THE AUTOPOIESIS OF PEACE: EMBODIMENT, COMPASSION, AND THE SELFLESS SELF

Sebastjan Vörös

Introduction

In the past two decades, the interdisciplinary field of cognitive science has been undergoing significant changes. What I have *in mind* here, however, is not the advent of imaging techniques that allow us to peer *into the brain* and all too often provide us with a steady influx of studies, baffling both on account of their empirical prolificity as well as their theoretical naivety; instead, the changes I refer to are much subtler – if arguably more far-reaching – than the more glittering – though not necessarily as illuminating – dimensions of the so-called "neuroscientific revolution."[1] These important shifts have been triggered by recent attempts to radically rethink received views about consciousness, cognition and the mind-body relationship, and to provide an alternative paradigmatic framework for the study of the mind. Note that the two events – the neuroscientific revolution and the mentioned paradigmatic shift – are not distinct; on the contrary, the latter has had a profound impact on the former (and *vice versa*). Yet what separates it from many other approaches within cognitive (neuro)science is its insistence that, in order to be able to conduct plausible empirical research, a coherent picture of the mind is needed, one that actually addresses (instead of

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[1]   Some readers might be surprised at what seems like an excessively critical, perhaps even dismissive, attitude towards neuroscience. But it should be noted that I am *not* critical of neuroscience *per se*, but of (i) speculative, and arguably exaggerated, claims about the novelty, radicality and scope of its impact on our understanding of ourselves and the world; and of (ii) the proliferation of research that tries to conceal its dubious methodological and theoretical underpinnings by alluding to the authority of "the empirical". For a critical assessment of neuroscience see Choudhury & Slaby 2012; Satel & Lilienfeld 2013; Tallis 2012; Uttal 2001, 2011; Vörös & Markič 2014.

merely brushing aside) the convoluted epistemological and metaphysical issues that are bedevilling the field.

This alternative paradigmatic framework – variously described as the "experiential" (Froese 2011) and "pragmatic turn" (Engel *et al.* 2013) in cognitive science – has become known as the *embodied* or *enactive approach to the study of the mind*[2]. It has been influenced by several "bodies of knowledge" (Varela *et al.* 1991), most notably by system theory (especially the theory of autopoiesis), phenomenological philosophy (especially the philosophies of late Edmund Husserl, Maurice Merleau--Ponty and Martin Heidegger), and contemplative "wisdom traditions" (especially Buddhism), and could probably be characterised best as a "disenchantment with the abstract" and a "re-enchantment with the concrete" (Varela 1995): the embodied/enactive models reject "the purely computational, logical, views of mind", replacing them with the "concrete, embodied, lived description[s]" of cognitive phenomena (Rudrauf *et al.* 2003: 39).

The fundamental assumption of the *classical (cognitivist) approach* is that the structure of the human mind is akin to that of a computer: cognition (perceiving, thinking, etc.) is conceived as *data-processing* in that it involves manipulation of (brain-instantiated) symbols representing the features of the outside world. The mind, in this view, is a symbol-manipulating machine, whose role is to internally portray (represent) external reality. The embodiment/enactive approach conceives of cognition in radically different terms: as *extended*, i.e., "cognitive states and processes can extend beyond the boundaries of the cognising organism," *embedded*, i.e., dependent on "facts about our relationship to the surrounding environment," *embodied*, i.e., dependent on "facts about our embodiment," *enactive*, i.e., "dependent on aspects of the activity of the cognising organism," and *affective*, i.e., "dependent on the value of the object of cognition to the cogniser" (Ward & Stapleton 2012: 89). The mind, according to the embodied/enactive approach (sometimes

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[2]   The embodied/enactivist cognitive science is not a uniform field, but encompasses a diverse range of heterogeneous approaches (for a more in-depth analysis see: Fingerhut, Hufendiek & Wild 2013: 7–102; Kiverstein 2012). A comprehensive overview would greatly transcend the scope of this paper, so in what follows we will (for simplicity's sake) refer to it as a unified position, disregarding important differences between individual approaches.

also referred to as the *4EA* approach), is *not* to be found "in the head", but must be sought in the "brain-body-world divisions" (Thompson & Varela 2001). Further, since it is not limited to the confines of the cranium, but is situated in the body *as a whole*, it is believed that there is a "deep continuity between life and mind":

According to this thesis, life and mind share a set of basic organisational properties, and the organisational properties distinctive of mind are enriched version of those fundamental to life. Mind is life-like and life is mind-like. (Thompson 2007: 128)

However, to get to these "basic organisational properties" of mind and life, the third-person methods of experimental science must be complemented with disciplined first-person methods of investigating subjective experience: the proper study of the "bio-physics of being" requires an ongoing *back-and-forth circulation* between science and lived experience (Varela *et al.* 1991).

