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Alejandro Arango
Gonzaga University, arango@gonzaga.edu

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Alejandro Arango

Abstract
Through a critical engagement with Merleau-Ponty's discussion of the concepts of nature, life, and behavior, and with contemporary accounts of animal groups, this article argues that animal groups exhibit sociality and that sociality is a fundamental ontological condition. I situate my account in relation to the *superorganism* and *selfish individual* accounts of animal groups in recent biology and zoology. I argue that both accounts are inadequate. I propose an alternative account of animal groups and animal sociality through a Merleau-Pontian inspired definition of behavior. I criticize Merleau-Ponty's individualistic prejudice, but show that his philosophy contains the resources necessary to overcome this bias. I define behavior as a *holistic, ongoing, meaningful and Umwelt-oriented intrinsically configured expression of living forms of existence.* By looking at cases of animal groups drawn from contemporary studies in zoology and behavioral ecology, I show that animal groups, in the fact that they behave, manifest themselves to be a fundamental form of existence, namely, the social form of existence.

Key words: Sociality - Behavior - Animal Groups - Merleau-Ponty - Social Ontology - Expression

Is a school of fish merely a sum of individuals acting selfishly? Are the young male pronghorns that engage in play fight a superorganism in which no individual pronghorn has internal agency? Sociality in animals is not only about the structure and function of groups designated by collective nouns (those referred to as *terms of venery*) such as flocks of birds, schools of fish, colonies of termites, unkindnesses of ravens, herds of pronghorns, or groups of baboons.

Sociality in animals is about the different instances of organisms getting together and interacting with others. Thus, some animals of the same species may be constantly together, as in some schools of fish; together only upon specific circumstances, as in swarms of mating midges or certain flocks of migrating birds; together in some regular pattern such as some schooling planktivores that assemble in the morning and disband at night; or together in temporary (and in some cases occasional) interactions between conspecifics, as in task-oriented behavior (e.g. collective hunting of spotted hyenas or nest building of African weaver ants) or in situations of social grooming and social play (Hamner and Parrish 1997, 166–167; Burghardt 1998, 12-19). Not only the circumstances of groupings differ (environmental conditions, number and characteristics of participants), but also their seeming purposes, since group activity seems to fulfill different functions such as reproduction, foraging enhancement, locomotion efficiency, protection against predators, motor training, development of social and fight skills, establishment of dominance, and even fun and pleasure (Miller and Byers 1998, 145-146; Burghardt 1998, 3; Pellis and Pellis 1998, 134-136). For the purposes of this article, I will operate with the following definition, which covers a wide variety of forms, dynamics, and structures of animal sociality in organisms of the same species. An *animal group* is "any set of organisms, belonging to the same species, that remain together for a period of time interacting with one another to a distinctly greater degree than with other conspecifics" (Wilson 1975, 585).[1]

In this paper, I navigate the puzzle of the relation between the *many* and the *one*, between *sociality* and *individuality*, in the case of animal groups. More specifically: Can animal groups be considered as a specific "form of existence," and if so, in what sense? This is the ontological question that this article addresses. My thesis is that there is a "subset" of *living*

[1] Of the many relationships between living beings, I limit my focus to animal groups as defined. I do not examine incidental groupings of individuals of different species. I do not examine either more stable symbiotic relations, such as groups of local species that use the same resource, such as the "rodents, birds, and ants feeding on the seeds of desert plants" (Findley 1993, 1), or cohesive symbiotic systems, such as the collection of bacteria and other living species that may coexist in a human being. I acknowledge that an inquiry about sociality stands to gain a lot from a reflection on botanic sociality, which I do not address here.

animality that is social in nature. This sociality is, in relevant ontological and methodological aspects, irreducible to individuality, and is not a supra-unit that has no place for individual organisms. The "subset" I refer to is *animal groups*, which encompasses a wide variety of animal groupings, from the stable colony of ants to the momentary sparring dyad of pronghorns. The sense in which animal groups are social is their *behavior*. By sociality I mean the ontological and methodological dimension of existence that is characterized by the being together or gathering of living individuals that is not accidental in relation to their lifestyle. By individuality I mean the ontological and methodological dimension of existence that is characterized by the independent existence of the organism (which in some contemporary discussions is referred to as *organismality).*[2]

My central argument issues from a critical engagement with the concept of behavior in Merleau-Ponty. For Merleau-Ponty, to exist as a living entity is to behave. In Merleau-Pontian spirit, I propose the following definition to capture what is essential about behavior: a *holistic*,

[2] To be clear, my thesis is not that animal groups are the most basic unit of existence in the natural world and that individual organisms are not. This clarification allows me to acknowledge a terminological similarity with the discussion on "biological individuality" in theoretical biology. That discussion seeks to determine what is the most basic unit of existence in the natural world. It looks for facts of the matter in biological terms—categories like genetics, taxonomy, biochemistry, or physiology; or categories like permanence, reproducibility, being the object of selection, etc.—, and requires the use of methodological tools proper to the biological sciences. From that point of view, it would be somewhat confusing to say that this paper navigates the tension between individuality and sociality, because the possibilities for what could count as an individual include the cell, the gene, the organism, animal groups, or functionally cohesive symbiotic systems (like the system of animal organism plus bacteria, and other living species, in a human being), among others. In this debate, individuality itself is the category to be adjudicated, since both animal groups and individual organisms are a possible answer to the question of the living individual.

My discussion does not look for the basic unit of life or the living. My discussion is, in contrast, a conceptual one about the ontological status *of animal groups*, and it focuses on the concept of behavior. For the terminological issue, suffice it to note that in my working definitions I have used "individuality" as the term that designates individual organisms.

To say that my answer is conceptual does not mean that it is unhinged from empirical reality. In fact, the phenomenological argument from behavior and the application of the concept of behavior to animal groups show that my argument has enough traction in reality. My argument does not necessarily mean that behavior is separate or transcendent from empirical facts. I leave it to the biologist, the zoologist, and the ethologist the task of supplying, if possible, correlates of what, within the observable repertoire of the science, constitutes the concrete referent of the notion of behavior I will propose. For a good survey of issues related to groups and individuals in theoretical biology, see the collection "From Groups to Individuals: Evolution and Emerging Individuality" (Bouchard and Huneman, 2013). Articles by Godfrey-Smith, Goodnight, Clarke and Okasha, Hamilton and Fewell, Haber, Turner, and Bouchard, offer detailed treatment into different aspects of the issues associated with the problem of biological individuality, in relation to organisms and in relation to groups and collectives.

ongoing, meaningful and Umwelt-oriented intrinsically configured expression of living forms of existence. As I will argue, there is no reason to limit behavior to individual organisms, as it seems Merleau-Ponty himself did. On this basis, I will illustrate that concrete animal groups evince in their collective actions the fundamental character of the living that the definition of behavior captures. Given the role of behavior in Merleau-Ponty's ontology, I conclude that animal groups and animal sociality are fundamental forms of existence.

