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What is Philosophical Ethology?

(Edited by Boria Sax, Richard Iveson, and Istvan Csicsery-Ronay)

The problem of animal subjectivity. In the past century, research on animal subjectivity has faced several obstacles. Waves of anthropomorphic and projective (rather than continuist) interpretations of animal behavior were followed by reductionist or mechano-morphic reactions. Some authors have applied reductionist explanations to both the human being and other species — think of Skinner’s behaviorism¹ or Wilson’s sociobiology² —, filling humanists with indignation and arousing fierce criticism in the philosophical and anthropological communities. Others have instead preferred to adopt Descartes’s dichotomy, which allows one to explain animal expression through mechanistic coordinates without insulting the sovereignty of anthropocentrism.

To treat animality as *res extensa* is to transform its expression into the sum of automatisms that are activated either by external stimuli or by inputs derived directly from somatic physiology. This explanatory mechanism offers significant methodological guarantees, because: a) it answers, or rather seems to be devoted to, Ockham’s razor, redefined within Morgan’s canon of parsimony; b) it does not require external or tautological entities, such as the *res cogitans* or the *homunculus*, which evade the test of scientific explanation; c) it agrees with the epistemological principles of description, falsifiability of the explanatory hypothesis, and causal modelling; and d) it is perfectly consistent with the canons of Western culture that radically separate animality from the human condition.

Thus, during the twentieth century some very convincing interpretative coordinates were developed that appeared to ring the death-knell for the theme of animality: 1) animal expression was believed to be explained, once and for all, by a set of automatisms — some driven by phylogenetics and derived from innate instincts, others from ontogenesis, following the law of conditioned response, and thus learned by individuals through conditioning; and as a result 2) human beings could distinguish themselves by separating or emancipating themselves from the animal condition. Human evolution was analyzed not in terms of adaptive specialization — that is, in its specificity — but rather as a lack of adaptive declination³ — that is, the human being is special, free from automatisms, and thus autopoietic. This interpretation separates

subjectivity from animality in order to link it closely to reason, language, and consciousness.

This notion of the “specialness” — rather than “specificity” — of the human being has given rise to diverse interpretations, from Martin Heidegger’s conception of ontological difference⁴ to Arnold Gehlen’s theory of humans’ capacity for cultural compensation for their adaptive deficiencies. However, these interpretations are all essentially based on Descartes’s dichotomy, which aims to lead animality back to the determinism of the *res extensa*, from which humans distance themselves because of their meta-predicative capacities. According to this interpretation, humans were not born from a particular declination of their animality, but by emancipating and distancing themselves from it. Darwin’s theories have been adapted for this interpretation as well, so that the human condition is viewed not as the outcome of specific adaptations or predicative declinations to a certain performativity, but rather, the reverse.

Animality thus falls into the realm of determinism, that is, the mechanical translation of behavioral automatisms that are necessary and exhaustive explanations for animal expression: the animal is the sum of its automatisms, and its expression is their functional outcome. Cognitive ethology — a branch that attracted a multitude of authors, from Köhler to Griffin — tried in vain to introduce fragments of subjectivity into the animal-machine by recognizing in it levels of intentionality that, albeit lower than those of a human being, can produce a glimmer of subjectivity by reflectively and explicitly managing some processes or psychological states. Subjectivity is thus related to the knowledge of states such as emotions, intentions, the creation of goals and strategies (that is, behavioral molarities), the ability to find solutions through insight, the creation and use of tools, and so on. In this context, one is subjective insofar as one is aware of what one feels or expresses through behavior.

This theory illuminates quite well some of the main events of the animal mind: evaluation, judgment, decision, planning, simulation, and creativity. However, I believe that it does not help us to understand the foundations of animal subjectivity, because as long as one models these capacities as automatisms there is no room for behavioral flexibility. A machine endowed with consciousness can only manage the mandatory nature of its mechanisms. To add a consciousness to the traditional model of the *res extensa* is not a solution — it would only restore Descartes’s dualism by trading the metaphysical *res cogitans* for an informatic or cognitive *res*. What is really required is to question the very principle of *res extensa*, that is, the model upon which the concept of animality is based.

Ethological research, like cognitive research, has analyzed predicates in detail, without questioning Descartes's overarching paradigm of the "animal machine." Instead, it has simply proposed, in each case, a particular model of the machine: a) a psycho-hydraulic machine in classical ethology; b) a cybernetic or feedback machine in behaviorism; c) an informatics machine in cognitive hypotheses. My goal is to question the basic paradigm, that is, the ontology of animality, through existential — and therefore ethological — plurality.

First of all, some important points must be established: 1) the basic model that explains an individual's natural and acquired capacities must be redefined; 2) the concept of subjectivity must be reintroduced, without falling into the tautological trap of consciousness or other dead ends that would lead to an infinite regress; 3) one must explain the emergence of the psyche, rather than the total state of the body and its relations with the outside world; 4) the concept of existential plurality must be highlighted, avoiding the anthropocentric tendency to consider the human being as the privileged term of comparison, so as to grant the heterospecific a certain kind of presence.

It should be understood from the outset that one can speak of subjectivity only by acknowledging a sort of "ownership" of behavioral capacities; individuals use the capacities, they are not controlled by them. Otherwise, if the capacities were able to explain animal expression directly, there would be no room for the subject to appear. Moreover, a different paradigmatic structure might explain animal behavior better: a) by resolving some inconsistencies present in the current explanatory models; b) by avoiding calling into question entities that are metaphysical or that cannot be explained clearly; and c) by respecting the principle of parsimony.