The aim of this paper is to outline some of the basic features of this far-ranging shift in the understanding of life, mind and cognition, and to indicate how the overall framework on which it is based relates to the possibility of en-acting peaceful and compassionate coexistence. The paper consists of three parts. First, we examine the so-called autopoietic theory of life, as proposed by Maturana and Varela. If it is, indeed, true that mind and life share a common structure, then it is important, prior to delving into the realm of human cognition, to familiarise ourselves with the fundamentals of so-called bio-logic (the logic of living systems). Second, having elucidated a general anatomy of life, we try to delineate how the dialectical principles of bio-logic translate to the dialectical principles of neuro-logic and determine the fundamental nature of human beings as embodied organisms embedded in their environment. Third, drawing on the idea of the co-determination of the self and the world, which lies at the centre of the autopoietic theory of life, we go on to argue that the dialectical structure of life and mind manifests itself in a pre-reflective empathic openness towards the other and is thus not merely a theoretical postulate but an experiential (realisable) actuality that can be cultivated with various meditative/contemplative and therapeutic practices. This, as it turns out, is of utmost importance for the possibility of a sustained *(auto)poiesis of peace*, for it is only when

I actually *live (en-act)* – and not merely *think* – the co-determination (non-distinction) between my-self and the other that peaceful coexistence (genuine *inter*-being) can arise and propagate.

Life: Bio-Logic, Autopoiesis, and the Double Dialectic

Let us start this discussion by delineating the biological roots of being. In their pioneering work on autopoiesis, Maturana and Varela set out to tackle what is arguably the central question of biology, namely "What is life?"[3] However, unlike most approaches that try to elucidate the phenomenon of life by providing a list of its characteristic features, Maturana and Varela take a radically different route:

Throughout history many criteria [of what constitutes life] have been proposed. They all have drawbacks. For instance, some have proposed as a criterion chemical composition, or the capacity to move, or reproduction, or even some combination of those criteria, that is, a list of properties. But how do we know when the list is complete? […] We wish to give an answer to this question in a way that is radically different […] To understand this change in perspective, we have to be aware that merely asking the question of how to recognise living being indicates that we have an idea, even if implicitly, of its *organisation*. (Maturana & Varela 1987: 42)

In other words, life is not so much a matter of chemical composition, reproduction and so on, as it is a *matter of organisation*. But what kind of organisation? What is it about the organisation of living (animate) beings, such as bacteria, plants and animals that distinguishes it from the organisation of non-living (inanimate) beings, such as rocks, crystals and minerals? According to Maturana and Varela, that which characterises living beings is their ability *to continually self-produce* (*ibid.*: 43). An *autopoietic (self-producing) system* is *a self-organising*

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[3]   Thomson contrasts the question: "What is life?" to the question: "What is living?" The first question, he claims, "treats life as an *object*", while the second question treats it "as a *process*" and thus avoids the "objectifying attitude" that is commonly associated with the former (Thompson 2011: 114). Although I agree that there is an important conceptual distinction at work here, I have opted for a middle way: I intend to continue using the first question, as it is more in tune with the original writings of Varela and Maturana, but would like to emphasise that it is to be construed not in static, but in explicitly dynamic terms.

system defined by a double dialectic[4]: *dialectic of identity* (parts-whole) and *dialectic of sense-making* (interiority-exteriority) (Varela 1991). Let's look at each in turn.

First and foremost, an autopoietic system is "organised as a self-producing network of processes that also constitute the system as a topological unity" (Thompson 2011: 115). Take, for instance, the basic unit of life: a living cell. On the one hand, *cell metabolism* produces molecular components that constitute a network of dynamic interactions, some of which are responsible for the production of a semi-permeable *cell membrane*. On the other hand, the cell membrane houses these molecular components, thereby reciprocally enabling the proper functioning of cell metabolism and preventing structured chemical interactions from disintegrating into a "molecular mess" (Maturana & Varela 1987: 46). What is crucial here is that the dynamic network of molecular interactions and the boundary housing them are actually *parts of the same process*: metabolism creates the membrane, which in turn (reciprocally) enables and co-constitutes metabolism (see Figure 1).
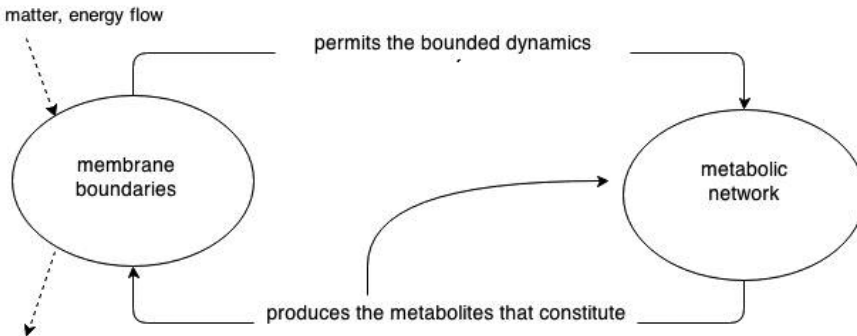

matter, energy flow

permits the bounded dynamics

membrane
boundaries

metabolic
network

produces the metabolites that constitute

Figure 1: Schematic representation of the autopoietic closure of the living cell (*cf.* Varela 1997: 75).

