after moment remains in operational congruence with the living system as this interacts as a totality (as an organism) with the medium. In these circumstances the organism realizes and conserves its living as long as its recursive interactions with the medium result in structural changes in the organism and medium which continuously conserve the dynamic architectural unity organism–niche that conserves the autopoiesis of the living system.

Biological fundamentals revisited

Organism–niche relation

What an observer sees when observing an organism conserving its living in its niche, is that in general terms it behaves in a manner which is continuously adequate to the emerging features of the changing medium in which he or she sees it as if it acted with previous knowledge of what was to happen, or as if it were predicting what would happen. That is, the observer usually sees the organisms behaving in a manner that appears to permit it to recursively generate the flow of doings that would conserve its living through any changing circumstances that it might encounter in the recursively changing relational domain in which it lives. For the observer, the observed organism appears to be computing the relational and structural changes that will take place in the medium. However, this does not happen and cannot happen. As a structure-determined system an organism, including its nervous system as one of its components, cannot make a representation of the recursively changing medium in which it operates that would allow it to make the computations that it needs to continuously generate a behavior adequate to conserve its living. That which an observer sees when he or she observes an organism behaving in a manner adequate to the changing medium, is the actual operation of the organism in its domain of structural coupling sliding in the network of relations that the medium is following a relational path that emerges instant after instant when its interactions with the medium result in the conservation of its living. The continuously changing relational zone of encounter of an organism and the medium in interactions in which this results in conserving its living, is the niche. The *niche* is the changing zone of the domain of structural coupling of an organism which exists only as long as the interactions of the organism and medium result in the conservation of the living of the organism. The niche does not exist by itself.

What I am evoking in this description is the dynamics of the arising and conservation of the operational coherences between the organism and the medium in the constitution of its niche: as long as the living of the organ-

ism is conserved in its interactions with the medium the niche arises as the relational domain in which the living of the organism is conserved, and as the niche of the organism is conserved the living of the organism is conserved. This process occurs as a circular recursive dynamics. Indeed, all biological processes occur as a circular recursive dynamics through which living systems arise as historical singularities that exist only while they are in structural coupling with the medium that contains and make them possible. In these circumstances, what an observer sees as an adequate behavior when he or she observes an organism operating in the conservation of its living in its niche is the operation of that organism in structural coupling in the network of operational coherences of the relational matrix in which the organism–niche relation in which the organism conserves its living is taking place. So the adequate behavior of an organism does not arise as a computation of what will happen in the medium but as a simple result of its operation in structural coupling in its niche while this structural coupling lasts. The structural coupling of the organism and the medium in its operation as a matrix of dynamic architectural relations of which the niche of an organism is a singular locality that is at any moment the arising historical result of the conservation of the particular configuration of *organism–niche relations* in which the living of the organism is conserved while all else is open to change: when the particular structural coupling between an organism and the medium at its niche is lost, the organism dies.

In these circumstances the operational congruence that an observer sees occurring between the structure of an organism and the structure of its niche is of the same kind as the operational congruence that he or she sees between a key and the lock that it opens; both are cases of structural coupling although different in their manner of origin. Thus, the operational congruence taking place between an *organism* and its *niche* at every moment of the flow of their recursive interactions, is the continuous result of the conservation of the *organism–niche* relation in which the *living* of

the *organism* is un-interruptedly conserved in the midst of the flow of the continuous structural changes taking place in the organism and the medium. In the case of the *key* and the *lock* the actual configuration of the operational congruence between them is non-historical because it is the result of an intentional a-temporal design. The configuration of the structural operational congruence between a *key* and the *lock* that it opens is the result of a *design*. In contrast to the key and the lock, the configuration of the operational congruence

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occurring at every instant between an *organism* and its *niche* is the continuous result of a history of evolutionary phylogenetic structural drift in the conservation of a particular form of living in the conservation of a particular configuration of *organism–niche*

relation. The structural coupling between an organism and its niche continuously arises without any intended design as the historical result of the congruent structural drift that occurs spontaneously in the flow of the recursive interactions of an organism and the medium when in the process the living of the organism results as conserved. What I have described as the manner of operation of living systems in their respective domains of structural coupling applies to us human beings as well. The only thing that is peculiar to us human beings is that we are languaging organisms, and that as we operate in structural coupling in language with other human beings, the *organism–niche relation* in which our living is conserved includes our operation in languaging with other human beings. Accordingly, when another human being observes us, he or she sees us doing whatever we do in language in a domain of recursive coordinations of coordinations of doings that has arisen as a domain of structural coupling with other languaging beings, and in which the recursive coordinations of doings are the result of such a history, and do not differ in nature from the operational coherences between a key and the lock that it opens.

Domains of existence

An organism exists in two non-intersecting phenomenal domains: one is the domain of its internal molecular dynamics in which its

autopoiesis is continuously realized, and the other is the relational domain in which the organism exists operating as a totality of a particular kind. As these two phenomenal domains do not intersect, it is intrinsically not possible for an observer to deduce what happens in one of them from what happens in the other. Yet, an observer that observes simultaneously these two domains can notice that he or she can make correlations between the independent processes occurring in them. Furthermore, the observer can realize at the same time that those correlations are possible because the processes that take place in those two non-intersecting phenomenal domains are all realized in the operation of the dynamic architecture of the organism while this operates as a totality in the relational space that arises through its operation as such. Thus, although the processes taking place in the two non-intersecting phenomenal domains through which the living of the organism as a totality is realized do not intersect, the dynamic structures through which they are realized do intersect as they arise in the operation of the same closed architectural dynamic that realizes the living of the organism as a totality. Accordingly, as the structure of the organism changes through its internal dynamics, the flow of its interactions with the medium as it operates as a totality changes in a manner contingent to the flow of such changes. Simultaneously, the structure of the organism undergoes structural changes triggered in it by its encounters in the niche while it operates as a totality and, as a result of these structural changes, the internal relational dynamics of the organism changes in a manner that is contingent to flow of the encounters of the organism in the medium. Since in this process the organism remains alive only as long as the changes taking place in its dynamic architecture and the changes taking place simultaneously in the dynamic architecture of the medium result in the conservation of its autopoiesis, the primary result of the history of interactions of an organism in the medium in which its living is conserved is structural coupling. Although the encounters of an organism with the medium that contains it and make it possible occur at the locality of its niche, the arising structural coupling

between the organism to the medium extends far beyond the structural locality of the niche because this, as a locality of the matrix of dynamic architectures that the medium is, participates in this matrix of dynamic architectures. Therefore, as an organism conserves its living in its niche, it does so conserving as well its operational coherences with the matrix of dynamic architectures to which its niche belongs.