1. Shifting from an "automatism-based model" to an "instrument-based model" in order to explain the capacities. To be able to speak of true ownership, one must first modify the model that describes and explains behavioral capacities. The mechanistic model is based on the concept of "automatism": that an underlying structure is, as such, able to explain the expressed function. Automatism transforms behavior into a sort of imperative and substantially deterministic reflection in the function produced, where a gateway for the stimuli (both internal and external) corresponds to a behavioral mechanism, such that each input matches a precise output. Both the key signal describing the instinct and its elicitive processes, and indeed the structure of classical conditioning mediating the dialogue between stimulus and response, abide by the same basic requirement: the mechanism exhaustively and cogently explains the behavior. The

automatism thus becomes the explanatory paradigm of both the phylogenetic heritage and the learning processes.

Complex behaviors can also be explained through this model, if one considers the single automatism to be nothing but the atomic unit from whose composition, in sequence — e.g., behaviorist chaining — or in other correlative, synergistic, or antagonistic forms, any complex behavior may result. To consider behavior as the sum of automatisms activated one after the other leads to an analytical explanation of animal expression, where each molarity is led back to molecularities combinable with one another, in a context of expressive, rather than virtual, units. In order to understand this explanation, it may be useful to picture dominoes in which each piece can be a meaningful answer to the incoming wave, and a stimulus for the next one.

A model that does not operate through virtual connections, but through a succession of expressive units, does not take into consideration the organization of the neurobiological system that has a connective-systemic, rather than an associative, structure. As soon as one considers a mental state as a particular systemic activation of a network — that is, as one of the possible “states of the network,” given by a certain connective activation of its structures — the model shifts considerably. Without treating every single behavior as a specific expressive domino structure, the functional unit can be seen as a “group member.” However, its outcome derives from the systemics involved. Supposing that each functional unit allows for a different expressive conversion that depends on the systemic configuration activated at a particular time, we encounter a model that is more parsimonious and more responsive to neural connectionism than to those autonomous units called associations.

A functional systemics thus reveals capacities that are more reminiscent of a map schema than a domino game — that is, their structure can form different functional configurations, implying a series of possible expressive paths — and thus can give rise to a multiplicity of functional outcomes. Thinking about the difference between a domino-model and a map-model, one can immediately see that the functional meaning shifts considerably. While the domino-based model exemplifies functional automatism (the perfect translation of inevitability and determinism), the map-based model shows capacities as tools. This shift in the explanatory model is quite significant. In the automatic model, the ratio of structure (what it is) to function (what it does), can be represented as 1:1 — that is, “what it is = what it does,” so that the function can be obtained from the given structure. In the instrument model, the ratio of structure to function is 1: infinity — that is, the instrument-endowment a) arranges itself, b)

provides competence, and c) becomes available to the function, but does not determine it.

Once we consider the systemics responsible for the specific functional translation of the capacities we also recognize a surplus in the explanation of the expressive component that cannot be directly traced back to the capacities. This does not mean one must deny to the capacities a performative character, but rather to acknowledge that the capacities develop a range of possible performative outcomes, so that every expression is nothing but the result of the particular functional configuration that the system has provided the endowment. The map defines — or, one could say, virtually subsumes — a set of possible paths, without establishing which one should be taken. A map is much more economical model than a sequence of individual paths for managing the changes that may intervene on one's path, and also for flexibly adapting the paths in ordinary situations.

What does it mean to shift from an “automatism-based model” to an “instrument-based model?” If one considers the concept of ownership to be a prerequisite for the debate on subjectivity, then this shift means a great deal. While an automatism governs the individual, an instrument *is used by* the individual. One could think of natural or acquired capacities as instruments, such as a hammer: I use the hammer; it does not control me. There is an important difference: while an automatism would transform the animal into a puppet moved by wires, the instrument is controlled by the animal, who has broad flexibility in its use. The functional completeness of the automatism would transform the individual into nothing more than the sum of its automatisms. This modelling metamorphosis, for example, is easily demonstrated by the phenomenological analysis of animal behavior in the learning process: once an animal has learnt an operational schema, it then uses this schema in situations different from those in which it was acquired. Also, it uses it on the basis of flexibility and functional co-optation, recalling Piaget's dialectic of assimilation/accommodation.⁵

The capacities can therefore be described as a “modal schema” that is body-specific (referring to the different functions of the body) and body-topical (identifying some specific involvements of the body). Furthermore, its structure implies, and therefore allows, for more functional paths, depending on the specific configurations of activation. The modal schema is therefore dynamic, multi-functional, and evolutionary; its fractal structure in the synaptic networks allows the body to be relationally present in space. In other words, the capacities are the body's instruments, and not vice versa. In order to offer the best performance for the relational needs of the body, which moves

in an ever-changing and therefore unique reality, the capacities cannot give rise to static, mono-functional, and unidirectional structures — as the stimulus-response interpretation suggests; it must rather predict enactivism. In other words, the modal schema can neither be assimilated to a sensory-motor “unity of expression,” as in the behaviorist interpretation, nor can it be assimilated to an “amodal representation” of external reality, as in the cognitive interpretation.

To consider knowledge as the definition of a specific “modal scheme” implies that cognition does not fall outside of the body, that it is not amodal or computational, and that it uses instruments that reproduce virtual fields of somatic relationship with external reality. In this sense, a modal scheme is a sort of map of possible body-world relationships related to a particular type of somatized dialogic state. The modal scheme defines some “useful functional range” in order to decline in a certain way the relationship between body and external reality. The body, therefore, indicates a field of relationships — this is the ultimate heterotrophic and vagile constitution of animality — declined through modal expressions. This relational state or embodiment-cognition concerns a plurality of elements that cannot be translated into, or reduced to, mere sensorimotor dialectics. Subjectivity, therefore, emerges out of a dialogue with the world that is mediated by sensory and instinctive responses.