Section 1 attempts to clarify the conceptual puzzle. To that end I offer a schematic version of the two sides of a debate in recent literature in biology and point to their limitations. In section 2, I offer an overview of Merleau-Ponty's philosophy on nature and life. In section 3, I propose a definition of behavior that derives from Merleau-Ponty's work. In section 4, I take issue with Merleau-Ponty, arguing that there is an unacknowledged individualistic assumption in his work that should be rejected. Section 5 takes up concrete cases of animal groups and contrasts them with the definition of behavior. I finish by drawing the implications of this contrast for the question of the ontological account of animal groups and animal sociality.

1. Two ways of looking at animal groups

Let us try to get a schematic overview of the status of animal groups, as a dilemma posed by recent debates in zoology, ethology, and biology.

First horn of the dilemma:

(1) All individuals of a group are equal in relevant aspects. The group has its own properties and its own behavior. Hence, the group is more than the sum of its parts, and the parts are, in this respect, nothing by themselves, mere automatons following group dispositions. Let's call this the *superorganism* thesis.[3]

Second horn of the dilemma:

[3] See, for instance: "All individuals in a school [of fish] [are] considered to be identical in every aspect of morphology and behavior […] A set of identical individuals all contributing to the well-being of the group led to a group selectionist paradigm" (Hamner and Parrish 1997, 166).

(2) All individuals in a group act selfishly, and groups are epiphenomenal, that is, group properties are only masked individual effects. Group behavior is illusory. According to this thesis, favored by the evolutionary paradigm, the genetic evolution of individuals gives rise to this appearance of social behavior. Let's call this the *selfish individual* thesis.[4]

According to the superorganism view (whose paradigm is the colony of eusocial insects, such as honeybees and termites), some animal groups *are* individuals (Haber 2013). In Wilson and Sober's group selectionist view, for example, "superorganisms are more than just a theoretical possibility; they actually exist in nature" (Wilson and Sober 1989, 338). Their conclusion is based on the argument that groups are fitness-trait bearers that participate in the evolutionary process: in virtue of this participation in evolution, groups are superorganisms. On the superorganism view, the group is the only unit, and the members of the group disappear *qua* units. In a sense, the superorganism would not have members but parts.

On the other hand, the selfish individual thesis relies on the assumption that if something exists, it must be individually advantageous. Thus, behavior is only predicated of individual organisms. Let us look at the type of reasoning that is offered for this conclusion:

> How does the *seemingly* egalitarian behavior of the group benefit group members as selfish individuals? […] Here is the apparent paradox of many three-dimensional animal aggregations. *Individuals must be selfish according to our currently evolutionary paradigm, and yet as group members they respond as a collective whole* […] The same selective pressure that results in morphological uniformity should result in de facto consensus in response, the *appearance* of which is coherence and coordination. (Hamner and Parrish 1997, 171, emphases mine; see also Romney 1997)

This view favors the individualistic paradigm, but groups are treated as if they were unified wholes. In order to maintain the idea that only selfish individuals exist, group consensus is posited as mere appearance. While the phenomenal evidence of group behavior is not disregarded—that is, that groups of individuals actually respond as collective wholes—animal groups are ontologically classified as epiphenomenal and apparent.

[4] See, for instance: "Assuming that selfish individuals are the currency of selection, and individuals […] are not necessarily, even usually, related to each other or even faithful to the group […] *membership must be individually advantageous because it exists"* (Hamner and Parrish 1997, 166, emphasis mine).

These two theses are unsatisfactory. The insufficiencies are revealed in the case of the type of social play known as play fight or sparring. Play fight appears in pronghorns and in several other species of mammals and marsupials. Play fight involves "the use of species-specific patterns of agonistic behavior in a non-serious context" and the fighting bouts are combined with non-fighting behavior and context-dependent signals (Pellis and Pellis 1998, 116, 122-123; Burghardt 1998, 21; Miller and Byers 1998, 142; Watson 1998, 68; Bekoff and Allen 1998, 101-109). When engaged in play fight, sparring animals fall under the scope of the chosen definition of animal groups, and this cursory description is useful as a test case for the superorganism and selfish individual theses.

On the side of the superorganism thesis, the basic differential roles of participants oftentimes seen in play fight (a partner attacks and the other defends) go unaccounted for when all participants and their behavior are seen as fundamentally equal. The superorganism thesis is even more insufficient when the partners are dissimilar in other relevant respects: "Self-handicapping and restraint in the performance of potentially damaging acts are features of macropodoid [kangaroos and other marsupials] play fights. In interactions between mismatched partners, most obviously between females and their offspring, the advantaged partner may spend little or no time in the high stance posture, engage in defensive pawing rather than offensive sparring, and rarely if ever kick" (Watson 1998, 70). The superorganism thesis loses sight of the sense of individual contribution that is clearly present in some animal groups, which in this case is the characterization of defensive and offensive roles in mismatched partners. Without this aspect, the social behavior is not appropriately described.

The selfish individual thesis does not account for animal groups engaging in play fight. This thesis is unable to make sense of genuine group-level phenomena such as play fight, which is characterized by ambiguous signals, whose ambiguity disappears in virtue of the context in which they occur. Regarding play fight, Watson says: "No unambiguous play signals have been demonstrated in macropodoid play fight" (1998, 69). In the same respect, Pellis and Pellis argue

that threat signals are oftentimes present in play fight in most species that display this social behavior (1998, 122). Since the same action could be performed by the same organism in different contexts, and the potentially dangerous reaction depends on another organism's perception of a certain signal, the development of play fight *as play* depends not just on what the individuals do, but on the shared meaning of certain actions. In this sense, the selfish individual thesis, relying on individual behavior alone, is unable to account for the structural features of play fight, which are more than the isolated actions of sparring animals.