A secondary result of the history of interactions of an organism in the medium in which its living is conserved is that an observer, who sees an organism in its interactions in its niche, sees it operating in a way that continuously arises as adequate to the changing circumstances that emerge in its living as if it could “predict” them. The observer in these circumstances frequently feels inclined to say that the organism knows what to do, and may be even inclined to speak of the wisdom of living systems when he or she sees them as if they were operating from the perspective of what he or she would call understanding.

So, there are phenomena that occur in the physiology of an organism, and phenomena that occur in the relational space that arises as the organism operates and interacts as a whole. The phenomena of the physiology belong to the continuous realization of the autopoiesis of the organism and they are in fact the occurrence of the autopoiesis; the phenomena of the relational space pertain to the realization of the manner of living of the organism in its operation as a totality in the flow of its interactions with both the non-living entities and the living beings that constitute the medium which contains it and makes it possible. The beauty of this condition of existence of living systems is that although these two phenomenal domains do not intersect, the independent phenomena arising in them are integrated in the realization of the living of an organism as both arise through the same structural dynamics while the organism operates as a totality with a single bodyhood in the organism–niche relation in which its particular manner of living is conserved. That is, the independent processes that occur in the two non-intersecting domains of existence of an organism result in

being correlated while the organism interacts as a totality that conserves its structural coupling in its niche because the structural dynamics of the bodyhood of the organism participates in the generation of both: the phenomena of the two domains of existence of an organism do not intersect, but the structural dynamics that generate them do intersect.

Structural determinism

That we human beings as living systems are structure-determined systems means that nothing external to us can determine what happens in us. In other words, all that happens in us or with us occurs as a flow of structural changes determined in us moment after moment by our structural dynamics at that moment. Or, in other words, our living occurs at every instant as a flow of a configuration of structural changes arising moment after moment in the interplay of our dynamic internal structural with the structural changes triggered in it by what we observers see as external agents impinging upon us. An autopoietic system lives as a closed structure-determined system in a closed dynamic of structural changes. So, the external world that an observer sees around a particular living system does not exist as such for it. Living systems live whatever they live in the realization of their living as an aspect of the closed dynamics of structural change of their autopoiesis, regardless of whether those structural changes are seen by an observer as arising as part of their internal dynamics or triggered in them by some impinging external agent. We human beings are not different in this from other living systems, and our living as self-conscious beings that operate as observers occurs in us as structure-determined systems for which the external world that an observer sees around them does not exist as such for their operation. The external world of which we speak as we operate as observers arises in our living as the distinction that we make of the flow of our inner sensoriality when another observer sees us operating in a manner that he or she would call distinguishing what he or she sees as the world that surrounds us, otherwise we just operate in the flow of our living in structural coupling. Accordingly, as self-conscious autopoietic systems we operate in a relational space that exists for us only as we bring it forth as a dis-

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tinctions of the flow of our inner sensoriality as we explain our existence as living systems and self-conscious human beings doing what we do.

Self-consciousness occurs as a particular manner of relational living in a relational space that arises in our explanation of our living. As such, self-consciousness is not a feature of the operation of our structural dynamics in the realization of our living. However, our operation as self-conscious human beings does not negate our condition of being structure-determined systems because our operation as such is possible precisely because as organisms we exist as structure-determined systems in a relational space. As I shall be showing, self-consciousness occurs in the relational domain that arises as we human beings operate as totalities in a flow of recursive consensual coordinations of coordinations of doings with other structure-determined human beings.

The nervous system

As is the case with all animals, one of our fundamental components in our operation as organisms interacting as totalities in a relational space, is the nervous system. As a component of the organism the nervous system is constituted as a closed network of cellular and/or molecular elements (that I call neuronal elements) which through their recursive reciprocal interactions constitute the nervous system as a closed network of changing relations of activities closed upon itself. As such, the nervous system is both a closed network of reciprocally interacting neuronal elements, and a closed network of changing relations of activities between its neuronal components. An observer that looks at the operation of an organism and its nervous system can see that the nervous system as a closed network of neuronal elements is in structural intersection with the organism at its sensory and effector surfaces, and that as a closed network of changing relations of activities between its neuronal components it does not interact with the medium. Moreover, the observer can also see that in these circumstances it is the organism only which interacts with the medium at its effector and sensory surfaces, while the nervous system never

encounter the medium. A basic consequence of the peculiar structural intersection of the nervous system and the organism, is that although the nervous system does not encounter the medium, as it operates as a closed network of changing relations of activities it continuously gives rise to sensory–effector correlations in the encounter of the organism with the medium. And he or she can also observe that those sensory effector correlations appear to him or her as configurations of sensory and effector encounters of the organism with the medium under the form of relational behaviors.

An observer can easily see that due to its manner of constitution and operation as a component of the organism, the nervous system cannot distinguish in its closed dynamics whether what happens in it at any moments arises as part of its closed dynamics or is triggered by some external agent impinging upon the sensory surfaces of the organism. A fundamental consequence of the manner of operation of an organism and its nervous system as structurally intersecting closed systems is that an organism as it operates as a totality always lives as valid for its living whatever it lives, regardless of the opinion of the observer that looks at the flow of its encounters with the medium. A remarkable result of this for us human beings is that we never know, and cannot ever know in the moment that we live

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whatever we live, if we live as valid at any given moment we shall later declare was an illusion (or a mistake) or if we shall confirm it as valid when we compare it with some other aspect of our living, the validity of which we do not doubt: we do not know when we live what we live whether what we are living will be seen in comparison with some other experience as a perception, as an illusion or as a mistake. We human beings do all that we do, in science, philosophy, technology, art, biology, daily living... we construct flying machines, computers... or we manipulate the genetic constitution of living systems and make the most audacious operations of computation about the ages of the stars and the galaxies, only as operations in the domain of the operational coherences of the realization of our living as living systems, without claiming, without being able to claim, and

without the need or the possibility of ever claiming anything about anything thought to exist or to occur independently of what we do as we distinguish it. We human beings do whatever we do as operations in the realization of our living in the domain of the operational coherences of the realization of our living. We human beings, as all living systems, exist and operate as structure-determined systems that in their actual operation do not know and cannot know if what they are living as valid at any instant they will invalidate it later as an illusion, as a mistake, or if they will confirm it in its validity. In the experience itself we do not distinguish between perception and illusion. This is not a limitation; it is our condition of existence.