The paradigmatic transformation implied by this metamorphosis of modelling involves different domains: a) the domain of instrumentality, or of the expression’s distancing from the capacities themselves; b) the domain of modality, or assimilation of the endowment instrument to the body; c) the parameter of relatedness, or conjugative capabilities of the capacities. The instrument-based model gives a capacities-based character to phylogenetic and ontogenetic instruction, in the sense of “being useful for” — that is, to structure possible “expressive modals” instead of identifying them, that is, instead of looking for “expressive motives.” Subjectivity lies in the denial of this “functional completeness” that would turn the animal into a set of mechanisms activated by external or internal stimuli. By considering the information (natural and acquired) as instrument rather than automatism, one conceives the animal to be the owner of its capacities: it uses them; they do not control it. An instrument can be used in a thousand different ways, and with creativity. To be subjective means to be the owner of one’s own instruments, to test them in new situations, to modify them, and to create new ones

But why is an instrument-based model more suitable than an automatism-based one? The answer lies in the “principle of singularity of the real”⁶ (Marchesini): the world presents itself in similar, but never identical conformations, so that an individual is

always faced with some “margins of newness.” If one’s capacities were automatism, one could not deal with changes, because the automatism does nothing more than repeat the recognized function. Without such flexibility, software that plays chess through an algorithm would not be realistically possible. In order to control singularity, the animal must be able to use its endowments capacities in a free and flexible way, through what Gould and Vrba term “exaptation,” and with creativity. At this point, the evolving nature of these capacities becomes clear: they are constantly transformed according to the individual’s specific use.

2. Subjectivity as presence and systemic emergence. Viewing subjectivity in terms of a multilayered relational systemics of the body opens a way to overcome the Cartesian dualism that is still present in cognitivism. The disjunction of subjectivity from the body may indeed be pursued not only by admitting a metaphysical *res cogitans*, but also by reading subjectivity through informatics, and thus translating it in an amodal way, as in the computational formalism that tries to interpret the cognitive function. Reason, language, and intentionality, along the lines of post-Cartesian philosophy, become disjunctive principles-operators compared to a *res-extensa* body that continues to be interpreted as a reactive entity, rather than as a presence-relationship. This is a passive body that, affected by a stream of world, reacts in a mechanical way. According to this dualism, one is a subject inasmuch as one is emancipated from one’s own corporeal roots and, by assimilation, from one’s own animality. In this paradigm, there is no room for animal subjectivity. Moreover, human subjectivity is separated from the meta-predicate of animality as well: one is a subject despite being an animal.

According to the mechanistic explanation of the *res extensa*, animality is not a relational positioning, that is, a *Dasein*. Rather, it is simply a reactive structure, a set of motions activated by stimulating and elicitive intervention in gateways. If the animal-machine paradigm remains intact, some exhaustive models of expressiveness will inevitably be identified. Such models are able to explain fully the expression that the individual manifests in the timeless immediacy of one’s being. Martin Heidegger eloquently explained this subject-less animality as the stunned condition of receptive-reactive immediacy that, lacking presence, cannot be present.⁷ However, this is a *petitio principii*: the model that explains the animal expression was intended to respond fully to the mechanistic requisites of the automaton-animal paradigm. There have been many debates about what kind of machine the animal is, but the paradigm that relates the animal condition to the machine has rarely been challenged on its own ground.

Moreover, I believe that referencing the machine is important because it highlights the great differences between animal and machine. First of all, it is necessary to say that, despite its apparent coherence with the scientific canon, the statement “the animal is a machine” does not meet the criteria of falsifiability, since no machine, even as a theoretical formulation, can do what even the simplest of animals can. However, the specific characteristics of a machine are the real problem: a) the completeness of its functional contents-directions, compared to the performative outcomes; b) its self-containment; that is, the fact that it is never in a developmental condition, even when it introjects outside information; c) its lack of exclusively functional coordinates among the functional motives; d) its isochronic and therefore atemporal condition, compared to the unavoidable diachronicity of a living organism; and e) its lack of teleonomic structures relatable to the individual’s past motives.

When one observes an animal and tries to interpret its behavior, one is inevitably faced with an “explanatory deficit.” Therefore, one usually adopts epistemological strategies based on causal plurality, such as the presence of both proximate and remote causes in Ernst Mayr’s formulation, or Niko Tinbergen’s four questions of ethology.⁸ A mechanistic translation cannot grasp the multiple aspects of an animal’s behavior; these can be grasped only by identifying the animal’s expression with its feelings. Animality is thus the individual’s unique position in the here-and-now: the individual’s ability to interpret her own here-and-now with creativity, flexibility, and partiality. One can therefore say that if the capacities, either natural or acquired, were a script for the individual to follow, the animal would be the result of the actor’s interpretation, rather than the mere repetition of the contents of the script.

If the capacities are considered as tools rather than automatisms, an expression cannot be derived directly from them; it should rather be derived from the positional systemics of the individual who bends the instrument to a particular function. The behavior is thus a manifestation of the animal’s unique and systemic state. The animal uses its own modal schemas, by extracting the specific function from the range of virtualities required by the schema. Using once again the image of the script, one can thus say that subjectivity lies in this interpretive singularity, in the actor’s ownership of its part, on the basis of an overall status. In other words, the best way to understand subjectivity is to consider it a result of an emerging singularity of the systemics. The animal expression, therefore, should not be regarded as the sum of mechanical expressive units, but as an overall state of the system that, as a whole, extracts a particular functional declination from the functional virtuality of the capacities.