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[4]   The term "dialectic" is to be understood here in the sense given it by Levins and Lewontin in their book *The Dialectical Biologist*: "These are the properties of things we call dialectical: that one thing cannot exist without the other, that one acquires its properties from relation to the other, that the properties of both evolve as a consequence of their interpenetration" (Levins & Lewontin 1985: 3).

The first dimension of autopoiesis can thus be construed as a biological dialectic between *parts* and *the whole*, between *local* interaction rules pertaining to the individual components and *global* properties of the emergent whole: on the one hand, the network of molecular interactions constitutes a distinct, discrete unit (cell); on the other hand, the emergent unit combines structural constituents (molecular components) into a dynamic network of interactions (*cf.* Rudrauf *et al.* 2003: 31–32):

Metabolic processes within the cell determine these boundaries [e.g. the cell membrane], but the metabolic processes themselves are made possible by those very boundaries. In this way a cell emerges as a figure out of a chemical background. (Thompson 2007: 99)[5]

Autopoietic self-organisation constitutes living beings as *autonomous units*, i.e. it enables them to "to specify [their] own laws, what is proper to [them]" (Maturana & Varela 1987: 46). This "circular, closed, self-referential characteristic" of autopoietic systems is known as *organisational* or *operational closure* (Rudrauf *et al.* 2003: 33) and refers to the fact that all changes occurring in an autopoietic unit are determined by their internal dynamics and not by external factors: "[E]very constituent process is conditioned by some other process in the system" (Thompson & Stapleton 2008: 24). Note, however, that "closure" is not the same as "closedness" or "isolation": as autonomous organisations, autopoietic systems are *operationally closed*, but *thermodynamically open*. In other words, an autopoietic system is involved in an on-going exchange of matter and energy with its environment, while at the same time maintaining its identity by regulating the network of its self-constituting processes.

The *dialectic of identity* can thus be understood as an *on-going circular process*, in which "a cell produces its own components, which in turn produce it" (Thompson 2007: 98). It defines autopoietic sy-

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[5]   A more precise definition is provided by Varela: "An autopoietic system is organised (defined as a unity) as a network of processes of production (synthesis and deconstruction) of components such that these components: (i) continuously regenerate and realise the network that produces them, and (ii) constitute the system as a distinguishable unity in the domain in which they exist" (Varela 1991: 81).

stems as: (i) *autonomous* (all changes that happen in the system serve to preserve its self-organisation); (ii) *individualised* (by preserving its self-organisation, the system actively preserves its identity); (iii) *units* (the self-constituting processes of the system define the system's boundary); and (iv) *operationally closed* (external perturbations can trigger, but cannot determine, internal structural changes) (*cf.* Možina & Kordeš 1998: 226).

Let us now move on to the dialectic of sense-making. The first dialectic, as we have seen, deals with the relationship between an organism and its components; the second dialectic, however, deals with the relationship between autopoietic systems and their environment. As Varela points out, what immediately strikes the eye is that autopoietic units are characterised by an intriguing paradoxicality:

> [T]he living system must distinguish itself from its environment [operational closure], while *at the same time* maintaining its coupling [thermodynamic openness]; [however,] this linkage cannot be detached, since it is against this very environment from which the organism arises, comes forth. (Varela 1994: 7)

By constituting itself as a unit, the autopoietic system engenders its *interiority* and, at the same stroke, delineates its *exteriority*, i.e. that which counts as *the other* and thus remains *outside* of it. But this newly constituted alterity is not neutral: the maintenance and regulation of autopoietic organisation requires a structural coupling between the inside and the outside, which means that, for an organism, some interactions – those pertinent for preserving its structural coherence – are more important than others. Preservation of identity thus brings forth a *certain perspective*, an environment-*for-the-organism* ("environment *for* the system" in Varelian terminology) as distinct from the environment-*for-the-observer* ("environment *of* the system" in Varelian terminology). By distinguishing itself from, and constituting itself against, its "surroundings", the autopoietic system simultaneously gives rise to its world[6] or niche (Uexküll's *Umwelt*, 1956). Unlike the physicoche-

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[6]   The reader should note an important difference in terminology between Varela and Thompson: the former uses the terms "environment" and "world" to denote the "environment-for-the-observer" and the "environment-for-the-organism", respectively, while the latter uses

mical environment (environment-for-the-observer), the world (environment-for-the-organism) is "a place of salience, meaning and value", a place "of attraction and repulsion, of approach and escape" (Thompson 2004: 386; Thompson & Stapleton 2008: 25). To illustrate this, consider the example of motile bacteria swimming uphill in a food gradient:

The cells tumble about until they hit upon an orientation that increases their exposure to sugar, at which point they swim forward, up-gradient and towards the zone of greatest sugar concentration. Sugar is significant to these organisms and more of it is better than less because of the way their metabolism chemically realises their autonomous organisation. *The significance and valence of sugar are not intrinsic to sugar molecules; they are relational features, tied to the bacteria as autonomous unities.* Sugar has significance as food, but only in the milieu that the organism itself enacts through its autonomous dynamics. (Thompson & Stapleton 2008: 24–25; emphasis added)