Cognition

The main cognitive consequence of structural determinism is that as a result of our constitution as structure-determined living systems we cannot claim that we can say anything that may refer to anything that we may claim exists independently of what we do as we distinguish it. Yet, when we as observers in our daily living make an operation of distinction we do so in the implicit total trust that that which appeared as a result of the operation of distinction that we performed would appear again if that operation of distinction were to be performed again. In fact this is what every living system does, what we do spontaneously in our daily living or in our professional doings as scientists, philosophers or technologists, as an implicit fundamental and unreflected epistemological attitude. We act under the spontaneous confidence that the coherences of our living will be conserved and will be repeated in whatever we do: living systems in general and we human beings in particular, live and act under the implicit trust or confidence in that structural determinism will always be conserved in all circumstances, and that when it seems that it is not conserved, we are confident that that apparent failure is the result of some intervening structural dynamics in the domain of our living of which we were not aware before, but which we may eventually find as an additional feature of the coherences of our living. We living systems do not need the supposition of an external independent reality to live, nor do we human beings need such an assumption to explain our living with the coherences of our living.

As a matter of fact, we human beings do all that we do, whether in our daily living, in philosophy, in science, or in technology, without ever in fact requiring the supposition of the existence of a domain of reality independent of our doings: we explain the coherences of our doings with the coherences of our doings.

Structural coupling

The operational coherence between a living system and the medium in which it lives arises moment after moment in the flow of its living as a result of the fact that a living system and the circumstances of its living change together congruently, in a spontaneous relational dynamic flow of structural change around the conservation of living. I have called this flow of congruent structural changes that occurs spontaneously when two or more systems stay in recursive interactions “structural coupling.” When I refer to the medium, when I speak of an organism and the medium changing together congruently in structural coupling, I refer to all the circumstances, living or not living, that interact with the organism in the flow of the realization of its living. A main consequence of the dynamics of structural coupling is that a living system either finds itself moment after moment in operational congruence with a medium that is changing congruently with it and lives, or it does not and dies. For a naïve observer that beholds an organism conserving its living as it operates in its domain of structural coupling, the adequate behavior that he or she sees being generated by the observed organism appears as if it were the result of computations that the organism does with the use of the information that it obtains from the medium with its sensory organs. From the point of view of an observer that can see and understands the dynamics of structural coupling the situation is completely different. Such an observer sees that the adequate behavior of an organism in its niche is moment after moment the result of the conservation of the operational congruence between the organism and its niche.¹ And such an observer also sees that that operational congruence, that relation of structural coupling between the organism and the medium, occurs and is conserved spontaneously as long as the living system slides in its interactions with the medium in the relational path that results in the conservation of its living. The living of an organism is con-

served in its interactions in the medium while its structural coupling in it is conserved, and, vice versa, the structural coupling of an organism and its niche is conserved as long as its living results conserved in its interactions in the medium.

In these circumstances, one unavoidable cognitive consequence of our condition as structure-determined systems is that when we claim that we know, we cannot be making reference to something supposed to exist or to occur independently of what we do when we operate as observers distinguishing it. An other unavoidable consequence is the realization that the notion of knowledge can only refer to that which an observer ascribes to another being when he or she sees that that being behaves in a manner that he or she considers adequate in the domain in which he or she observes it, and does so because he or she thinks that that behavior satisfies some criterion of validity that he or she uses to accept that behavior as adequate behavior. Therefore, knowledge occurs as a manner of interpersonal relation, not as something that one has: knowledge is something that an observer ascribes to some other entity, living being, or to him or herself, when he or she accepts the behavior of this other being as adequate behavior according to what he or she thinks is adequate behavior in that moment. As an observer ascribes knowledge to some other being, he or she stops asking for the validity of the behavior of such being. Knowledge has nothing to do with something supposed to occur independently of what the observer does when he or she claims to know; knowledge refers to the operational coherences of the doings of the members of a human community doing things together.

Distinctions

When I speak of the observer, or of an observer, I refer to any human being that could be you or me in his or her operation in the flow of the recursive consensual coordinations of doings of languaging making distinctions, and who is aware that he or she makes distinctions. Accordingly, the observer is not

a transcendental entity, nor is it a living system as such, the observer is a human being in the dynamics of distinguishing him or herself, aware that he or she is making distinctions as he or she operates in observing. The observer occurs as a manner of operating in the relational space of the bipedal primates that we human beings now are as *Homo sapiens-amans amans*. Therefore, the observer lives its being observer in the flow of the sensoriality of operating as a human being in the dynamics of observing. We human beings operate

as observers in the doings of our daily living, or in any other already established operational domain in languaging, in the sensoriality of feeling that the entities that we distinguish exist independently of what we do. Yet, since we cannot say anything about anything supposed to exist independently of what we do when we distinguish it, when we want to understand or explain something, we cannot ask the question “*what is that?*”; as if we could talk about something in itself, but instead we must ask, “*what operation of distinction do I perform to distinguish that which I wish to talk about?*” Thus, for example, if I want to talk about that which I connote when I talk of *conscious experience* or *self-consciousness*, I will not ask what is conscious experience, or what is self-consciousness, but I will ask, “*what should I see in the operation of a person so that I can claim that I see that that person is behaving as a self-conscious being, or is living a conscious experience?*”