Subjectivity is thus the animal expression that cannot be reduced to its capacities, despite the modal value that they introject. When we speak of a systemic condition and an emerging singularity, we refer to an entity that owes its virtuality, its openness to all available combinations, to the redundancy — rather than linearity — of the expressive mechanism. The body is not made of strings and pulleys; it is a living entity that is constantly growing and converses with the outside world so much that every liminal definition is arbitrary. Where does the body begin? Where does it end? The answer is apparently simple but, on closer inspection, every definition of “border” is arbitrary. The body is placed on a variety of levels (sensory, metabolic, endocrine, immunological, motoric, symbiotic) that converse with the outside world. Also, positionality — the emerging singularity — is the chaotic outcome of this continuous chatter of the body. In this sense, the subject’s mental state should be considered not as a homunculus, but rather as a set of overlapping hierarchical levels whose predicates appear before the units that compose it.

Consequently, there is no control unit or place of subjectivity, but rather an emergence of functional states that define “different levels of subjectivity.” These levels must carry out different functions, since the subject’s behavioral needs are diverse. However, in their entirety they define an inner world assembled in a way that is anything but logical, with very multifaceted manifestations of identity. Diachronically, the emerging positionality creates a continuity of identity: an inner world that, through its partiality, expresses this momentary “feeling a certain way” — the title of the singularity. To be subjective means to have an identity — a biography — that is the outcome of several moments (the history of the species, gestation, developmental age, adulthood) and relationships with the world. These stories coexist, and each one bears specific motives. A causal plurality is therefore mandated: the subject is always a Harlequin serving several masters. These stories are summarized in the individual that, precisely for this reason, is singular: it means that it is unique and unrepeatable, but above all it means that an animal’s behavior can never be predicted in detail.

However, this unpredictability should be attributed to being part of different causal temporalities, rather than to the mere fact of being a complex system. The individual suffers from what her species has phylogenetically learned and introjected within the genetic and epigenetic inheritance of phenotypic translation, within the parental and cultural structures of ontogenetic translation. The individual is affected by both the first relationships she had with her parents as a baby, and those that she had with her peers during childhood, and that built her basic character. The individual is affected by her experiences and their patterns. She has developed an evolutionary differential that

depends on the received stimuli; she has built a specific knowledge. She responds to all this. Biographical identity is a work in progress, because the animal is constantly learning, and therefore constantly changing its identity. The expression of a given behavior is also the exercise of certain behavioral traits, so that every time an animal performs an action, it transforms its own identity. The constant evolution of identity can be compared to muscles that are trained and therefore grow while working.

To be subjective means to change, never to be equal to oneself, to be unfaithful to one's past. Moreover, learning is not a particular moment of subjectivity, but the very foundation of the subject: subjectivity means to possess an inner world in constant transformation. To be an animal means to dream, to plan, to build strategies, to reflect on possibilities, to evaluate the hidden contents of a situation, to do mental simulations based on different tactics. Subjectivity is the result of the animal's mental life, a sort of inner theater where each orientation is compared with all the others. Lorenz called it the parliament of instincts. The result is therefore always systemic, reflective, and interactive, involving different parts; it is never mechanical, analytical, or like a ripple effect.

The mind as a system gives life to thought. It retreats into itself and leads to more or less conscious global decisions. However, the mind is not consciousness: consciousness is just one of the many functions of the mind. Moreover, mental subjectivity takes place especially in the unconscious: nothing is more subjective than the unconscious that manifests itself through desires, dreams, states of alteration, emotional images, unfolded memories, confused projects. In fact, one could say that consciousness is often a censor of subjectivity. The mind is an internal ecosystem: a microcosm that cannot overlap the macrocosmic world in which processes of reality take place. The mind puts the animal being in the world, but at the same time it allows it to distance itself and to reflect on given situations through a complex elaboration of all available information. The mind can transform all the events of the world into meanings — that is, it can translate them into categories of risks and opportunities, and therefore to perform an immediate decoding that allows it to make decisions.

3. Psychic emergence and the positional-relational state of the body. The idea that the mind emerges in stages from all over the body, and is not simply related to it, leads one to consider the phenomenon of the psyche as the result of being-a-body, as opposed to Descartes's having-a-body and all its amodal and representational variants. The animal's ontological status must therefore be redefined, and subjectivity must be brought back to the very character of animality. To be an animal does not mean to orient oneself towards something in an exclusively motor sense, but rather to assume a

constitutive lack that demands to be supplemented, through the relationship with the world.

A metabolic entity constantly redefines its terms at stake. In other words, it is never executive, because it always tends to overcome itself. As phenomenology emphasizes, this constitutive circularity interrupts the subject-world disjunction (Merleau-Ponty). When I speak of the unique emergence of positionality, therefore, I do not consider the problem of predictability as a distinctive meta-predicate of subjectivity: behavioral phenomena with a high degree of predictability can appear, just as, on the other hand, there are abiotic events whose course is absolutely unpredictable. I would like to point out the absolute arbitrariness of the explanatory coordinates of cause-and-effect. If the mind emerges from the entire body, it makes no sense to consider the mental state as the representation of something. In fact, it would be more plausible to correlate the concept of intentionality somatically: to be a body means to refer to something external — that is, to refer to something, to build one's own contents co-factorially.

The body can thus be regarded as a field where multiple games between different teams occur: phylogenetic instances that are related to ontogeny, needs that are confronted with environmental opportunities, stimuli that have to deal with the subject's here-and-now dispositions, memories that casually emerge during the dream phase, which changes the present prospective. Also, subjectivity is nothing but the set of results of this body-world relationship. Subjectivity is an "expressive mode" — that is, a state declination. It makes no sense to claim to extract it from the individual alchemically and in purity by referring to the brain or some part of the CNS, failing to extend this ownership to the body. This is the most important reason why I do not think that an animal is a machine, however complex, unpredictable, and interactive it may be: a machine performs functions on the environment, an animal achieves positional states *with* the environment. The concept of *res extensa* is based on the principle of the entity's completeness in the performative explanation, that what, why, and how the machine is can be completely explained, with no redundancy, by what it *does*; but the animal is not an entity that can be explained without regard for its positional circularities. On the other hand, it is clear that the principle of causal/functional completeness applied to the *res extensa* is inevitably projected onto the *res cogitans*. This is what leads Descartes to seek the certainty of one's own existence by retreating into oneself and questioning external reality.