Bacterial chemotaxis is a minimal but highly illustrative example of how a living being as an autonomous system gives rise to its own niche, its "environment of biological significance" (Thompson 2007: 153). Sugar, *in itself*, is devoid of meaning; its "surplus of significance" (Varela 1991) – its valence – is inextricably linked to the unique perspective of an individual organism. In other words, sugar can be perceived as a *nutrient* merely from the perspective of a bacterium as an autopoietic unit:

Physical and chemical phenomena, in and of themselves, have no particular significance or meaning; they are not "for" anyone. Living beings shape the [environment] into meaningful domains of interaction and thereby bring forth their own [worlds] of significance and valence. (Thompson 2007: 153–154)

According to the theory of autopoiesis, it is precisely this *sense-making*, this bringing forth of a world, that constitutes the essence of *cognition*. On this view, cognition construed as the act of sense-making

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the two terms in the exact opposite sense, i.e. as referring to "environment-for-the-organism" and the "environment-for-the-observer", respectively. One of the main reasons for this "semantic inversion" was Thompson's intention to better align the English with the German terminology of (particularly) the phenomenological tradition (the more accurate translation of *Umwelt*, an environment-for-the-organism, would be "environment" or "niche", and not "world", as originally proposed by Varela). The article, as the reader has undoubtedly noticed, follows the Varelian version in an attempt to stay closer to the original literature on autopoiesis.

is not a specifically human, but rather a universal biological quality: it is common to all living beings, from the simplest bacteria to the most complex vertebrates, and consists of a two-sided process in which a living being as an autonomous system brings forth itself and its world. Maturana and Varela claim that there is a strong *continuum* between life and cognition, an idea that is succinctly captured in a celebrated maxim: *to live is to know* (Maturana & Varela 1987: 174). Cognition is not limited exclusively to creatures with a central nervous system, but is incorporated into the very fabric of life (it is an integral part of its bio--logic); furthermore, it is not limited to the system's internal states, but is a relational process that takes place between the system and its world.

In short, the *dialectic of sense-making* could be characterised as the "dynamic co-emergence of interiority and exteriority" (Thompson 2007: 79): by establishing itself as an autonomous unity, an autopoietic system simultaneously gives rise to its world, i.e. its domain of meaning, significance and value. Note that sense-making is not to be construed as homeo-*stasis* but rather as homeo-*dynamis*: in order to preserve its autopoietic structure, an organism must endlessly enact structural alterations, i.e., it must engage in an on-going *dynamis*; any cessation of activity, any *stasis*, leads to disintegration and death. The autopoietic system is forced to constantly re-assert its individuality through meaningful couplings with its environment: *preserving* the structural coherence between the inside and the outside is thus, strictly speaking, always a matter of *re*-establishing it, of *re*-creating it, instead of simply maintaining it.

To recapitulate: A living being as an autopoietic system can be construed as an embodiment of a double dialectic:

(a) *dialectic of identity* (parts-whole): dialectic between *local conditions* (network of metabolic interactions) and the *global autonomous entity* (cell as a membrane-bound unit);

(b) *dialectic of sense-making* (interiory-exteriority): dialectic between the *emergent (minimal) self* and *its world* (the domain of valence and meaning).

Note that these are not two separate processes, but two aspects of the same process. A global autonomous entity, constituted against the

background of a network of metabolic interactions (operational closure), brings forth a world (surplus of significance); this world, in turn, delineates meaningful domains of interaction that are crucial for the undisturbed functioning of the metabolic network, and thus provides conditions facilitating the perpetual (dynamic) reassertion of the organism's autonomy (thermodynamic openness). The process itself is profoundly paradoxical: bringing forth a world is an attempt at re-establishing appropriate coupling with the environment so as to preserve the organism's autonomy; but in re-asserting itself as an autonomous unit the organism separates itself from the environment, thus giving rise to its distinct world (Varela 1991: 87).

The driving force of the double dynamics could thus be characterised as one of a "permanent *lack*"; a living being, in re-asserting itself as an autonomous entity, constantly gives rise to

a signification of what is *missing*, not pre-given or pre-existent. [...] The source of this world-making is always the "breakdown" in autopoiesis, whether minor, like [a] change in concentration of some metabolite, or major, like [a] disruption of the boundary. Due to the nature of autopoiesis itself [...] every breakdown can be seen as the initiation of an action on what is missing on the part of the system so that identity might be maintained. (Varela 1991: 86–87)

This rudimentary bio-logic can be systematically summarised as follows (points (1)–(2) relate to the dialectic of identity, whereas points (3)–(5) relate to the dialectic of sense-making):

(1) *Life = autopoiesis.* Any living system is an autopoietic system.

(2) *Autopoiesis entails the emergence of a bodily self.* A physical autopoietic system, by virtue of its operational closure (autonomy), produces and realises an individual or self in the form of a living body, an organism.

(3) *The emergence of a self entails the emergence of a world.* The emergence of a self is also by necessity the co-emergence of a domain of interactions peculiar to that self, the organism's world or domain of significance.

(4) *Emergence of a self and world = sense-making.* The organism's world is tantamount to the sense it makes of the environment. This world

is a place of significance and valence as a result of the global action of the organism.