If indeed we were to ask such a question, we would soon discover that that which one distinguishes when speaking of being conscious or self-conscious, is not something that occurs in the body, or in the dynamics of some neuronal network in the brain, but that it is something that the observer *ascribes* to a person when he or she thinks that that person is behaving as if he or she were referring or could refer to how he or she feels in the flow of his or her participation in such a conversation. That is, when we speak of self-consciousness in our daily living we connote two interrelated processes: one is a conversational flow in which a person appears to an observer as making reflexive distinctions of how he or

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she feels operating in it, the other is the connotation of the flow of sensoriality being lived by the person participating in that flow of conversation. To refer to the first processes we must operate in self-consciousness so that we may describe the reflexive distinctions that constitute it. What we cannot do is to describe the flow of sensoriality involved in such process; all that we can do is to connote it as the configuration of sensations and feelings that one lives in the flow of a conversation that an observer sees as constituting self-distinction or the experience of self-consciousness.

Without the internal dynamics of a nervous system and the actual operation of some body in the flow of the recursive consensual coordinations of doings of languaging in an interpersonal domain of interactions, there is no possibility for a person to operate in interactions and relations that an observer will consider to be a flow of recursive distinctions on the distinctions that such person is doing. If that does not happen, the observer will not see self-consciousness. Yet, as I have said above, self-consciousness does not occur in the nervous system, not in its molecular or cellular components, nor is it a dynamic configuration of neuronal relations of activities in the nervous system, and it is not embodied in the organism. Self-consciousness occurs as a manner of being in a flow of interpersonal relations that is referred to or evoked as it appears in a conversation as a connotation in languaging of the inner sensoriality of the persons involved. So when some one asks the question, “what should an observer see to claim that he or she sees some other being operating in self-consciousness?”, it becomes apparent that the answer can only be: *“That which we connote in daily life as self-consciousness is the sensoriality lived by the living beings operating in a conversation that we as observers see as the flow of recursive consensual coordinations of coordinations of consensual doings that languaging beings are doing when we see them living in reflexive distinctions of themselves.”* In these circumstances, if I were to say that I am aware or conscious that I have written the previous sentence, I would be referring to the particular sensoriality that I feel when I say that I am conscious of something.

Language and conversations

What I have said above about structural determinism is an abstraction of the coherences of our operation as human living systems: our operation as structure-determined systems is the fundament of all that we human beings do or claim to be able to do, whether as scientists, as artists, as technologists, as philosophers, or in the realization of our daily chores whatever these may be. In other words, with the notion of structural determinism I am connoting a feature of our architectural dynamics which, as an operational aspect of the structural coherences of our existence as living systems, constitutes our condition of possibility. Furthermore, it is only as we accept our condition as structure-determined systems that we can realize and understand that *language* occurs as a recursive flow of consensual coordinations of coordinations of doings that takes place in the relational space generated by two or more living systems interacting with each other in a flow of recursive consensual coordinations of doings. Language is a manner of coexistence in coordinations of doings, not a property or faculty of the brain or of what we call the “mind.” Language occurs as a flow of recursive interactions between organisms operating as totalities; language is not a symbolic system of communication about entities of the world; language is not constituted by the doings that are coordinated; language occurs in the continuously changing present of the flow of living in recursive consensual coordinations of doings. Languaging does not occur in the brain even though without a brain or without its operational equivalent in the generation of consensual recursive coordinations of doings, languaging would not exist. Languaging takes place as a flow of recursive coordinations of doings in human coexistence. Moreover, as language arose as a manner of living in our ancestors, it arose spontaneously in the interplay of the recursive coordinations of the doings of the daily living with the background of emotioning in which the daily living was taking place, constituting the flow of doing

That which does not appear in our reflections does not exist

Language is not a property or faculty of the brain or of what we call the “mind”. Language is not a symbolic system of communication about entities of the world

things together that we now call conversation. In this process, the human lineage arose as a living together in networks of conversations conserved from one generation to the next in the learning of the children. From its very origin humanness arose and occurs in networks of conversations, and all that we human beings do as human beings occurs in networks of conversations. Indeed, the different manners of living that we live, the different worlds that we generate in the course of our living, all occur as different networks of conversations, and in particular, the different cultures that we live are different manners of living in closed networks of conversations.

All that I have said so far about language and conversations I have said from the perspective of an observer observing human beings in the flow of their operation as totalities in recursive coordinations of doings and emotions in the flow of their coexistence as they language together.

Yet, in the actual dynamics of our operation as structure-determined systems, our interactions give rise in us to the recursive flow of inner coordinations of configurations of sensorialities that an external observer sees in us as the sensory–effector correlations that constitute our relational doings in the medium in which we operate as totalities. So, languaging and conversations occur as recursive flows of coordination of configurations of sensorialities in the dynamics of recursive interactions of human structure determined living systems, as they operate conserving their living in a domain of organism–niche relations that consists in what an observer sees as languaging or conversations. All the different manners of operation of organism arise and are realized as domains of recursive coordinations of configurations of sensorialities in a dynamic of structural coupling.

The worlds we live

As I have just said, we generate the worlds that we live as networks of conversations in the dynamics of the interplay of our languaging and emotioning as different domains of objects, entities and relations. But objects do not exist as entities that occur by themselves, objects do not exist independently of the

operation of distinction with which they are distinguished by the observer that distinguishes them, even though we live them feeling that they exist independently of our distinguishing them. Objects arise and exist in languaging as flows of recursive consensual coordinations of doings, and, therefore, they occur as flows of coordinations of coordinations of sensations and configurations of sensations that an observer sees as coordinations of doings in some domain of conversations of the languaging organisms, which, in our case, are us human beings. The observer is in the same operational situation that the observed person is, so what he or she connotes as he or she talks about what he or she sees is also a flow of sensations and configurations of sensations. Therefore, if someone were to say that objects exist in language, he or she would mean that they occur as recursive coordinations of doings in the flow of the coordinations of doings of the realization of our living. But, also, and at the same time, that person would be implying and connoting that we live the objects in our feeling the feelings that we feel as we live our coordinations of consensual distinctions and doings in the flow of languaging feeling that we do things in a domain of existence that is external to us. Moreover, that person would also be evoking in what he or she says that he or she is conscious that although we do not have access to that which we claim in our explaining to be external to us, an observer would see us coordinating our doings through the recursive coordinations of our sensations and feelings.