Subjectivity is therefore a condition of positionality that arises from the animal's relational character. An animal realizes its subjectivity through its conjugative links⁹ to

the world, by declining itself through connective structures. By contrast, if animality is deprived of any character of subjectivity and turned into a mere mechanical functionality of some automatism, then it is clear that any predication of the human will seek comfort in emancipation from animality and not in the expression of animality — one becomes a subject *despite* one's animal being, rather than *as a condition of it*. The mechanistic explanation of the *res extensa* does not consider animality a relational positioning — that is, a *Dasein* — but simply a reactive structure, that is, a set of motions triggered by the stimulating-eliciting intervention on its access points. So long as the paradigm of translation of animal being into a machine remains in place, one must inevitably search for some other models to explain the individual's expressivity within the a-temporal immediacy of its being. Martin Heidegger has eloquently described this desubjectivized image of animality as something lost in a receptive-reactive immediacy, something that cannot be present because it lacks presence. However, this is a *petitio principii*: the model called to explain animal expressiveness was conceived to fully satisfy the mechanistic requirements of the animal-automaton paradigm. There has been a long debate on what kind of machine the animal is, but no one ever questioned the correctness of the paradigmatic definition that assimilated the animal condition to a machine.

I therefore use the expression “emancipation of animality” from the restriction and mortification inflicted to it by the humanistic tradition. In order to do so, it is necessary not to dwell on the predicative elements, be they descriptive or explanatory, but rather to question the meta-predicative structure of animal-being, that is, animal ontology. Every animal expression can be traced back to verbs of conjugation and positionality: chasing prey, rejoicing during a game, being frightened by a danger, protecting a certain resource. The animal is brought into the world through a verbal predicate that is realized in the conjugative act, as if the world was to complete the sentence and give meaning to the verbal declination. The animal cannot be explained through an internal recognition (that is, *iuxta propria principia*) because it is implicitly (verbally) conjugative. Animality is thus a state of foundational deficiency, an appeal to something outside or past, and this will always distance it from the self-founding condition of a machine, regardless of the approximation or simulation that one may try to place in one's model: the phantom of the machine will always disappear.

The animal is subjective and, because of its desires, it is the protagonist of its own life. It is not a passive entity, but rather a continuous self-presentation, an irrepressible being that is looking for something. There is a close relationship between animality and research, between subjectivity and non-equilibrium. The animal is driven by languor, libido, instinct. It creates situations, transforms the world into a field of opportunities,

because it desires and thus looks for opportunities. A leaf is moved by the wind; the animal, by contrast, has an internal driving force: it is subjective, because it is the protagonist. The internal motives are verbal structures: to collect, to chase, to look after, to join, to possess, to protect. The object is only an excuse. Desires are verbs, actions in power, “structures that connect” (Bateson), in certain ways, the animal to the world. The animal desires by expressing its motivations, by exploring and interacting with the world.

On the other hand, the motivational state is the direct and neuromodulated expression of the individual’s endocrine status. For example, it expresses the individual’s biorhythm and periodicity that, through internal rhythms, impose glandular secretions interacting with streams of light, food metabolites, and immune feedbacks of the cytokine. Desires define behavioral motives that, compared to the individual’s psychological state, are far from being amodal: one’s thoughts are governed by verbal functions that, compared to the motivations, are perfectly modal. When one speaks of self-assertion as an amodal function, one forgets that it is nothing more than a supervening level of basic motivational structures whose inductive and coordinative source are the gonads. When Heidegger says that the man is the child of care, he forgets that the epimeletic behavior is based on oxytocin.

To be sure, I am not trying to reduce the behavior of caring to the mere presence of oxytocin. I merely wish to emphasize how important it is to re-establish the connection between a mental state and the state of the body, avoiding the mind-body disjunction that only admits a correlation, rather than actual relation, even in the diversity of domains. Descartes’s artifice of the dualistic operator opens the way for an amodal conception of cognition that is the first step to permanently remove subjectivity from the human and non-human animal condition. On the contrary, the expressive and relational performance of the mind always starts from a systemic-positional condition of the body: one only has to change some positional parameters and the psychic outcome assumes a totally different declination. Moreover, thought always has a modal structure, compared to the body. On closer inspection, even human language reflects the “propositional structure” already implicit in the positional act, rather than following formal rules. Chasing a hare is a behavior or a thought, a statement or an implication: its internal structure is what really matters. This is defined by a motivational predicate (chasing) and a modal specification that comes from schemes of experience in relation to the environment (how, what, where, when). Chasing is a positional state because it defines the conjugative motive, creating an accurate declination of the connection between the subject and its here-and-now.

Positionality is given by two forms of conjugations: 1) proactive positionalities that indicate how the subject engages the external reality, incorporates it, and orients itself therein; these positionalities can be defined as motives or “modal desires”; 2) reactive positionalities that indicate what kind of willingness the body has in its intersection with external reality; these can be defined as emotions or “modal willingness.” Some authors such as Damasio have stressed the importance of these positionalities, directly referring to the systemic body — and therefore he defines them as “somatic markers” — for cognitive activities usually defined as amodal. A significant example is the solution to a problem. First of all, it must be said that the animal does not just solve problems, as if external reality was nothing more than a series of objective problems. The motivational conjugation is the driving force that creates the problem — that is, it defines the gap between state and desired positionality.