In sum, the superorganism thesis cannot account for complex social behavior, where individuals' contributions to the overall activity differ, however minimally, from those of conspecifics.[5] For this thesis, the differential contributions of members of the group are merely apparent. One might think that the superorganism view is supported by groups such as a homogeneous school of fish as it moves, featuring very similar behavior from individual organisms, but (leaving aside the fact that the behavior of two organisms is never truly homogeneous), what about animal groups where individual actions differ markedly and the collective behavior depends on those differences? The superorganism thesis seems unfit as a general thesis about the status of animal sociality. On the other hand, the selfish organism thesis is question-begging as to the status of animal groups. The evolutionary paradigm states programmatically that all individuals are selfish, in virtue of an ultimate biological reality operating at the genetic level.[6] Specific actions of living beings are *explained away* by the paradigm and the theory is thus unable to truly account for sociality on the basis of individuality

[5] Additional doubts may be cast when the behavior does not have (or does not seem to have) a clear purpose for the supposed superorganism, as in the case of animal social play. Social play has often been defined as purposeless or functionless. At the very least, it is unclear what the function of it would be for individual organisms, for the groups engaged in social play, or for larger groups to which animals may belong. See Fagen (1981, 42-67, 500-504), Heinrich and Smolker (1998, 27), and Bekoff and Allen (1998, 99).

[6] A variation of the selfish individual alternative is that, since the evolutionary paradigm focuses not on the life of specific living beings or groups of living beings, but on the transhistorical evolution of genetic material, we should rather talk about the *selfish gene(s)*. In this variation, there is not even a question about living beings, whether organisms or groups. This article, however, is concerned with reality at the level of living beings. Ontologically speaking, the existence of concrete animals and groups of animals has a reality that warrants them the character of explanandum. For a similar line of thought in theoretical biology, see Varela (2000) and Maturana and Varela (1984).

since the required synchronicity of very similar actions (e.g. ordered flying flocks of birds), and the coherence or complementarity of others (e.g. play fight in kangaroos or pronghorns) are only posited but not explained. The problem is not only that the selfish individual thesis cannot dispel the sense of collectivity that comes from the observation of group actions. The real problem is that such collective behavior would be ultimately counted as merely apparent.

The question is then whether we must choose one side to be treated as real and one side to be treated as apparent. The dilemma assumes that they cannot both be real. However, concrete observations of animal groups (as those I have here foreshadowed and will further elaborate in section 5) provide strong evidence that both the differential roles of individual members of an animal group and the collective aspect of animal group behavior are real. The account of animal groups in terms of behavior I will propose offers precisely that possibility, because it is able to encompass both sides, and does so by recognizing their descriptive and explanatory value.

I now move on to offer an overview of Merleau-Ponty's views on these topics and to present a definition of behavior that I will use as the basis for my argument about the ontological status of animal groups, which rejects both the superorganism and the selfish individual theses. As in other areas of philosophical inquiry, Merleau-Ponty will offer an alternative to traditionally conceived, seemingly exhaustive oppositions.

2. Merleau-Ponty on life and nature

Studying life phenomenologically consists of asking about life as a phenomenon, that is, about life as experienced.[7] In this type of inquiry, life does not present itself to us as a biochemical reality, population genetics, anatomical descriptions, or physiological processes (Merleau-Ponty 1983, 149-152). Instead, life shows itself primarily through living beings *living*, in activity—in

[7] I am not talking here about one's experience of one's own life: this is not a question of self-consciousness.

their behavior. For Merleau-Ponty, the centrality of the concept of behavior is connected to insufficiencies in traditional ontological ways of conceptualizing life and nature.

Merleau-Ponty pursued the topic of life, nature, and animality explicitly in his 1942 *The Structure of Behavior*, and later on in his *Nature Lectures*, a series of courses taught at the *Collège de France* between 1957-1960.[8] Merleau-Ponty regards the concept of nature as a way into the "general problem of ontology," to which all other philosophical problems are somehow subordinated (2003, 134). He situates his view vis-à-vis two positions, with origins in Judeo-Christian metaphysics, that stand at the root of Modern thought: an essentialist ontology and an existentialist ontology (2003, 131-132). The *essentialist* position is an ontology of the object, in which nature is identified with the totality of an external objective reality (at times, and in certain contexts, assimilated to God). Reality is here *one* totality governed by a *causal* principle, and everything is in the last instance pre-ordained in a projective way. The *existential* position is an ontology of the subject, in which reality is dependent on a rational being—God or the thinking ego. The organizing principle is here a notion of telos, originated in the faculty of reason, that conceives of reality as pre-ordained although in a retrospective way. This alternative grants ontological reality to a multiplicity of *beings*, and not only to one *being*, namely, God or Nature. Familiar oppositions between realism and idealism, objectivism and subjectivism, and between transcendental and immanent conceptions of reality are iterations of this one.

Merleau-Ponty acknowledges the pervasiveness of this oscillation. In Descartes he finds these views coexisting, though in an unreconciled way. Other philosophers of Modernity find this duality logically incompatible, and avert it by choosing one alternative or the other. In doing so, philosophers lose one or another aspect of being. The question seems to be, then, whether the oscillation will be treated as an ontological diplopia, a seeing double of beings, that

[8] There are references to related problems in the *Phenomenology of Perception*, mostly in an indirect way, as well as in other smaller works such as the collection *The World of Perception* (2008), particularly the lecture entitled *Exploring the World of Perception: Animal Life* (2008, 67-77).

forces us to choose the real one, or as a duality of aspects which must be both kept in sight. His position is that we need a "binocular philosophy," a position that rejects the seeming incompatibility of both sides, and rather manages to combine the two aspects into a richer view of the whole of reality (Merleau-Ponty 2003, 134).

This teetering between essentialist and existentialist positions has a specific counterpart in modern biology, however imperfect, in relation to the problem of life. The correlate is the opposition between mechanism and vitalism, where Merleau-Ponty will try to carve a path for his view. By modern biology, Merleau-Ponty was referring to the biology that was done since the end of the nineteenth century up until the 1940s and 1950s, where the questions at stake were not about the whole of nature, but about the phenomenon of life and the specific ontology of living beings. The connections of individual beings with other individuals of its species, with other species, and with the whole of nature—questions of reproduction, evolution, and ecology—were those subject to scientific inquiry.

Both materialism and vitalism are variations of the essentialist view, the ontology of the object. They consider living beings as independent entities existing in themselves. Under this realist bent (part of a *Zeitgeist*, to be sure), both alternatives are causal accounts: either the causal principle can be reduced to its parts and connections between those parts, thus corresponding to some variant of mechanism; or the causal principle is conceivable but not fully explainable or understandable, thus corresponding to some version of vitalism. The contrast, in other words, is between a causal account of living beings that takes them as entirely observable in a third-person way, and a causal account of living beings that focuses on an unobservable, inner causality.[9] Mechanism represents a mode of thinking akin to the Newtonian model of physics, attempting to find in living nature regularities of the kind found in physical phenomena, by looking at its material aspect alone. Mechanism is thought of as materialistic and objectivistic.

[9] This inner causality, however, seems at times to be merely a disguised teleological account, working retrospectively, as in the case of the *existentialist* position. It is as if idealism creeps in the realist spirit of these reflections.