As we live our living in conversations feeling ourselves immersed in an independent world external to us, we do not reflect about how our living happens, we take for granted the external world and the conservation of regularities and operational coherences of our living through which we realize, guide and order the course of our living. It is only when we want to explain how we do what we do, that all that I have been talking about becomes apparent and we begin to realize that we exist as living systems in the closed dynamics of our sensorialities. And it also becomes apparent to our understanding that each one of the different worlds that we live as human beings occurs as a domain of coordination of

configurations of sensorialities that arises as a result of a recursion in the flow of coordinations of configurations of sensorialities and that we begin to conserve in the relational domain of our living as organisms a new configuration of sensorialities. The sensorialities and configurations of sensorialities that we live in our feelings as objects, relations and configurations of changing relations cannot be described, they can only be connoted or evoked in flows of languaging as coordinations of coordinations of doings, and be lived as such.

The different worlds that we live as human beings doing the different kinds of things that we do, are different domains of coordinations of configurations of sensorialities that as the flow of our feelings and emotions continuously modulate the relational space in which we feel ourselves living as human beings. In these circumstances, living in self-consciousness is the center of all the different worlds that we live or can live as human beings because it entails the operationality through which those different worlds have presence in our living. That which does not appear in our reflections does not exist because we do not live the configuration of sensoriality that constitutes it as an aspect of the realization of our living in our niche.

Self-consciousness: How? When? Where?

In daily life we live what we call the *self* as we speak of *ourselves*, as some kind of entity that constitutes somehow the operational center of our doings as human beings. When we say that we are *self-conscious* we speak feeling that we refer to that *self*, connoting that we have that entity as the core of our being. However, at the same time we *feel* strange because we feel that the *self* that is us speaking, is referring to an “entity” that arises as a different entity at

the moment that we talk about it, even though we feel that it is ourselves. We usually do not pay much attention to the feeling of duality that appears when we speak in self-distinction, so we let it be. However, there are moments in our reflections in which we become aware of this duality and we ask ourselves about it: “Are we two entities? What kind of entity is the self? Where is the self located in our bodyhood?” However, from all that I have said, it is apparent that I consider that that the self, self-consciousness, and consciousness, to be manners of living in the flow of our coordinations of configurations of sensorialities in the domain of structural coupling in which we conserve our living through the conservation of the particular organism–niche relation in which we talk of self and of being self-conscious.

Accordingly, my purpose now is to answer the question “how does the flow of configurations of sensorialities that we live as self and as self-consciousness arise in our living as structure-determined systems that do not distinguish in the experience between perception and illusion?”

As languaging human beings we operate feeling as a matter of course that we distinguish things (ourselves included) as entities that exist by themselves independently of what we do when we distinguish them. Moreover, we also feel that if we only accepted that our feelings reveal the nature of our existence, we could live fully trusting them as non-reflecting animals do, and that we could die without regret. Indeed, it is only when we doubt our senses, when we realize that we commit mistakes and that we live illusions that we ask the question about the nature of that which we call self and self-consciousness.

It is when we want to explain how do we do what we do, like claiming to have a self, that we find ourselves in difficulty because our feeling that knowing consists of an act of referring to “the real” as that which exists independently of what we do cannot be sustained because in the experience we do not

Objects do not exist as entities that occur by themselves

Organisms are not physical entities but exist in the relational space as a configuration of dynamic relations with a niche that has arisen and has been conserved along a particular phylogenetic and ontogenic history of structural drift as a singular configuration of organism–niche relations

distinguish between what we call perception and illusion. Furthermore, our difficulty increases with our common belief that because living systems are molecular entities, material entities, the self and self-consciousness must be explained as physical processes or as phenomena akin to the domain of physical reality, if not in kind then in their actions. But organisms are not physical entities. An organism as a living system operating as a totality exists in the relational space as a configuration of dynamic relations with a niche that has arisen and has been conserved along a particular phylogenetic and ontogenic history of structural drift as a singular configuration of organism–niche relations, and not as a kind of molecular process. So, for example, the elephant lives its sensoriality of elephantness as a particular kind of organisms in a relational domain in which it operates as a totality, and not as a phenomenon of its molecular constitution. In the same manner the kind of organism that we presently are as *Homo sapiens-amans amans*, and which we connote when we refer to ourselves as human beings, lives its sensoriality of human-beingness as humanness in the relational space as a particular configuration of organism–niche relation conserved along a history of ontogenic and phylogenetic structural drift, and not in its molecular constitution. Accordingly as we live in our sensoriality, in the feeling of our living as we operate in the domain of our humanness reflecting about ourselves, we feel that we operate as integrated wholes not as the dualities that may

appear in our description of what we do, and we somehow also feel that our selfhood is not of the molecular domain. Furthermore, we also feel and realize that we exist as some particular kind of human being only as long as we conserve the manner of living–feeling that constitutes us as being of that particular kind of humanness. It is because of this manner of existence of whatever occurs in our living in humanness, that we generate so many different domains of existence, that arise and are conserved only as long as they are lived in our living, and disappear when they are not lived.

Thus, ideas, philosophies, ideologies, gods, demons, deliria, theories, religions, technologies, manners of thinking, systems of explanations, personalities, stiles, ghosts ... exist as manners of humanness that guide our structural as well as our behavioral biologicocultural living as we conserve them as different forms of the recursive coordinations of the configurations of sensorialities of our self-consciousness.