(5) *Sense-making = enaction*. Sense-making is viable conduct. Such conduct is oriented toward, and subject to, the environment's significance and valence. Significance and valence do not pre-exist "out there", but are enacted, brought forth, and constituted by a living being. Living entails sense-making, which equals enaction. (adapted after Thompson 2007: 158)

Mind: Neuro-Logic, Embodiment, and the Selfless Self

As mentioned above, the basic structure of life, situated at the crossroads of the two dialectics, is said to lie at the heart of not only *uni*cellular, but also *multi*cellular organisms. Here, we will not concern ourselves with the progressive development of organisms of ever greater complexity (see Maturana & Varela 1987: chapters 3–5), but will move directly on to human beings. A human being is an *autonomous system* – however, it is *not* an autopoietic system, as autopoiesis is restricted exclusively to the cellular level[7] – which means that it consists of processes giving rise to its unity and simultaneously (co)creating its world. In the case of human beings, the overall picture is much more complex, because human beings consist of numerous mutually embedded (semi) autonomous subsystems in interaction and exhibiting a certain autonomy (operational closure) relative to other subsystems (this is especially true of the immune, hormonal and nervous systems). This complex, multi-layered organisation is "intrinsically fragile" and operates "at the edge of chaos" (Rudrauf *et al.* 2003: 38); but in this multitude of mutually embedded subsystems one subsystem plays an especially prominent role in preserving their coherence – the *nervous system*.

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[7]   As we will see shortly, the main difference between autopoiesis and autonomy *in the context of this paper* (for a different and more elaborate account of the topic see: Thompson 2007: chap. 5–6; Thompson & Stapleton 2008: 23–24) can be summarised as follows: autopoietic entities are *spatially bound* entities, which means that they emerge in the presence of a physical boundary, whereas autonomous entities are *behavioural* entities, which means that they emerge in the presence of a coherent (unified) behavioural pattern.

The development of the nervous system in multicellular organisms is related to *motion*; its main role is that of linking *effectors* (motor surfaces, e.g. muscles, secretion) and *affectors* (sensory surfaces, e.g. sense organs, nerve endings): "The fundamental logic of the nervous system is that of coupling *movements* with a stream of *sensory modulations* in a *circular fashion*" (Varela 1991: 89; my emphases). These *sensorimotor loops* – perception-action coherences – are, in turn, accompanied by large *sets (ensembles) of transiently correlated neurons* in interneuronal networks, which function as both the *source* and the *result* of the activity of effectors and affectors: "The neuronal dynamics underlying a perceptuo-motor task is, then, a network affair, a highly cooperative, two-way system, and not a sequential stage-to-stage information abstraction" (*ibid.*: 92). On this view, and in contradistinction to the view of traditional cognitive science, the functioning of the nervous system is not analogous to that of a digital computer, whose main mode of operation is linear and algorithmic, but is characterised by "a promiscuous tinkering of networks and sub-networks giving no evidence for a structured decomposition from top to bottom" (*ibid.*: 95).

The behaviour of such a complex system provides us with enough evidence to conceive of it in terms of *operational closure* and *autonomy* (again, "closure" here denotes recursive self-reference and not "closedness" in the sense of interactional isolation). As such, it can be – in line with our previous reflections on the bio-logic of life – situated in the matrix of the twofold dialectic. First, there is the *dialectic of identity*: the nervous system consists of an operatively closed network of reciprocally connected subnetworks that give rise to neuronal ensembles of coherent functioning; these ensembles, in turn, (i) mediate sensorimotor correlations between effectors and affectors and (ii) bring forth coherent behavioural patterns which constitute the organism as a unit:
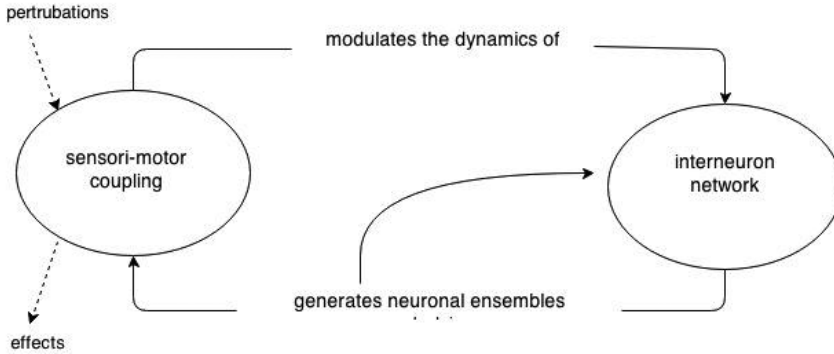
Figure 2: Schematic representation of the sensori-motor closure of the nervous system (*cf.* Varela 1997: 82).

As we can see, *neuro*-logic closely follows *bio*-logic. In both, there is a circular (recursive) interconnectedness between local parts and a global unit: on the *biological* level, a distributed *metabolic* process brings forth the "biological self", while, on the *neurological* level, a distributed *neuronal* process brings forth the "cognitive self". The main difference between the two is that, in the case of the biological self, the emergent unit depends on the presence of a physical boundary (cell membrane), whereas in the case of cognitive self, the emergent unity depends on the presence of a coherent behavioural pattern (perception-action coherences): the biological self is a *spatially bound* entity, while the cognitive self is a *behavioural* entity (Varela 1997: 83).