On the other hand, vitalism looks for causes behind observable behavior, as if a vital principle had descended upon matter (Merleau-Ponty 2003, 152). Vitalism, in turn, corresponds to romantic or rationalistic philosophies that attribute the characteristics of natural beings to an inner generative principle. Merleau-Ponty argues that vitalism is spiritualist, yet objectivistic.[10] For Merleau-Ponty each of these positions disregards, once again, an aspect of the phenomenon of living beings.

Mechanism disregards the fact that living beings are not inert material objects, a collection of parts of matter, and sacrifices this distinction for the sake of regularity. Living beings cannot be reduced to identifiable *causes*, as was the case in Cartesian animal machines (Merleau-Ponty 2008, 70). Merleau-Ponty would not deny that genetics or biochemistry, for instance, play a necessary role in a living being's life, but would insist that they are not the essence of the life of a living being. In other words, he would reject the idea that the living being at the organismic level is not in its own right a phenomenon but a mere final product of biochemistry or genetics. Vitalism, on the other hand, disregards the concrete lives of living beings for the sake of a hidden, unexplained principle. Vitalism neglects the fact that organisms are also organized pieces of matter, products of the evolutionary process, whose materiality is at work in their concrete existence.

Merleau-Ponty thinks that each of these extremes captures elements that are in a sense correct, but in attempting one-sidedly to account for the whole of the phenomenon, each one reduces the phenomenon in a way that yields an incomplete and distorted picture of the reality of living beings. What we need is, once again, a *binocular philosophy*. The philosophical challenge

[10] Vitalism is an objectivistic position. Despite initial appearances, vitalism's objectivist nature can be seen in the fact that it issues from the ontology of the object, that is, it depends on conceiving living beings as having an independent existence. The fact that the specific power of life cannot be explained more than simply named does not entail that it is not ontologically conceived as objectively existing. Illustrating vitalism with the case of the swimming axolotl, Merleau-Ponty says that vitalism supposes that inside the axolotl there is "an entelechy," some "hidden qualities, […] a swimming power"—all of which evince an independent pre-formation, which, as Merleau-Ponty notes, would be contradicted by embryological development (2003, 152).

for Merleau-Ponty is, then, to find a concept able adequately to handle the ontological and epistemological richness for which both mechanism and vitalism are unable to account.

The seed of this binocular philosophy appears since the beginning of his theorizing about behavior in *The Structure of Behavior*. The concept was later refined in the *Nature Lectures* (especially in the lectures from 1957-1958), where Merleau-Ponty examined the tendencies in contemporary biology.[11] Drawing from the insights of biologists, zoologists and ethologists, Merleau-Ponty reflected on the living activities of animals of different orders, from unicellular to superior mammals—amoebae, sea urchins, marine worms, ticks, octopi, axolotl lizards, and dogs, among others.

For Merleau-Ponty, *behavior* is the concept able to capture the ontological richness of the living, whose nature is neither "behind" the activities of the organism, nor is the product of causal sequences or the mechanical influence of parts of matter upon parts of matter. As he puts it in a radio broadcast dedicated to the problem of perception in animal life: "In spite of what mechanistic biology might suggest, the world we live in is not made up only of things and space: some of these parcels of matter, which we call living beings, proceed to trace in their environment, by the way they act or behave, their own vision of things" (Merleau-Ponty 2008, 75).[12]

A central aspect of Merleau-Ponty's reflections on behavior is the rejection of Watson's and Pavlov's classical behaviorism, and, along with it, the rejection of the arbitrary outer-inner boundary, characteristic of both materialism and vitalism. Merleau-Ponty notes that Watson's behaviorism hardly had room even for physiology as an intermediary between stimulus and

[11] In the second set of lectures (1957-1958), Merleau-Ponty draws from a number of his contemporaries that were exploring diverse topics, among them: Coghill (and the relation between motility and development), Gessell (and the notion of form in the organic), Michotte (and the perception of causality in the living), von Uexküll (importantly but not exclusively, the relation between organism and Umwelt, and the perceptual and actional dimensions of behavior), E.S. Russell (and the relations between internal regulation in the organism and outward behavior), Hardouin (and the phenomenon of mimetism), Portmann (and the relation inner-outer), and Konrad Lorenz (and the notion of instinct). See the section on animality in the second course (Merleau-Ponty 2003, 139-199).

[12] Although Merleau-Ponty did not witness the raise of genetic studies, it is reasonable to assume that he would have shared similar suspicions about this type of reductionism, since it shares in the ontology of mechanism.

response. But he was aware that the mere acknowledgment of physiological intermediaries would not be enough for a proper ontological account of living beings, since such an account would still rely on mechanistic thinking. Thus, the rejection of Watson's view that behavior is merely an exterior reality is coupled with the targeting of causal modes of thinking that claim to be able to decompose the overall phenomena of the life of living beings in causal factors and their unidirectional interactions. The radicalness of Merleau-Ponty's view, as Evan Thompson remarks, lies in a dialectical relation: a circular causality that is multidirectional and unanalyzable in atomistic components (2007, 67-68).

The basic insight in Merleau-Ponty's conception of behavior is that, when we approach the *life* of a living being in its phenomenality, we encounter living beings as active beings. That they are active does not simply mean that they are moving, as a river, or reactive, as a piece of iron in the presence of a magnet. The type of activity that belongs to living beings in this basic sense is particular. It is the type of activity in which, in an outward manifestation, we also apprehend an inner structure. What we experience in behavior is animated outward expression, and in this immediate apprehension of an "inner" and an "outer" commingled —where the boundary between interiority and exteriority disappears— we also experience the adaptive responsiveness of the being towards the worldly space in which it lives.

Behavior occurs at the crossing of these dimensions, and it is in the notion of behavior where we find the basic articulation of the nature of the living. I now turn to a careful characterization of behavior in the spirit of Merleau-Ponty's philosophy.

3. A Merleau-Pontian definition of behavior

I propose that the following definition of behavior is in the spirit of Merleau-Ponty's philosophy[13]. It is responsive to the placement of the concept in relation to traditional ways of

[13] My argument does not depend on whether or not such definition *is* Merleau-Ponty's—whether he actually offered it, or whether it is compatible with all his analyses on the topic, or whether Merleau-Ponty's philosophy itself can be considered a unity that would support or not support my argument. A full exegesis of Merleau-Ponty's texts in this respect may be an important analysis that I cannot offer here and that falls outside of the scope of my article.

addressing the topic of life, it captures specific characteristics of animal behavior that Merleau-Ponty argued for, and it is confirmed by many of the examples he offered.