An observer that beholds us as totalities in our operation as human beings sees that as organisms we exist in the flow of the interlacing of our feelings and our doings in the realization of our living, as all living systems necessarily do. What is particular to us as languaging human beings is that we live in consensual coordination of feelings and doings in an interactional dynamics that we feel as our living in recursive distinctions that constitute the world that we feel to be our living in the flow of our living in language. It is in the flow of this manner of living as we live with other human beings, that we learn the coordinations of doings that an observer will see as recursive distinctions that distinguish the doings of the doings which are felt as consciousness, awareness, self-consciousness and knowing. In the life of our ancestors the hap-

Self-consciousness does not occur in the nervous system, not in its molecular or cellular components, nor is it a dynamic configuration of neuronal relations of activities in the nervous system, and it is not embodied in the organism

penings of the living in languaging must have begun with the arising of the family as a small group of individuals living together in the pleasure of each other's company, the joy of sexual intimacy, the gathering of food and the sharing of it by reciprocal handing it to each other. All this must have occurred in the

recursive flow of consensual coordinations of coordinations of doings that arise spontaneously if that manner of living is conserved through the conservation of the well-being that it brings to those that participate in it. As the human being–living that we are now, we are the present result of a systemic reproductive history of conservation of such a manner of living in the learning of our children, as well as in the historical transformation of our genetic constitution. Furthermore, all this must have occurred in an evolutionary history in which the children of our ancestors must

have lived in a flow of recursive coordinations of coordinations of doings that followed a course continuously guided in them by the flow of their feelings and emotioning. Moreover, all this must have occurred in a dynamic flow of recursive coordinations of feelings and emotioning that generated the sensory effector correlations that gave rise to the structural coupling that conserved the living in recursive coordinations of consensual doings that constituted a lineage of living together in a braiding of languaging and emotioning under the form of networks of conversations conserved from one generation to the next through systemic reproduction² in the learning of the children. Now, in our historical present, our babies and small children learn to live in languaging and conversations in the course of their interactions with their mothers and with other adults and older children of their families in the same manner as our ancestors, namely by just living with them. Since objects³ arise in each recursion in the flow of recursive consensual coordinations of doings, different forms of living arise as different domains of objects and begin to be conserved according to the flow of the emotioning of those living together in consensual coordinations of doings. When this happens a manner of living in recursive coordinations of sensorialities arises that is seen as a domain of shared objects that I call domain of interobjectivity because it is lived as a world of common objects as if these were independent entities. In this process different worlds arise as different domains of interobjectivity according to how the recursive coordination of consensual doings participate in the realization and conservation of the interlaced living of the participants.

In the peculiar form of living in recursive consensual coordinations of doings of the mother–child relations, the play, fondling, caressing, kissing and mumbling of the mother with her baby or child, constitute simultaneously a permanent, intimate, and changing domain of coexistence in recursive doings in coordinations of doings in which languaging and self distinction can arise together. We can see this easily if we observe that at the same time that the mother hands food or toys to her baby, she makes gestures and sounds that in the flow of the relation become consensual operation of consensual coordinations of doings that the observer later sees as naming–asking for food, for toys, or for

caring and fondling. The same occurs in the recursive operations of consensual coordinations of naming–playing, naming–handling and other consensual coordinations of doings and namings. This recursive flow of consensual coordinations of doings–namings form the world of interobjectivity that mother and child generate in the intimacy of their living together. The world of the mother–child interobjectivity that arises with dimensions of recursive consensual coordinations of touching and handling of the different parts of the bodies of the child and of the mother, as well as of their doing–feeling in relation to the distinctions of their interacting–doing, is what an observer sees as operations in a domain of consciousness and awareness. The domain of mother–child interobjectivity is constituted in the recursiveness of their coordinations of doings interlaced with the emotions and feelings that take place in their being together. *In this process the eyes, hands, feet... the sel... of the baby arise as consensual recursive coordinations of doings with the mother and others in the same way as any object naming–doing arises in the play of the mother with her baby.* The mother and the baby play with the hands, feet, fingers, eyes, mouth... or any other aspect of what we see as the body of the baby, in the same way that they play with any object that arises in their naming–playing. *A child learns to refer to himself, to talk of him or herself distinguishing him or herself doing whatever he or she does, as he or she languages the arising of all kinds of networks of manipulative and abstract objects, in the different domains of coordinations of consensual doings or worlds of interobjectivity that constitute the many different relational domains in which he or she comes to exist as a relational being with his or her mother and family.*

What I have described above is the generative mechanism of the arising of consciousness, of awareness, of self-consciousness and of self-awareness, as particular manners of human living or domains of human coexistence in interobjectivity. I have not supposed any particular property or processes of the nervous system, or of the physical world. I have talked only of the actual relational processes that constitute us as human beings and the worlds that we live as organisms that oper-

ate as totalities in a relational space. What I have not described, and indeed cannot describe because they occur in the intimacy of their occurrence, are the feelings that we feel while we act being self-conscious. Self-consciousness occurs as the configuration of feelings that we feel that we act in a way that an observer beholding us would say that we were acting in self-consciousness as we did what we did, and that we would answer “yes” if he or she were to ask us: “*Did you know that it was you who did that?*” What we do as we speak of feelings and sensations is to connote or evoke the recursive coordinations of consensual coordinations of doings that guide the course of the doings of the realization of our living (or the living of any animal) as these doings are formed and arise in the interplay of the different configurations of our changing sensoriality.

Indeed, all that we connote in the flow of the recursive consensual coordinations of doings that is our human living as we language the course of our living in coordinations of doings and being–doing, are the continuously changing configurations of feelings that we feel and that become guiding elements in the recursive flow of coordinations of consensual doings that realize the continuously changing worlds that we human beings live. Each one of the many different worlds that we human beings live is one of the many different flows of recursive consensual coordinations of coordinations of doings that we live in the solitude of our sensoriality in a recursive sensory dynamics that includes our feelings in the relational domain in which we exist in our living in languaging generating with others and with ourselves different worlds or domains of interobjectivity.

How does self-consciousness occur?

An observer says that the operation of self-distinction *occurs* when in the happening of a recursive operation of distinction he or she sees that the body and the operation of the distinguishing organism appear being distinguished in the operations of distinction of the same organism that does those distinctions. *And an observer says that self-consciousness is occurring when in the context of a flow of a languaging relation he or she sees a person operat-*

ing in recursive self-distinction in a way that he or she would describes as a relational dynamics in which such a person is operating in the sensoriality that could lead him or her to say that he or she is distinguishing what he or she is doing in distinguishing his or her doings and feelings.