Second, there is *the dialectic of sense-making*: just as the emergence of the biological self brings forth an *environment*-for-the-*biological*-self, so too does the emergence of the cognitive self bring forth an *environment*--for-the-*cognitive*-self. Sensorimotor coherence as a means for maintaining structural coupling gives rise to a *unique perspective* and thus to a *surplus of meaning*.

[T]he nature of the environment for a cognitive self acquires a curious status: it is that which lends itself to a surplus of significance. Like jazz improvisation, environment provides the "excuse" for the neural "music" from the perspective of the cognitive system involved. (*ibid.*: 84)

137

Again, this surplus of meaning – the (co)emergence of the self and its world – might be said to arise from a *permanent lack*, i.e. from an incessant attempt to compensate for *breakdowns* in coherent behavioural patterns. As we have seen earlier, cognition is aimed at *what is missing*: it is a mode of behaviour that "fills-in" the structural gap between the organism and its world.

Note, however, that the nervous system is *not* to be equated with the human organism *as a whole*: although it plays a very important – perhaps even crucial – role in establishing its individuality and autonomy, it is still only *one among the many* subsystems that participate in the overall process. Sensorimotor coherence is not limited to the nervous system, but includes *the whole body* with its multifarious and mutually embedded components (sense organs, muscles, bones, immune and hormone systems, etc.). The operational closure of the nervous system can thus be said to *contribute* to the operative closure of the embodied system, but it *does not exhaust* it. The autonomy of the human organism – its perspectivity, its world – is based on the operative closure of the body, construed as a colourful *bricolage* of (semi)autonomous subsystems in interaction. In other words, the structural coupling between the human being and its environment is a function of its *situatedness*, its *embodied being-in-the-world*. Because of the dynamic and variegated nature of human embodiment, its operative closure is said to consist of numerous on-going *cycles of operation*: a multi-level motley of "individual concrete operations taking place during integrated sequences of behaviour" (Rudrauf *et al.* 2003: 40). Cycles of operation include, notably, but not exclusively: (a) cycles of organismic regulation of the entire body; (b) cycles of sensorimotor coupling between organism and environment; and (c) intersubjective interaction (Thompson & Varela 2001: 424).

"The drama of the 'cycles of operation'" takes place "within a very particular *field of constraints*, that of the entire organism and its surroundings" (Rudrauf *et al.* 2003: 40), and it constitutes what to an outside observer looks like a set of coherent behavioural patterns. Through these patterns, a human being constitutes itself as a situated (embodied) being, thereby giving rise to its world (field of meaning). On this view, cognition is not to be construed as some abstract (disembodied, non-

-situated) entity, but rather as a *concrete (embodied, situated)* process: it consists of the active (re)establishment(s) of structural coupling(s) in the domain(s) that are of relevance to an individual organism (Varela 1995: 13). Or, to elaborate on a maxim mentioned above: cognition is *embodied* action (Varela *et al.* 1991: 172). This action is always oriented towards that which is *missing*, towards a *lack* or a *gap* (the "surplus of significance") that needs to be bridged so as to preserve structural coupling. Cognition always takes place *against the horizon of meaning*, in the cosmos of the multifarious worlds engendered by the twofold dialectics.

Thus, according to Varela, a human being consists of a meshwork of "regional selves", all of which have "some mode of self-constitution", but which together, "in their overall assemblage", form a coherent unit. He distinguishes five such regions of selfhood (though arguably there could be more): (1) a *minimal or cellular self*; (2) a *bodily self* associated with the immune system; (3) a *cognitive self* associated with the sensorimotor coherences; (4) a *socio-linguistic "I"* of subjectivity; and (5) the *collective multi-individual totality* (Varela 1991: 80). All these regional selves interconnect and intertwine in different ways, and although they differ in their specificity, they share a common logic: the circular dialectic of identity and sense-making (*ibid.*: 102). What is crucial here, however, is that these regions of selfhood are devoid of any substantiality, for although they serve as a mode of identity, they are, in the ultimate analysis, "virtual points with no localised coordinates" (*ibid.*: 79). This is what Varela had in mind when he spoke of a "selfless" or "virtual" self: "[A] coherent global pattern that emerges through simple local components, appearing to have a central location where none is to be found, and yet essential as a level of interaction for the behaviour of the whole unity" (*ibid.*: 95). What we call the "human mind" is thus a global emergent unity delineated against a meshwork of multifarious selfless selves, a "pattern in flux", dependent on different levels of dialectical constitution (Varela in Rudrauf *et al.* 2003: 43). All attempts to reduce the mind to specific brain functions are therefore bound to fail: the mind is not in the head, but manifests itself in the "non-place of the co-determination of inner and outer", it "neither exists nor does it not exist", and "it does not physically or functionally reside anywhere"

139

(Varela in *ibid*.: 42). This, however, is not to be read as a plea for dualism, because the mind is not some ethereal substance haunting the human brain, but is firmly entrenched in the on-going dynamics between brain, body and world. In effect, what Varela is trying to do is to avoid all such dichotomies and pave the way to a conceptual *and* experiential middle ground between all metaphysical extremes (physicalism-dualism, realism-constructivism, etc.) (*cf.* Bitbol 2012).