Behavior: a holistic, ongoing, meaningful and Umwelt-oriented intrinsically configured expression of living forms of existence.

Behavior is holistic and ongoing. Merleau-Ponty observes that living beings appear as unities that behave. Comportment is holistic in a two-fold way. First, behavior is predicated of an organic totality: wings and genes do not behave, birds do. In other words, there are no activities of "parts" of organisms, for they appear as actions *of* the organism and not just as actions of the parts themselves—it is the dog that wags its tail, not the tail that wags itself (Merleau-Ponty 2003, 140-153; se also Merleau-Ponty 1983, 47). Second, behaviors are themselves totalities. Take for instance the sparring of pronghorns. Sparring is not reducible to the partial movements of legs, horns, and heads of one or both sparring partners. Behavior is, in this double sense, a totality that springs forth from a totality. In contemporary terms, behavior is an emergent phenomenon (Thompson 2007, 60-64).

While we can talk about specific actions, like a pronghorn pushing with horns, behavior is not confined to the limits of a unit of action. Behavior should rather be seen, first, in more extended sequences of actions, like the sparring in which the pushing takes place, and, second, as a matter of the general lifestyle of an organism. In this sense, behavior refers to an organism's concrete spatio-temporal existence in the world, without sinking into the generality of a species or trans-historic populations, or into the atomism of genes. This concrete spatio-temporal existence is an *ongoing* existence: it is a matter of the actual activities of an organism coupled with a milieu, in the context of the life of that organism.

Behavior is meaningful and Umwelt-oriented. Behavior constitutes the relation of the organism to things and events, such that those things and events *matter* for the organism in specific ways. The way in which things and events matter—have meaning—for the organism is evinced in the way it acts or reacts in relation to them (Merleau-Ponty 1983, 10-15, 124-127). In

other words, behavior displays a selective sensitivity as to what occurrences are stimuli for the organism, and in what sense they are so, which is expressed in its actions and reactions. Thus considered, behavior is the organism's way of acting in light of external occurrences. As Thompson puts it, for Merleau-Ponty "behavior is a kind of dialogue in which the organism has an 'aptitude' to respond to situations as in effect questions that need answering" (2007, 70-71).

Merleau-Ponty characterizes an organism's behavior as "activity oriented toward an *Umwelt*," that is, towards the environment as it is meaningful for the organism (2003, 167). The organism is sensitive only to certain stimuli and certain events in the world, and is open to them in specific ways, which are sometimes variable within different ranges of plasticity. A central element, first examined in *The Structure of Behavior*, is that a given environment *continuously becomes* a particular Umwelt for a living being depending on "the movement by which all living things, ourselves included, endeavour to give shape to a world that has not been preordained" to match each individual's or each species' goals (Merleau-Ponty 2008, 73-74). To put it shortly, Umwelt is not only *selected*, but *projected*.

The interrelation between animal and environment is later refined in the *Nature Lectures* through von Uexküll's analysis of an organism's Umwelt. According to von Uexküll, Merleau-Ponty says, the organism-Umwelt relation is specified in two systems: a *Merkwelt* or sensory world, and a *Wirkwelt* or active world. *Merkwelt* depends on the animal's sensory apparatus in its general disposition. *Wirkwelt* refers to the world as it is seen from the actions of the animal within and towards its milieu. A careful observation of behavior shows that the *Wirkwelt* supersedes the *Merkwelt*, in that the living being's regular actions have a determinant role in the way the animal is affected. In a way, a specific stimulus occurs against a background of regular actions: "There is no stimulation from the outside that had not been provoked by the animal's

own movement. Each action of the milieu is conditioned by the action of the animal" (Merleau-Ponty 2003, 175; Merleau-Ponty 1983, 89-92, 125).[14]

The corresponding role of temporality in the organism-Umwelt interrelation highlights why the Umwelt itself and the organism's responsiveness to it are reliable exhibitions of an organism's lived experience. Time is for the organism not *Merkzeit* but *Wirkzeit*. The temporal significance of events is not a reflection of an objective measurement of time, say in seconds and milliseconds, but is rather derived from what is meaningful for the organism (Merleau-Ponty 2003, 173). For instance, humans can distinguish sound beats separated by approximately 35 milliseconds (about 10 milliseconds in the case of good percussionists), but beats separated by shorter intervals would simply be perceived and acted upon as simultaneous. The famous case of a tick is similar. The tick, Merleau-Ponty reports, is able to stay in lethargy for eighteen years waiting, so to speak, for an opportunity to fall upon a mammal.

Is not all behavior Umwelt-oriented though? The point may seem obvious to some, but it has not always been acknowledged and made part of mainstream philosophical, biological or ecological theories. For instance, notice that a minimal definition such as "Behavior is response to conditions" (Gordon 2011, 228) would not do *conceptually*. What in a given context is a condition is not self-evident, because not every aspect of a context is a condition. The idea of a meaningful context, i.e. an Umwelt, is needed to make sense in the first place of the notion of condition, and correlatively of the notion of response.

In a 2011 paper on the need for collaboration between behavioral ecology and ecology, biologist Deborah Gordon makes a case for the scientific significance for behavioral studies to take into account the relations between animals and their environments, that is, ecology: "These

[14] At the basis of the *Merkwelt-Wirkwelt* distinction lies the more general figure-background phenomenon, which is central to Gestalt psychology and to the way Merleau-Ponty appropriates it for the purposes of construing his phenomenology. The basic idea is that the world of perception is revealed in what is perceived and not in the characteristics of the real world. As the term *Gestalt* suggests, the central category is that of *form* or *figure*. An analysis of form shows that understanding form (and this Merleau-Ponty extends even to the construction of external stimuli) requires the pair figure-background. This perspective puts perception in a holistic context, and makes every perception dependent not on atomic qualities of the perceived object, but rather on the contrast between what is perceived and the perceptual field on which, and from which, the specific object gains significance.

ideas are obvious in principle but not often incorporated into the practice of behavioral ecology" (2011, 229). While for early ethologists studying the way animals acted in their environment was of unquestionable value, the rise of physiological studies made it seem as if the physiology of behavior was enough (Gordon 2011, 225). But standard evolutionary arguments in the field of evolutionary behavior, for instance, did not yield explicit correlations between behavior and reproductive success—as was expected of them—because they worked with simplistic economic models in which environmental stability was assumed. Instead, Gordon argues, the evolution of behavioral traits depends "on the action of forces that act in context-dependent ways, and the context constantly shifts" (2011, 226). These two aspects, ecology and variation, are central in the study of animal behavior because the activities of animals are precisely responsive to temporally and spatially shifting relations. Gordon reflects: "Over the past 10 years, community ecology has grappled with the realization that broad generalizations are always undermined by context dependence" (2011, 227). This line of thinking, which Gordon aims at reinstating in mainstream behavioral ecology, closely reflects Merleau-Ponty's rationale for the Umwelt-oriented nature of behavior.