When does self-consciousness occur?

An observer says that self-consciousness occurs when he or she sees a person living in the sensoriality that takes place when a person lives him or herself in the sensoriality of the operational flow of recursive self-distinctions and he or she is open to remain in that operational disposition.

Where does self-consciousness occur?

An observer says that he or she sees that a person is operating as a self-conscious being when he or she sees that that person operates in the sensoriality of a flow of recursive coordinations of doings that constitute the operation of recursive self-distinctions in a relational domain of living in which he or she distinguishes in the observed person the feelings of self-distinction of self-distinction. That is, *self-consciousness is occurring in the sensoriality that a person lives when an observer, that could be him or herself, says that he or she acts knowing that he or she knows what he or she is doing.*

Consciousness and self-consciousness are manners of living in the feelings of the sensoriality of the operation of the flow of living of a languaging human being in recursive self-distinction; therefore they are not relational states of the organism, not properties of matter or of the elements of the cosmos, not some particular manners of operation of the nervous system. Our living in consciousness and self-consciousness, as dynamic configuration of feelings, guide the course followed by the recursive coordinations of consensual coordinations of doings of our being in languaging and emotioning under the form of the dynamics of feelings that give fundament to the networks of conversations⁴ that constitute the worlds that we live as modern human beings. Indeed, all the worlds that we human beings generate in our living arise as different forms of cultural living that, as different configurations of closed networks of conversations, constitute different forms of transcend-

ing our molecular biological identity. And the different worlds that we live transcend our molecular biological being as domains of existence that are defined through the feelings and emotions that guide our conscious and unconscious self-conscious doings.

Reflections

1. As I have shown the *self* is not and cannot be an entity that can be considered to exist independently of the circumstances of its arising in the relational space of language in the flow of coordinations of coordinations of doings as an evanescent configuration of feelings that guides the realization of the living of the self-conscious being. When an observer speaks of the *self* or of a *self*, he or she is connoting the feeling of the distinction of the bodyhood or corporality that he or she distinguishes as the dynamic center of the different operations of self-distinction that a person does as he or she distinguishes his or her operation in self-consciousness. The self does not arise as an arbitrary construction of the observer that distinguishes it; it arises as the distinction of a configuration of body feelings that guide the flow of the recursive coordinations of doings of the person that makes reference to the self as he or she is operating in self-consciousness in a given languaging relational domain. As person operates in the sensoriality that an observer sees as implying the distinction of a self, the matrix of relations that constitute the domain in which this distinction takes place arises as the background of dynamic relations in which the operability of living in self-reference takes place. A careful observer may see this matrix of relations in all that the observed person does. A person flows in his or her living, moving in a changing matrix of relations continuously defined by the domain of architectural operations and relations in which he or she enters in the realization of his or her living continuously guided by his or her changing sensoriality.

2. We may feel a strange feeling of incompleteness in the manner that I have been speaking above, as if something concretely

external to us were missing as a substrate that might operate as a universal ground that would constitute a transcendental domain that would unite our individual feelings with the feelings of another human being in a total intersubjective unity. This imagined intersubjectivity does not happen and cannot happen. All living beings as-structure determined systems are closed singular molecular entities that transcend their closure only in the relational domains in which they as organisms and we human beings transcend our condition of molecular systems in our operation as human organisms living with others in recursive consensual coordinations doings in the generation of a domain of relational interobjectivity. It is only those languaging beings that come to live in self-consciousness who can realize that the loneliness of living as closed structure-determined systems is transcended in living in the worlds that they may generate together in interobjectivity. We as human beings are beings of that kind, and our human existence occurs as a continuous transcendence of our existence as molecular beings in the worlds that we generate in the networks of conversations that we live.

We can create a world of explanations as a network of generative mechanisms that is isomorphic with the architectural dynamic coherences of our domain of existence

3. As languaging reflecting human beings we can realize that as we explain our living through the proposition of a generative mechanism, we need for epistemological reasons⁵ some operational substratum as a fundament for the generative mechanism that makes possible the very possibility of what we do, and which would constitute as such a transcendental domain in which we could encounter with others in intersubjectivity. Yet, we could not and cannot say anything about that imagined substratum because as soon as we attempted to do so we would find ourselves languaging, and, therefore, in interobjectivity as the domain of the coordinations of coordinations of doings of our living as living beings that do not distinguish in the experience between perception and illusion.

4. When we human beings reflect on our living, we find ourselves living together as a matter of course in the flow of consensual coordinations of consensual coordinations of

doings of languaging. Furthermore, we find that this manner of living together, gives rise in us to the orientations in doings that in the flow of coordinations of doings of the naming-doing of languaging constitute a matrix of doings, feelings and emotions, that we live like the consensual coordinations of naming-doings with the shared sensoriality of a coherent interobjective dynamic architecture. Since this manner of living happens to us spontaneously, we do not reflect on it until its normal coherences seem not to hold anymore. Yet, in any case, as we reflect we find ourselves being part of a field of operational coherences defined by the operational coherences of our living. And we also find that we can explain all the worlds that we live with the operational coherences of our living as we become aware of our existence and operation as structure-determined systems that can operate as self-conscious beings. Moreover, in this awareness we find ourselves as part of the domain of operational coherences in which our living takes place, domain of operational coherences that we infer from the operational coherences of our living, and which, under the convincing presence of our sensoriality and our desire for complete understanding, we use as our explanatory operability to explain our living; we explain our living with the coherences of our living. We cannot trust our sensoriality as providing us with a description of an external world that contains us, but we can trust that it reveals to us the architectural coherences of our domain of existence as molecular autopoietic systems. The operational coherences of our sensoriality reveal the architectural coherences of our domain of existence. If we believe that our sensoriality, external or internal, reveals some external reality to us that contains us, we cannot explain consciousness and self consciousness as fundamental aspects of our living without having to resort to some transcendental supposition. But if we think that our sensoriality reveals to us the dynamic architectural coherences of our domain of existence as living molecular beings, we can create a world of explanations as a network of generative mechanisms that is isomorphic with the architectural dynamic coherences of our domain of existence.