Peace: Non-Dualism, Empathy and Compassionate Interbeing

Thus, according to the embodied/enactive approach, the bio-physics of being in its entirety (from the organismic to the societal level) is pervaded by the double dialectics of identity and sense-making. Two points merit special emphasis in this regard. First, we note that on this view the edifice of being is erected on the *groundless ground*, on the on-going, circular "betwixt" between interiority and exteriority, self and world. Any attempts to *reify* or *substantialise* the double dialectic would miss the point completely, since it refuses to lend itself to either monist or dualist interpretation; instead, it should be understood as a dynamic, Janus-faced process that is *explicitly non-dualist*: "Not one, not two" (Varela 1976). Second, it was pointed out that the human mind, anchored in this non-dualist dialectical betwixt, emerges as a "pattern in flux" against the dynamic interrelations between the self and the world. Now, given that a significant portion of this world (the-environment-for-the-human-being) consists of other human beings, it follows that the human mind is *inherently intersubjective* (Thompson 2001). In other words, instead of the classical image of the mind as an encapsulated "solipsist ghost" (the so-called "brain in the vat"), enactivism sees the mind as inherently *open towards*, and *co-constituted by*, other minds. However, this co-determination of the self and the other is not a mere theoretical postulate, but manifests itself in our everyday lives as a pre-reflective empathic (self-)openness towards the other.

Empathy can be broadly defined as "the basic ability to comprehend another individual's experience, a capacity that underlies all the particular feelings and emotions one can have for another" (Thompson 2011: 263). However, it is not a unified phenomenon, but encompasses

several distinct subcategories. According to the phenomenological tradition, we can distinguish at least 4 different types of empathy:

(1) the passive/involuntary (pre-reflective) coupling or pairing of my lived body with the body of the other in perception and action;

(2) the imaginary transposal (movement) of myself to the place of the other;

(3) the interpretation or understanding of myself as the other for you;

(4) ethical and moral responsibility in face of the other (Depraz 2001).

Note that, unlike types (2)-(4), which pertain to *reflective* cognitive acts, type (1) takes place at a *pre*-reflective level (i.e., it is passive, involuntary and bodily), and serves as the basis for the other three types:

When we see another person, we do not perceive his or her body as a mere physical thing, but rather as a lived body like our own. Thus empathy is not simply the grasping of another person's particular experiences (sadness, joy, and so on), but on a more fundamental level the experience of another as an embodied subject of experience like oneself. (Thompson 2001: 17).

Empathy, at its existential roots, is therefore not a secondary or derivative (reflective), but an integral and constitutive (embodied) element of a human being, i.e. "human experience depends formatively and constitutively on the dynamic coupling of self and other in empathy" (Thompson 2011: 263). Further, it underlies all the higher-order moral sentiments and emotions, such as sympathy and compassion, and is therefore a *sine qua non* for "concern and respect for others and persons in the moral sense – as ends-in-themselves" (*ibid*.: 269). All rationally-based moral principles tacitly presuppose a fundamental empathic openness towards the other, for otherwise they would be left without the existential *Urgrund* that accounts for why morally engaged action is supposed to be compelling in the first place.

Empathy as the *existential cohesive tissue* situated in the double dialectic can thus be said to form an experiential basis for what Thompson, following the Vietnamese Buddhist teacher Thich Nhat Hahn, calls *interbeing*: a peaceful, unitary and compassionate coexistence (Thompson 2001: 23). Of special importance in this regard is *compassion*, which has been termed by Thompson "the heart of interbeing" and "the

superlative expression of the human capacity of empathy" (*ibid.*: 27). Compassion is the radical instantiation of the non-dualist dialectic; it is the enactment of the selflessness of the self, where all distinctions between my-self and the other are obliterated. This unitive experience – the experiential realisation of existential groundlessness – is the well-spring of (en-)lived inter-being and the true abode of the (auto)poiesis of peace. It is only when I not only *think*, but also *live* the non-duality between myself and the other, that peaceful coexistence can truly arise and perpetuate itself. As such, compassion stands in direct opposition to the self-centredness that is prevalent in contemporary culture – note how even "altruism" is defined "in terms of an individual obtaining (psychological) utility from benefiting another" (Varela *et al.*: 246) – , and manifests itself as an attentive, mindful repose in non-duality, a purposeless and aimless responsiveness to the needs of the present situation (*ibid.*: 249–250).