Behavior is an intrinsically configured expression of living forms of existence. Behavior and the living organism should be understood after the model of *expression* and *what is expressed*, in which the latter only exists in the former. *Expression* is the movement or action, so to speak, by which something is *expressed*. Thus, what is *expressed* is what the act of *expression* brings about.

The concept of expression goes beyond making something interior manifest. At first sight, the relation between expression and what is expressed might be as follows: "Expression can be understood first of all as a 'movement' from the inside towards the outside, an expiration, the drive of something from the interior towards the exterior surface in order to become visible, audible, or touchable for others" (Slatman 2002, 137; translation is mine). But this view is insufficient, for it brings us back to an essential inner domain contrasted with the outer, such that something pre-existing in an inner domain comes to be manifested in outer expression.

In Merleau-Ponty's view, it is not the case that what is expressed *pre-exists* its expression. And yet, since expression does not originate *ex nihilo*, in a sense there exists something latent, capable of being expressed. In other words, it is not the case that the expressed pre-exist its expression because it is not expressed yet, but something nascent partly comes to be what it is in the process of expression and as it is finally expressed. Besides that nascent something that was expressible, the way in which something is expressed also constitutes the thing expressed. The expression contributes something to the expressed. As David Morris puts it: "This is the paradox: the expression is not other than what is expressed, yet is nonetheless different from what is expressed" (2004, 84).

Merleau-Ponty holds that the relationship between expression and what is expressed is the model upon which the relationship between bodily behavior and the existence of the organism should be understood. The body, not as *Körper*, that is, not as mere matter, but as *Leib*, as living body, as the reality of a corporeal being whose nature is to be active, is the expression of the being's existence. In expression "the body expresses total existence, not because it is an external accompaniment to that existence, but because existence realizes itself in the body. This incarnate significance is the central phenomenon of which body and mind, sign and significance are abstract moments" (Merleau-Ponty 2002, 166). Insofar as *Leib* is a body that behaves, behavior is expression of the being of an organism.

Behavior is then not a mere outward sign of the being of the organism. The organism *is* its behavior, that is, behavior *expresses* the organism. However simple, an animal inhabits the world in a manner that shapes a meaningful environment. In this line of thought, it is apt to speak, as Thompson suggests, of *occasions* and *aptitudes* instead of *causes* and *dispositions*, when referring to the organism displaying its own style of being in the world (2007, 69-71). Not only does the organism's responsiveness to the world as Umwelt express the organism's being. In a more fundamental way, the specific configuration of an organism's Umwelt is an expression of its being.

Behavior as expression speaks of an ongoing movement that is always open to the future. It would be a mistake to assume that the living being is a *fait accompli* in its behavior and in its Umwelt. Furthermore, it would be a mistake to assume that behavior and its Umwelt are themselves finished. They are, rather, expression of a way of inhabiting the world that opens up the future, as Fóti in her study of expression in Merleau-Ponty has highlighted (2013, 77-78).

The claim that behavior as expression is *intrinsically configured* merits an additional word. Merleau-Ponty's example of a melody helps illustrate this point. A melody is not just a sequence of notes, for what makes it to be a melody is an internal configuration that holds the notes together as it is perceived by a listener. It is the purposeful disposition of notes in certain sequences and patterns that requires being perceived not as a plain sequence of basic parts, but through a temporal grouping in which some notes linger in the ear of the listener so they can be heard together with other notes. A listener that were only able to perceive a note in the instant in which it is played, such that this note would entirely disappear from the consciousness of the listener, would be unable to hear melodies. This listener would be unable to perceive the melody's internal configuration. Similarly, living beings "posses" an intrinsic articulation and purposiveness that is expressed in coordinated actions of the organism vis-à-vis the environment, that is, in behavior. In deploying its Umwelt by being selectively sensitive and responsive to environmental occurrences, the living entity is "like a melody that sings itself"—as Merleau-Ponty borrowed from von Uexküll (1983, 159; see also Merleau-Ponty 2003, 173-174).[15] In this sense, behavior is an intrinsically configured expression of living things.

I have defined behavior as a holistic, ongoing, meaningful and Umwelt-oriented intrinsically configured expression of living forms of existence. I have also shown before that for Merleau-Ponty the notion of behavior offers the basic articulation of the nature of the living. Behavior is more fundamental, both epistemologically and ontologically, than "life" in the

[15] See Toadvine (2007) for a detailed analysis of the use of the melody metaphor in Merleau-Ponty.

abstract. Life appears in the behavior of living beings and living beings express themselves in their behavior. Through behavior we learn about life.

4. Is Behavior Only A Matter of Individual Organisms?

I have presented Merleau-Ponty's argument that behavior is both expressive and constitutive of living beings. Behavior, then, has epistemological and ontological priority regarding the problem of life. This means that behavior has priority in determining what belongs to the domain of the living. I now turn to this issue.

In the previous two sections I have addressed the ways in which individual organisms behave. I have been following the seemingly reasonable, all-too natural presupposition that the domain of the living is made up of individual organisms. I have in fact illustrated some of the points I have made with examples of a dog, a tick, and a bird. More specifically, I have not questioned an assumption Merleau-Ponty operates on, namely, that behavior is something predicated of individual organisms. Notice that there is nothing in the proposed definition that limits its scope to individual organisms' behavior. In a way, the proposed definition is neutral regarding the forms of existence it applies to and further empirical observation will determine its scope of application. I would like now to take a step back, and ask if in fact, following the definition of behavior I have proposed, only individual organisms behave.

I contend that there is a methodological and ontological individualism in Merleau-Ponty's extensive discussions on life, nature, and behavior. Morris has shared this complaint, and referred to this bias as the "prejudice of the lone animal" (Morris 2005, 54).[16] In Morris' view, Merleau-Ponty focuses only on the study of individual animals in order to learn about behavior. This is not to say that individual animals are not fundamental forms of life. The problem is to assume that they are *the* fundamental form of life. As I will show, the social type of

[16] See also Sheets-Johnstone (2007, 328–334) for a discussion of other ways in which philosophers may be operating with preconceived categories and dramatically ignoring discussions in biological and evolutionary sciences.

life, evinced in animal groups, is also fundamental, but Merleau-Ponty leaves the social domain in the blind spot. A certain bias prevented him from seeing the social type of life explicitly.