5. We do not construct the worlds that we live, we just live them. We move and act in the matrix of operational coherences that we

infer as our background of existence from the coherences of the realization of our living in structural coupling with the medium (niche) that arises moment after moment in structural coherence with our changing structure in the flow of our living as our living is conserved. This becomes apparent as we explain our living as self-conscious languaging human beings with the flow of the operational coherences of our living. As reflecting self-conscious human beings we know that for epistemological reasons we need an independent substratum if we want to explain the fundamentals of our existence in terms of an independent reality, we also know that we do not need such substratum for understanding our living and the coherences of our operation as self-conscious beings in the different worlds that we live. We do not construct the worlds that we live because they arise as different domains of operational coherences of our living in our living them.

6. We human beings can live and conserve any manner of living that does not result in the loss of the conservation of our structural coupling in our living in our niche. Moreover, we can live according to dictates of any theory that does not lead us to the loss of structural coupling in the domain of operational coherences that arises through the acceptance of that theory. In any case, we shall live only as long as the flow of coordinations of doings that emerge through the flow of our feelings, sensations and emotions continuously results in the conservation of our structural coupling in a medium that makes us possible as it arises through the realization of our living.

Post scriptum

1. That self-consciousness occurs in the relational space as a manner of living, deserves some additional reflections. One of them is that it does not matter that the borders of an autopoietic system are operational and dynamic, and that a result of this is that the interactional boundaries of an organism are defined and constituted by what emerges operationally as its sensory and effector surfaces. Whatever impinges upon an organism, whether molecules, radiations, magnetic or electric fields, triggering in it structural changes with conservation of living, can become new dimensions of the domain of

structural coupling of the organism as long as its living is conserved while the new dimensions operate as part of the medium in which it lives.⁶ The manner in which the new dimensions of interactions are lived depends on the points or areas of the dynamic architecture of the organism that are affected by the encounter with them. In any case the organism will live those encounters as novel experiences that make sense as intrusions in some of its normal dimensions of living, or as sensorial disturbances which the organism will either dismiss or include in its ordinary living, or some other aspects of the flow of its sensoriality and live them in its normal way as if they were part of the normal encounters and not intrusions at all. When these sensorial intrusions occur to us we live them as self-conscious human beings that reflect on what happens to them, and we will generate explanations or interpretations of one kind or other according to whether we live them as hallucinations, illusions, or encounters with foreign entities depending on the manner in which we consciously or unconsciously choose to include them in the flow of our ordinary living.

2. All this also means that languaging, and, hence, operation in self-consciousness can only occur in the flow of the recursive coordinations of doings of organisms, or of any group of discrete structurally plastic entities that can participate in some dynamic domain of structural coupling with each other. Furthermore, all this also means that for self-consciousness to arise and be conserved, it is necessary to have a particular manner of living in a history of recursive interactions that may result in recursive coordinations of consensual coordinations of feelings that give rise in the relational domain of the organism to a flow of doings that an observer will see as revealing the dynamic sensoriality of what he or she sees as self-consciousness. All the possible dimensions of interactions of an organism that occur with conservation of its living can give rise in it to internal activities that will be lived as sensory experiences that can be conserved as relational fundamentals for the realization and conservation of some particu-

lar manner of living in a relational domain defined by those sensory experiences.

3. What is particularly remarkable is that if living in languaging arises in any particular domain of organisms (or their operational equivalents), a path is opened for the arising of operating in self-consciousness in a process of recursions that may generate an unending diversity of cultures that will differ

Our human existence occurs as a continuous transcendence of our existence as molecular beings in the worlds that we generate in the networks of conversations that we live

according to the configurations of feelings and emotions that guided their emergence. Of all those possible emotions it is only love that can give rise to what we human beings distinguish when we speak of ethical behavior as a conscious manner of cultural being. Once a human being grows as a human being operating in self-consciousness, all that he or she does will be done in his or her operation as a conscious or unconscious self-conscious being.

ABOUT THE AUTHOR

I was born in Santiago Chile in 1928. I have been interested in the unity of life and death since my childhood. Following this concern in my biological research on perception, I developed the Biology of Cognition and the Biology of Love as I began to pursue the consequences of our biological condition of structure-determined systems and the realization that we do not and cannot ever know if what we live as valid at any instant we shall later treat it as an illusion or as a perception. Now I am working with my colleague Ximena Dávila Y. in what we call "Biological and Cultural Matrix of Human Existence." This work of us is the outcome of a fundamental insight of Ximena Dávila Y. revealed in her statement "The pain and suffering for which people asks for relational help is always of cultural origin." My awareness of the validity of this statement lead me to look deeper in our emotional living and in the participation of our sensoriality as structure determined systems in the generation of animal and human relational living.

Notes

1. The part of the medium with which the organism is in operational congruence while its living is conserved.
2. When an organism reproduces what is conserved from one generation to the next, it is an organism–medium relation in a systemic dynamics that involves the conservation of the biological constitution of the reproducing organism and the dynamic configuration of the medium that makes possible the living of the organism as its niche. So what is conserved in reproduction is the realization of an ontogenic organism–niche relation as a systemic dynamic in which the ontogenic changing niche is conserved as a mere consequence of the actual conservation of a particular manner of living.
3. Objects arise as coordinations of coordinations of doings as doings that coordinate doings in a flow of interactions in language. Due to this, each recursion in the flow of languaging is an opportunity for the arising of new objects if the doings that coordinate doings begin to be conserved as elements of a domain of doings in conversations.
4. I speak of conversations to refer to our operation in relations of recursive coordinations of languaging and emotioning. We human beings live in networks of conversations.
5. As we explain whatever we explain we operate in the domain of operational coherences of our living, and hence in the domain of operational coherences of our doings that arises with our doings, so due to the very nature of our explaining we cannot operate or describe a transcendental substratum for our explaining.
6. When the observer speaks of interactions, he or she refers to the dynamic of the encounters that result in the triggering of structural changes in the participating organism or organisms. When the observer instead speaks of relations, he or she refers to the reciprocal disposition of the participants in the circumstances of the interactions.

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