But what, if any, implications does all this have for our everyday lives? We started out by saying that one of the most prominent features of the embodied/enactive approach was the "re-enchantment with the concrete", yet we have ended up with such seemingly abstract and abstruse notions as "selfless self" and "groundless ground". Where, the inquisitive reader might ask, is the "concrete" in the "non-dualist betwixt"? Does any of this have a pragmatic value or is it merely a reverie concocted by the overexcited spirit of speculation? The main problem, it seems, is that even if we embrace the proposed reconceptualisation of life, self, etc., our natural everyday attitude is likely to continue as if (almost) nothing had changed: we are still likely to conceive of our-selves as discrete, substantialised unities distinct from the (inanimate) world and other discrete (animate) selves (*cf.* Varela 1991: 101). But if we are truly interested in how selflessness and groundlessness may contribute to the enactment of interbeing and peace, then clearly what we are aiming at is not so much *theoria*, but *praxis*? After all, it is not the *noiesis* but *poiesis* of peace that we are after.

It will be remembered that at the core of the embodied/enactive approach lies an emphasis on a deep and on-going *circularity* between science and lived experience. On this view, theoretical reconceptualisation is but one (albeit a very significant) element in the overall trans-

formation of our approach to the human mind: it remains – regardless of how profound it might be – limited to conceptual reasoning and, as such, restricted to inquiry *about* experience, but not *in* and *through* experience (Bitbol 2012: 169). Thus, if we truly want to break out of our deeply entrenched ways of thinking about mind and nature, the transformation of (practical) *being* is no less important than the transformation of (theoretical) *seeing* (Varela 1976: 67). In words of Evan Thompson:

> It's one thing to have a scientific representation of the mind as "enactive" – as embodied, emergent, and relational; as not homuncular and skull-bound; and thus in a certain sense insubstantial. But it's another thing to have a corresponding direct experience of this nature of the mind in one's own first-person case. (Thompson 2004: 382)

In search of pragmatic tools for the enactment of such profound existential and experiential transformations, the proponents of the embodied/enactive paradigm turned to various "wisdom" or "contemplative" traditions, particularly Buddhism (Varela *et al.* 1991). In the closing paragraphs, I would like to briefly sketch why Buddhist meditative practice, as well as some other existentially oriented approaches, might be of importance for the cultivation of a lived (auto)poiesis of peace.

The central tenets of Buddhist philosophy – emptiness (*sunyata*), selflessness or not-self (*anatman*), etc. – are not mere concepts, but are said to be realisable (experiential) actualities. They are understood as descriptive or evocative of our primary (original) mode of being, which is characterised by non-duality (living in and through the non-distinction between ourselves and others), and is constitutive of our everyday (derivative) dualist mode of existence. Buddhist traditions have thus developed rigorous pragmatic tools (see e.g. Wallace 1999, 2001) that concentrate on, and engage with, the subject-object barrier: they do so either *directly* – i.e. by gradually deconstructing the sense of a (separate/discrete) self (e.g. the practices of *samatha* and *vipasyana*) – or *indirectly* – i.e. by cultivating loving-kindness and compassion towards all sentient beings (e.g. the practice of *maitri*). The two approaches might seem different; however, in actuality, they are closely related. In fact, in the Buddhist tradition, they are said to be as inseparable as the two wings of a bird: just as a bird needs both wings to fly, so too must the genuine

realisation of selflessness be accompanied by the realisation of boundless compassion, and *vice versa*. In other words, "compassion without wisdom is bondage, and wisdom without compassion is just another form of bondage" (Wallace 2001: 213). Someone who has realised the emptiness of things (*sunyata*), i.e. who has directly experienced that things have no independent existence, but emerge in mutual co-determination, will be permeated with boundless compassion (*karuna*); and someone who has realised boundless compassion (*karuna*) towards all sentient beings, will grasp the emptiness of all things (*sunyata*). Again, the crucial thing here is that these are not abstract notions, but concrete, realisable actualities that can be experienced and cultivated.

Note, however, that these characteristics are not necessarily limited to Buddhism, but can be found, to a greater or lesser degree, in most mystical traditions (*cf.* Donaldson 1991; Vörös 2013 a, b), as well as in some psychotherapeutic approaches that emphasise self-transcendence and profound existential transformations (especially in humanistic/existential and transpersonal psychology). There are, of course, great differences both within and between these traditions; however, what they all seem to have in common is the emphasis on developing practical means to deconstruct the ordinary (dualist) mode of being and enact the (non--dualist) dialectic between self and other. The chasm of the groundless ground – of the dialectical betwixt – that opens up in such practices can be terrifying at first, but is ultimately comprehended as the existential wellspring of boundless compassion and limitless peace. When there are no more boundaries between myself and the other – when I am the other and the other is me – there can be no animosity, hatred or anxiety between us. This is the crux of St. Augustine's famous saying: *Ama, et fac quod vis* (Love, and do what you will). Love – understood in terms of the Christian selfless love (*agape*), analogous to Buddhist compassion (*karuna*) – is the cohesive force of interbeing, the (groundless) ground of genuine peace and co-existence. It is only through non-duality and compassion that peace can generate and re-generate itself; it is only in the ever-elusive betweenness that it can become fully embodied and intertwined with the very fabric of our being. In other words, it is only when we have fully realised the autopoiesis of life – the bio-logic of the

double dialectic – that the autopoiesis of peace will be able to shine forth – freely and abundantly.

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