Merleau-Ponty's individualistic bias can be overcome with further empirical observation. My proposal is to direct new observations toward animal groups through the proposed notion of behavior. I will now contrast some concrete animal groups with the provided definition of behavior and show that animal groups evince in their collective actions the fundamental character of the living that the definition of behavior captures. The point is not mainly whether the definition of behavior includes animal groups. Rather, the point is whether animal groups exhibit the fundamental characteristic of living beings—namely, that they behave—which has been assumed to apply only to individual organisms.

If successful, I will have not only proved that animal groups belong, as fundamental forms of existence, to the domain of the living, but also that Merleau-Ponty's philosophy can overcome an internal contradiction with its own conceptual resources. More importantly for my overall argument, Merleau-Ponty's philosophy will have inspired an account of animal sociality that neither the superorganism thesis nor the selfish individual thesis is able to furnish.

5. Social Play, Play Fight, and Other Types of Animal Social Behavior

Let us look at some animal groups. My aim is to show that these forms of existence, different from the existence of the individual organism, also evince in their collective actions the characteristics of behavior. Social play, for instance, is widely spread among birds, mammals, and some reptiles.[17] Common ravens, for example, engage in different types of play with other

[17] A widely accepted definition of play is the following: "all motor activity performed postnatally that appears purposeless, in which motor patterns from other contexts may often be used in modified form or altered sequencing" (Bekoff and Byers 1981, 300-301). See also Appendix 1 of Fagen's *Animal Play Behavior* for a compilation of representative definitions of play (1981, 500-504). Other than social play, other types of animal play are solitary object play, locomotor play, or vocal play. In object play, an animal interacts with an object, moving it around, throwing it, etc. (Burghardt 1998, 7-12; Heinrich and Smolker 1998, 32-33). In locomotor play, an animal spontaneously, and seemingly without a purpose, moves around running, swimming (turtle), hanging (ravens), cavorting (foal), soaring (hawk), or leaping out of the water (fish), etc. (Burghardt 1998, 12; Burghardt 2005, 84-85; Heinrich and Smolker 1998, 36-37). In vocal play, an animal (e.g. a singing passerine) would emit, seemingly purposelesly, sounds or short melodies different from serious adult songs (Heinrich and Smolker 1998, 40-41).

members of their group. For instance, in a small group, one of them may pick a piece of bark or a stick, hold it, drop it, and pick it up again, while another would try to steal it, snatching it in a chase or a quick tug-of-war. Ravens may also engage in play by caching inedible items and defending them if approached by other members of the group (Heinrich and Smolker 1998, 27–33).

Another kind of social play, and the most common type, is play fight, at times referred to as sparring, which has been observed in mammals such as camels, llamas, deer, horses, giraffes, pronghorns, several species of marsupials, black bears, dogs, and humans, among others. Somewhat surprisingly, play fight seems to be found even in some species of ants (Burghardt 2005, 362-364). As described in section 1, in play fight participants engage in species-specific movements similar to those of a fight, but generally performed more slowly and with more care. In pronghorns, specifically, sparring consists of a few hits with "head to head contact involving twisting and pushing with the horns" (Miller and Byers 1998, 142). As in other species, clues about the playful nature of the encounter appear at the beginning and end of a bout (Miller and Byers 1998, 141–43). In other species where play fight is less structured, the playfulness of the interaction is given by other contextual clues, such as the intensity and style of the fight-resembling movements.

In an analysis of these collective activities with regard to the definition of behavior, we see, first, that raven social play and play fight are *holistic* in that they are not simply the summation of individual actions, such as "grabbing a piece of bark with the beak" followed by "moving the piece of bark to another location," or "pointing antlers toward another pronghorn" followed by "charging toward another pronghorn." Since grabbing a piece of bark could be part of the building of a nest, its meaning depends on the context in which it is placed. Likewise in the case of pronghorn sparring. Even in a more basic logical sense, these social activities are inconceivable except as strictly social. In the case of ravens playing with sticks, an individual

cannot steal something that does not belong, in some sense, to another raven: one cannot steal a stick from the open forest.

In a second holistic sense, the phenomena of animals playing or sparring with other conspecifics are social since they are defined by the participants *qua* participants in the activity, not *qua* individuals. The specificity of the interaction partly depends on the role of each interactant, which cannot be described in isolation, but rather in terms of their relational roles, which are oftentimes differential. This is clear in the *self-handicapping* feature of play flight, especially in mismatched cases. The advantaged partner (e.g. the mother in a kangaroo-joey couple, or a dominant or larger animal when sparring with a juvenile or disadvantaged partner) would modify its behavior "so as to give the competitive advantage to its partner" (Pellis and Pellis 1998, 128; see also Watson 1998, 70). Role differences are thus also involved in the context-dependence of play fight. For instance, "attacks" that are openly allowed to a disadvantaged partner by an advantaged one are not attacks but play attacks. Even when fairly matched, participants provide opportunities for "role reversal," that is, opportunities to continuously alternate attack and defense. A play fighter makes itself vulnerable to the others' playful attacks. Additionally, since the role of participant is not in this case simply occupied, but maintained through continuous interaction, play fight exhibits its *ongoing* character. Pellis and Pellis have reported that rare cases in which play fight escalates to serious fight seem characterized by a change of the interaction such that one participant tries to stay in the attacking role and defend vigorously, without giving the other the option to "attack" (1998, 127-128).

As an activity, play fight is also *internally configured*. Signals at the beginning of sparring bouts in pronghorns are significant in that they frame the whole activity. These signals or play bows evince the internal internal configuration of the play fights (Bekoff and Allen 1998, 106-107). And yet, specific movements within the sparring bout acquire meaning by virtue of their location within the frame of the activity. This meaning is also relational because it requires

certain bodily reactions—that is, it is now part of an internal configuration in which each participant continuously allows for role reversal. In relation to sparring behavior, partners are no longer individuals but a sparring group. While some species' play fight exhibits stereotyped and ritualized framing with play signals, in other cases, the play mood and internal configuration of the play fight depends on "contextual and stylistic cues" including "age, sex and individual identity of the play partner" and "timing, strength, [and] rhythm" of movements (Pellis and Pellis 1998, 123).

The peculiar character of animal play is reflected in the way it shows to be Umwelt-oriented. The group of ravens playing with a stick or a piece of bark shows this orientation in at least two ways. First, the degree of involvement in social play is arguably related to the time necessary to satisfy the animal's basic needs. Object playtime in other species has been shown to be correlated to whether animals are in captivity or not (since that influences whether they need to spend their time and energy procuring themselves food) (Burghardt 1998). Second, the choice of objects with which they play is also significant. If play is done for the sake of enjoyment and fun, as it seems sometimes to be, playing with a stick is Umwelt-oriented because the activity shapes an immediate environment as a world that is hospitable to social play. This shaping of the world makes the Umwelt a place where the animal group of ravens can display certain characteristics such as their capacities to "tease" others, to cache objects and remember their location, and other cognitive abilities.