Desire is the most immediate expression of subjectivity. It goes beyond need and, in a sense, gives meaning to it: I live because I desire, I live by expressing the desires that overwhelm me and shape my presence. All of the animal’s capacities do nothing but offer themselves as instruments for expressing desires. Desire colors the world, it fills the eyes of a child’s wonder, it supports the chaotic games of a puppy, and gives its own meaning to the events of the world. If desire disappears, life withers into a vegetative atemporality; if desire decreases, life fades. Desire is a mental languor, a craving for the world that makes the individual restless, ready for action, creative and involved. Desire has always been at the basis of ethological research: each species has different desires, but every animal desires individually. It is a subject because it is oriented to seek a space where it can act: desire faces it with problems, makes it evaluate situations, urges it to find solutions, forces it to decide. The exercise of desire gives it more pleasure than the achieved outcome: the animal is a subject because it is part of the principle of expressive pleasure.

Secondly, it should be emphasized that, once a problem is revealed through the exercise of the desiring declination in conjugation with the outside world, this must be understood in its two inflections: a) all the structural features of the problem must be accepted, and the individual must therefore be able to refer to the positional resources that are useful for grasping complexity; for this reason, some problems require emotional activations of opening, and others require emotional activations of closure; b) the subject itself must be understood within the problem, as if the problem were a more or less comfortable environment, depending on the individual's intrinsic conditions. The animal is subjective because it has emotions, that is, some inner states that lead it to evaluate situations in a certain way. It is subjective because it does not experience the

world passively, but interprets external reality depending on its status. Through the emotional state, the animal converts the experienced situation in a value-for-itself condition. In this sense, to feel emotions is a necessary condition for a specific here-and-now: to be subjective means to build a singular and unique *Dasein* of both the individual and the momentary past.

Emotions are the result of the relationship between the condition of the body and what external reality offers at a particular time. The body is a growing systemic reality: to transform this physiological processuality, which interacts with the world, in a state of mind means to exist as becoming. It is as if the animal colors the world through its emotions: the world takes on different shades depending on the animal's feelings. For example, if it is tired and has negative feelings, it will not see what surrounds it in the way it does when it is happy. Emotions such as sadness or fear will transform the world into something dark. Therefore, to be subjective means to have a partial reading of reality. The animal never reads what surrounds it objectively; its approach is subjective because it is partial and relates to its internal condition. Subjectivity is thus an interpretation of the world that anticipates the representation, a previous "evaluation" that places previous conceptualizations in question. The subject lives in the world, but more importantly, it lives according to its own values that color the world in a certain way. The animal is partial; it always has preconceptions.

4. Subjectivity means existential plurality. The ethological principle according to which the individual is immersed in the world in always-different ways can be traced back to Darwin's principle of natural selection. However, this is neither an improvement on, nor an emancipation from, a particular previous condition, as the evolution of the human being is often trivially taken to be. It is rather a specialization, a special connection to an environment and lifestyle. Evolution is a dialogic path that takes place over time, and in a context of plural relationships. It is the introjection of relationships that unfold between life and external reality, and whose outcome gives rise to a virtual range of ontogenetic phenotypes: a morphopoesis that is not only functional architecture, but also a dimension of presence and expressiveness. To consider evolution as a dialogue means to distance oneself from: a) an autopoietic vision of the living being and the various revivals of Lamarck's idea that evolution has an overall or intrinsic purpose, that is, it pursues a project; b) the idea that the individual is a completely passive entity in the evolutionary process when, on the contrary, the action and the creativity that she expresses in her life act on the selective pressures and lead to a modelling shift.

Darwin's revolution must therefore be regarded as a work in progress, a workshop of debates on animality that abandons naturalism, so as to become the paradigmatic crux for philosophical reflections on ontology. If one reads Darwin's thought correctly, one quickly realizes some important shifts from the humanistic tradition: 1) the organ precedes the function, and the anthropomorphic principle that it is designed for a particular performative declination cannot therefore be applied; 2) each organism is the result of a repeated modelling based on selective pressures, so that the living organism is an artifact and a work in progress; 3) the structural emergence is not based on an ideational coordinate; there is no designer; it abides by bottom-up (rather than top-down) organizational logics; 4) there is no model or reference, and the individual, therefore, can never approximate something; one cannot talk about gradients of completeness nor perfection, because evolution is a do-it-yourself process; 5) the evolutionary process does not abide by deterministic coordinates, and therefore cannot be compressed into an algorithm, because phylogenetics is historically based on occurrences and casualness.

These shifts are substantial and cannot be confined to naturalism. They rather enter the philosophical debate, and the theme of animality leads to a comparison with the foundations of Western thought, so that, in order to emphasize the discontinuity that Charles Darwin's thought gave life to, one has to speak more and more of a post-humanistic age, seriously questioning: a) universalism, that is, the presumption of identifying a foundation of the projective and adaptive canon of humanism; b) essentialism, that is, the idea that each entity needs to follow a previous authentic, unchangeable, and referential schema; c) dichotomous thought in its various forms — particularly those of nature/culture, mind/body, human/animal, natural/artificial, innate/learned — that is, the idea that juxtaposed or related dimensions have a different domain; d) the disjunctive or non-relational conception of entities, that is, the idea that an entity may be founded according to its own principles and present itself as an impenetrable and autopoietic entity that can be reached through internal recognition and reflective speculation; e) the anthropocentric view of the ontological constitution, that is, the idea that the human being is measure and subsumption of the world.

Plurality entered the ontological debate with von Uexküll's concept of *Umwelt*, that is, the immersion of a specific species in the world. This interpretation was then taken up by Heidegger, so as to limit animality to the heterospecific and, vice versa, to free the human being from a particular declination, following to the letter the dualistic tradition of the Epimethean genealogy of non-humans as opposed to the Promethean genealogy of humans.¹⁰ By eliminating or drastically reducing the Epimethean features of the human being (see the theory of human incompleteness that goes from Pico della

Mirandola to Arnold Gehlen), one tries to find some congruence between Darwin's thought and the humanistic paradigm. However, doing so misdirects the living human being's basic premises, its contingent, nonlinear, positional *virtuality* inherent in "the expressive mechanism." The animal, confined to its immersion, does not interpret its *Dasein*, but simply enjoys and responds directly to the stimuli of the world in an absolutely atemporal, stunned condition. Once again, one tries desperately to save the human's speciality that guarantees universalism.

According to this monadic vision of immersion, the heterospecific is an alien that cannot be investigated — as expounded in Thomas Nagel's famous essay — that is, an entity with which no empathic relation can be built, since there are no connective bridges. One is once again faced with an *ad hoc* interpretation that expunges animality from the human domain, and reaffirms the automaton model. Actually, when one reads evolutionism correctly, one notices an extensive overlap between different Umwelten. This is attributable to: 1) homologies, that is, characteristics that are antecedent, shared because they are inherited from a common ancestor; 2) analogies, that is, characteristics that are convergent, shared because produced by the same selective pressures. Diversity, therefore, should be not be used: a) to establish a total diversity between non-human and human that justifies an ontological difference; b) to build an existential hierarchy, that makes the human a standard for the evaluation of the non-human, and the latter an approximation; c) to declare a total alienation of the non-human, and therefore the impossibility of forming any hypothesis on heterospecific existentialism that is not a mere behavioral description.

Subjectivity thus enters the somatic-phylogenetic dimension as a body's specific modality. Human subjectivity is not the result of emancipation from a generic animal condition, but rather the very expression of a specific animal condition. Subjectivity is the systemic emergence of a body in dialogue with the world, a being-with that subsumes the previous dialogic instances-consequences by constructing a new relational field that "exists" insofar as "an act is completed" — that is to say, the two states do not differ, but rather collide. Existential plurality has several levels of contingency: a) the phylogenetic particularity that not only specifies absolute distances (greater closeness of humans to chimpanzees than to flies), but also some shared features that vary from species to species; b) the ontogenetic state that is not only an individuality that can be defined, depending on a cofactorial multiplicity (genetic, epigenetic, experiential), but is also the presence in a certain age; c) the singularity of the here-and-now, that is, the state of the body and its relationship with the events of a

particular time. Subjectivity lies in this stream-like and continuous oscillation of presence in the world.

In order to realize its project of universalism, the humanistic paradigm tends to expunge diversity by denying formal and expressive plasticity to both “the animal” and “the machine” in order to claim them for itself. Non-human diversity is therefore deprived of subjectivity and turned into a mechanical specificity; it is transformed from existential diversity to functional diversity. For this reason, it seems very difficult to acknowledge a plurality in exegetical process, transforming it into a multiplicity of reactive mechanisms. Twentieth-century cognitive ethology has not responded by questioning ontological anthropocentrism — that is, the cognitive universal — , but rather by presuming that the other species participate in the same exegesis. In my opinion, this is the greatest paradox that has prevented, rather than facilitated, a debate on animal subjectivity. Just as a morphological, endocrine, and sensory diversity exists, so does a cognitive plurality, since the phylogenetic process specializes, but does not improve. The animal world is thus formed by a variety of intelligences specialized to process present information. To ask oneself what is the most intelligent animal makes no more sense than to ask what is the most sensory or endocrine species. A dog, for example, has a strong social capacity. A cat, instead, can solve problems independently: to ask which species is more intelligent is absolutely useless.

5. Conclusions. To acknowledge subjectivity in the animal condition — that is, to bring subjectivity back to its animal condition — means to open a debate on many of the philosophical premises that characterize Western culture. These premises tried to solve the problem of subjectivity through a series of artifices, the most notable of which is the dualistic artifice of incorporeal or amodal presence in time. Subjectivity cannot be extracted from the body, and cannot even be confined to a particular emergence of evolutionary plurality, neither taxonomically (to what animal can subjectivity be related?) nor phylogenetically (from what point of the human evolution onward one can speak of subjectivity?). A living being is a subject because its ownership emerges from its systemic dialogic presence, from its reference to something external, but already presumed (like a lock that requires a certain key) and in progress (like a performance that always modifies the script). Subjectivity indicates the individual's escape from the already-given: the excess of its being.

The animal creates its present time, a here-and-now in which it builds its *Dasein*. This present does not exist in itself. The animal invents it by relating past and future — that is, by giving resonance to passed time, and thus creating a temporal space for action and presence. The animal is a subject because it exists. It does not simply appear in the

world; it is present, it participates in the world. To own a present means to have sovereignty over the here-and-now, and, in this sense, not to be immersed in it, but rather to emerge from the fluxes of time. The animal expresses itself through codes of resonance of the here-and-now that change, depending on the species. One could therefore say that there are as many presents as animal species. Each species relates different times, because the phylogenetic history that preceded the individual emergence of a species-specific subjectivity is different, as well. Subjectivity is this emergence from the flux of time.

One does not choose to be a dog, a dolphin, a man, or a hen. One does not choose to bear the legacy defining the particular characteristics of one's subjectivity. One does not choose the ontogenetic path that defines this individual identity, of which one so wishes to be the undisputed and sole creator. One does not choose the here-and-now that flexes one's body unpredictably and ungovernably, like a slender boat trying to stay on course amidst stormy waves. Although one did not choose any of these states and legacies, one does not give up; no individual does it, whatever species one has the fortune to belong to. The idea of the animal as a machine is finally declining, and it is now necessary to reconstruct an animal ontology that goes beyond the concept of *res extensa*.