The Umwelt-orientation of behavior is evident in other animal groups, such as colonies of African weaver ant. These ants weave leaves together to make nests for the colony. Sometimes, however, the leaves are too big to weave together and many workers are necessary for the task: "This problem is solved by the ants forming chains, one seizing the edge of a leaf in her jaws, another holding her by the abdomen, while a third holds that ant's abdomen, and so on until at the end of the chain of several ants one grasps the second leaf with her hind legs. […] Once brought together, the edges of leaves must be joined with silk. But the adult workers cannot

secrete this silk themselves. They obtain it by carrying larvae of appropriate age and holding them first against one leaf edge and then the other. Thus the younger sisters of the workers are used as a sort of living tool in nest construction" (Griffin 2001, 88–9).

The weaver ant colony shows that the weaving behavior is Umwelt-oriented in that it endeavors to satisfy its needs, both present and future, with materials from its environment that are suitable to its possibilities. These possibilities—e.g. the weaving of large leaves—are not the possibilities of one isolated ant, but of groups of ants. Insofar as this process concerns the life of the whole colony, it can be said to be an expression of the colony as an animal group. The collective activity of gluing big leaves also exhibits the other characteristics of behavior, since it is defined holistically and presents an internal configuration, adjusted to the task at hand and to the capacities of the group of organisms, in which different types of organisms perform differential functions that together serve the overarching goal.

I have discussed different ways in which the social play of ravens, the leaf-weaving of African weaver ants and the play fight of pronghorns constitute behavior. These ways are part of what it means to say that behavior is *intrinsically configured expression* of living forms of life. The group of ravens engaging in play expresses itself *in* the context-dependence of their actions, *in* the dependence on the multiplicity of participants, *in* their capacity to start a game and play it, and *in* the way they shape a world to make it a place hospitable to play.

First and foremost, a group of animals expresses itself as a group by engaging in group behavior. In other words, the group of animals exhibits itself as a form of living existence because it behaves, and it remains a form of living existence for as long as it behaves. This does not mean that individuals cease to exist, but that a *social* form of existence emerges through behavior. This social form of existence is irreducible to individuals and their actions, but is not a superorganism where individuals disappear. Although each animal group behavior expresses sociality as a form of existence, each group also expresses its own characteristics as a species-

specific group, but also as a particular geographically and historically located group formed by specific members.

For instance, take the case of social grooming patterns between adult baboon females where one animal "uses both of its hands to pick, scrape, comb and search through the coat" of a conspecific, and the procedure is normally reciprocated (Chalmers 1979, 81). Female baboon grooming is correlated to a hierarchy, independent of kin, in which "most of the grooming [is] between those close to each other in rank" (Chalmers 1979, 84). Low-ranking baboon females groom themselves reciprocally partly because they do not have access to high-ranking females (Chalmers 1979, 83-85). I am now interested in highlighting how, in this case, the societal structure of the practice carries particular significance in terms of baboon sociality. A hierarchy is a structure of recognition of social value that is spread among the members of a group. This structure cannot be thought of as belonging to an individual; it must be predicated of the group. When baboon social grooming occurs, following a hierarchy-related pattern, the behavior is not only an expression of the group of reciprocal groomers but of the entire group where the hierarchical structure is in place, for it maintains such structure. Female baboon social grooming expresses not only sociality in baboons, but the hierarchical characteristic of baboon sociality.

The behavior of different animal groups expresses something different. In the final analysis it is somewhat misguided to try to precisely capture in words what behavior expresses, for what is thus expressed is articulated in the "language" of behavior itself—in the way animals live, inhabiting the world.[18]

[18] While it is reasonable to infer that the proposed definition of behavior extends to some symbiotic relations that include botanical or bacterium species, among others, I do not offer that explicit connection. Ultimately, I think there is room to conceive of other ontological *relational* and *inter-relational* dimensions, like an interanimality, or a pan-inter-coporeality that would extend to non-animal living beings, or to a life-sustaining domain that would cover not only the living but also the whole that makes life possible. See also Sussman (1999, 27–8).

6. Conclusion

Animal groups are social forms of existence. In their behavior, animal groups share the fundamental characteristic of things belonging to the domain of the living.

As an account of sociality in general, behavior overcomes the limitations of the superorganism and the selfish individual theses, as the contrast with specific cases of animal groups in the previous section showed. The selfish individual thesis is not a satisfactory account of animal groups, much less of animal sociality, because it leaves unexplained the context-dependence of the meaning of individual's actions and the dependence of social behaviors on the multiplicity of participants and their specific interrelation. These two features are indispensable parts of the overall phenomenon, as was explained in the analysis of the holistic, ongoing, and intrinsically configured aspects of animal groups' activities. The superorganism thesis is not satisfactory either because it cannot account for the differential role of members of the group. "Role reversal" and "self-handicapping," for instance, cannot be explained by the superorganism thesis, even though they are necessary features of play fight as overall activity.

The behavior account is sensitive to the variations in the differential role of members in animal groups. Different animal groups feature greater and lesser degrees of member contributions to its overall behavior. For instance, the grazing behavior of pronghorns certainly depends less on the differential roles of members of the group than the sparring behavior. The sparring behavior, in contrast, requires differential contributions without which a necessary feature like role reversal would not occur. The thesis of behavior as expression of the social forms of the living encompasses these variations. Unlike the superorganism view, the behavior account does not disregard the members of the group when the group behaves. Unlike the selfish individual thesis, the behavior account does not lose the holistic character of the group activity.

Beyond sociality as a form of life, an animal group expresses its own characteristics. Animal groups differ in regards to species, size of the group, period of time in which organisms are together, and type of interaction between those organisms, among other characteristics. As an

account of animal groups, behavior has the advantage of being able to encompass this diversity. Thus, the behavior of ravens stealing sticks from each other expresses a playful aspect of ravens, different from the hierarchical structure of female baboon groups that is expressed in the social grooming behavior.

Through its behavior, an animal group expresses its unique form of existence, including the continuous shaping of an Umwelt out of a world that is common to all living things. In the specificity of its behavior, each animal group manifests the ongoing movement of life by which the future is constantly opened up. Through careful observation of living animality—a phenomenological return to the things themselves—Merleau-Ponty's philosophy is able to overcome the individualistic prejudice that haunts it. Through careful observation of living animality we also find that both individuality and sociality are fundamental forms of existence, and that life is individual as well as social.

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