Notes

1. At a first sight, the two traditional accounts — as expressed by Skinner, on the one hand, and Tinbergen, on the other — describe mutually incompatible explanatory models: 1) according to behaviorism, the animal works as a trigger machine; 2) according to classical ethology, the animal is a pressure cooker. As we can see, these two explanatory models are predicated on a basic assumption that is not called into question, namely that the animal is a machine. The scientific explanation of animal behavior, in searching to define “how the animal machine functions,” and restricting itself to defining features of animal mechanisms, has never problematized the Cartesian paradigm of the animal as automata. The only thing that has been problematized is whether that mechanism is an instinct or a conditioning. As in Kuhn's view, science has only chosen the type of machine, remaining well anchored to the philosophical paradigm. For this reason, I believe that only a philosophical approach which problematizes the basic paradigm — the Cartesian idea of animal automata — can really overcome ontological anthropocentrism: unless the human being is viewed as nothing but a puppet deterministically moved by strings. The main principle is refusing

mechanism, or, to put it differently, acknowledging animal subjectivity. In order to do so, a paradigmatic alternative to Descartes must be found.

2. On this aspect, cf. Sahlins.

3. *Declination* is the term I use to identify the individual's process of species tendencies to certain experiences and adaptations to the environment: it is what makes every non-human animal unique. Often, we think of innate capacities as a defined set of features that standardizes all the members of a given species from the point of view of expression. On the contrary, the innate is like a schema, a structure able to adapt according to the developing path chosen by the individual. If cat-being foresees the predatory motivation, a towards-something motion, how, when, and where predatory behavior will be expressed depends on the biographic experience of the subject: in this regard, I would say that the predicate "predatory" is declined in a specific and peculiar way in a specific cat. The individual declination of predicates transform characters, which are not longer like essences, but like unlocked laboratories: material at the subject's disposal to build their own existential dimension as the protagonist of their existence.

4. Martin Heidegger understood this aspect very well when he realized that the predicative explanation, still in vogue among the old humanists fascinated by the plasticity of the Vitruvian model, was not the crux of the matter, because the difference between the human being and animal otherness was ontological, and thus meta-predicative. The animal machine can perform actions, take part in some functions, be comprised in a period of time, and so on. But if/until it remains a machine, it will never be really present, because a machine is in an isochronal state, and does not own a hic-et-nunc.

5. The child, for instance, uses processes of exaptation (Gould) or assimilation-accommodation (Piaget) to build new representations. Therefore, the sympathetic elements give it the possibility to anchor the unknown elements, and to extend its representational horizon. The epiphany effect raised from the recognition in the heterospecific, the co-feeling in him, but at the same time in the being gradually projected in another dimension.

6. Knowledge anticipates being able to use a foundation of stability-familiarity to project oneself into an unknown dimension, which in turn can construct a new "plane of reality" — to quote Speusippus as recorded by Aristotle — and so to begin a new adventure. Leaning out into an unknown dimension remains dizzying, and one cannot

make the transition without the assistance of an other: to construct this dialectic, the hybridizing process, which can open new epistemic dimensions, is indispensable.

7. Heidegger clarifies Descartes's unsaid. The mechanical translation of animality created an unbridgeable gap between humans and other species and, simultaneously, it definitively sanctioned its operative freedom over the non-human universe. Since the seventeenth century, this paradigmatic development has been undoubtedly difficult and controversial: the point was to accentuate the dialectics of exclusion that was only *in nuce* in the early humanists. Therefore, it is no surprise that, in addition to the hypothesis developed after Descartes's death (which increasingly amounted to a reductionism of animal expressiveness), proposals to restore subjectivity in nature came back, albeit in an intermittent way. On the other hand, countless factors privileged the reductionism to which Descartes offered a particularly effective paradigmatic crux — first of all, the autocratic and autopoietic operation of the human being as the sole protagonist, a principle that had already been active in the Western humanist metamorphosis for two centuries.

8. These two statements are misleading, but they offer themselves to reificatory projections. Starting from statement a), both Ernst Mayr, when speaking of remote and proximal causal duality, and Nikolaas Tinbergen, in posing his four questions, exhorted us not to conflate evolutionary compatibility, dictated by the fitness of the subject, and elicitive compatibility, governed by hedonic-elicitive principles that the individual is subject to. If it can be proven that the fitness of altruistic behavior responds to the parameters of Hamilton's coefficient of relatedness, then it is equally true that an individual possessing a given trait may express it toward any entity which is capable of eliciting it, for example the expression of maternal instinct by an adult female of one species toward a cub of a different species. The explanation that refers to fitness tells us only whether an attribute is compatible in individuals of a given species, not why an individual would express it.

9. *Conjugation* is the way the subject expresses his/her relationships with the world. Depending on different situations, behavior can be conjugated in one way or another. For example, predatory behavior can be an expression of a physiological need (the result of being hungry), but it can also be an expression of a game or a competition. On the other hand, *declination* is the way in which motivation is expressed (towards what, how, where, when). This means that any tendency is a copula, something that is accomplished both in a declinative and in a conjugal sense.

10. In Plato's *Protagoras*, Epimetheus creates animals and his brother Prometheus creates man. The topos of the Epimethean genealogy of animals is well known in Heidegger, but also in contemporary philosophy — in the work of Catherine Malabou, for example, and most notably in Bernard Stiegler's hugely influential *Technics and Time* series, the first volume of which was published in 1994 with the subheading "The Fault of Epimetheus." [Ed.]

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