# CONTAGION: A COGNITIVE VIEW OF THE IMMUNE SYSTEM AND ITS IMPLICATIONS FOR A NOMADIC ETHICS

## Contagio: una visión cognitiva del sistema inmune y sus implicaciones para una ética nómada

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### ABSTRACT

The modern obsession with safety (which ranges from extreme fear of germs to xenophobia) ends in isolation. In this paper, we explore what is behind of this concern with safety, the metaphors that surround it (which come from immunology), and a way to escape from fear using the Deleuzian idea of nomadic ethics as a point of departure. From a contemporary perspective of how immune systems work, we rethink the metaphors used to describe it: as far as new characterizations of immunity arise, there is a need to approach a notion of non-defensive, non-reactive answers to the ever-changing demands of a world in motion, of becoming. It implies rethinking alterity, the need to embrace it instead of avoiding it, and the need to understand its importance, the way in which it makes us humans. We will argue that nomadic ethics require a nomadic epistemology, an acknowledgement that a full understanding and control of reality may be beyond our reach, and therefore an acceptance of partial, tentative, and diverse forms of knowledge.

**Palabras clave:** *nomadic ethics, immunology, alterity, human becoming, organic systems.*

### RESUMEN

La obsesión moderna por la seguridad (desde el miedo extremo a los gérmenes hasta la xenofobia) termina en el aislamiento. En este artículo exploramos qué hay detrás de esta preocupación por la seguridad, las metáforas que la rodean (y que provienen de la inmunología) y una forma de escapar del miedo tomando como punto de partida la idea deleuziana de la ética nómada. Desde una perspectiva contemporánea

de cómo funcionan los sistemas inmunológicos, repensamos las metáforas: en la medida en que surgen nuevas caracterizaciones de la inmunidad, existe la necesidad de aproximarnos a las respuestas no defensivas, no reactivas a las demandas del devenir. Implica repensar la alteridad, la necesidad de abrazarla en lugar de evitarla, y su importancia para entender lo que nos hace humanos. Argumentaremos que la ética nómada requiere una epistemología nómada, un reconocimiento de que una comprensión y un control plenos de la realidad pueden estar fuera de nuestro alcance y, por lo tanto, una aceptación de formas de conocimiento parciales, tentativas y diversas.

**Keywords:** *ética nómada, inmunología, alteridad, devenir humano, sistemas orgánicos.*

## Introducción

### Contagion

§1

Historically, the immune system has been seen as a series of processes geared towards to defends from foreign bodies, which are, in turn, understood as enemies to our body (Pradeau, 2019). Common understandings of immunity are related to a kind of biological health in which the immune system works as a negation machine towards what is menacing and strange (Esposito, 2011). The world 'Immunization', is itself part of a network of concepts associated with protection, understood as the exclusion, expulsion, or eradication of what is viewed as a risk: e.g, national barriers, social exclusion, or antigens. These concepts can all be characterized as militaristic in nature. However, a purely defensive understanding of the immune system condemns us to isolation and stagnation (Esposito, 2011; Braidotti, 2006), and goes against the nature of life, which is essentially a process of becoming and of entering into relationships with other beings.

Recent debates about immunology have shown that the problem of the immune system is related to the problem of individuation; that is, the problem of how the heterogenous components that make up a body can organize to form a coherent unity (Pradeau, 2019). The issue of individuation is present throughout the life cycle because organisms are permanently interacting with their

environment in diverse and changing ways. Studies in immunology show that organisms adapt to their environments in creative and situation-dependent ways and that, beyond mere defense, the immune system is a part of such creative responses that dynamically reconfigure what is outside and inside, what is identity and what is alterity (Pradeau, 2019; Bula & Garavito, 2013).

In this new paradigm of immunology, the immune system "helps to establish harmonious balance with the environment" (Swiatczak, 2014, p. 428). This harmony-seeking need not be understood as a mere striving towards a permanent equilibrium but can be seen as an ongoing development of relationships and activities. This perspective sees events as problems: things keep happening, and we need to deal with them. Adaptation and transformation are active answers to becoming (Swiatczak, 2014). In that sense, problem-events (eventualities) can be understood as stimulatory, and the immune system as a response-eliciting interface between actors and environmental challenges.

Among the perspectives on the immune system that reject a militaristic understanding of immunology and view its task as one of learning rather than destruction, we find that of nomadic ethics (Esposito, 2011; Braidotti, 2006). This position is related to two essential questions: "Is there a point at which the dialectical circuit between the protection and negation of life can be interrupted, or at least problematized? Can life be preserved in some other form than that of its negative protection?" (Esposito, 2011, p. 16). Nomadic ethics celebrates the potentialities inherent in deterritorialization (Deleuze and Guattari, 2005). Rather than following and consolidating a given code, a given form of operating, nomadic ethics flees codification, and therefore gives rise to new possibilities: in evolutionary terms, a hand is a deterritorialized front paw; and a hand that is free to make tools is the product of deterritorialization away from one that serves merely for climbing. Nomadic ethics is an openness to becoming, a willingness to change one's own configuration. Of course, territorialization and de-territorialization

need and necessitate each other: if a given territorial configuration is abandoned, it is on order to produce a new one. Nomadic ethics, then, is characterized by the acknowledgement that territorial configurations have a merely contingent, situational, validity; and that their chief purpose is to be abandoned, in order to give rise to new configurations.

A discussion of nomadic ethics seems pertinent in times of ontological uncertainties and rapid sociopolitical change. Today, things seem to be getting more complex, diverse, unpredictable and, in a word, strange (Braidotti, 2002). New characterizations of immunity enable us to configure a notion of non-defensive, non-reactive answers to the demands of becoming. Perhaps nomadic ethics is more a re-discovery than a novelty: otherness has been a crucial factor of development active and transformative possibilities of life: humans, have always been exploring new ways of living (Pijl, 2007; Raschke, 2012).

We wish to explore a "nomadic ethics", that subscribes to a radical immanence and an ecological understanding of the Self (Braidotti, 2006; Tauber, 2016); an ethics of exploration of the foreign, an embrace of becoming that is not anxious about defining boundaries between self and other.

We begin by fleshing out the idea that life is essentially about openness to what is different. This leads us to a discussion of the ethics of hospitality. We then present the immune system as a paradigmatic example of the logic of life: once we understand that militaristic metaphors are inappropriate to explain the functioning of the immune system, we can see that an essential aspect of life is the integration of the other as a part of the self. Then we move on to think about individuation and difference in the ethical and political planes, and finally we discuss nomadism and its implications on the individual.

How should one write about a nomadic ethics? Short, aphoristic chapters seem appropriate. There is something stale about academic writing (indeed, there is a looming suspicion that most of

it is never read, see Jago, 2018), something that calls for adaptive transformation. To be more precise, there is something stale about the esoteric arrogance embodied in customary academic writing (Braidotti, 2002). By contrast, the *Essais* were tentative, capable of reflecting the mutability of Montaigne's own mind, and, perhaps not coincidentally, accessible (see di Carlo, 2020). Collections of brief texts are exploratory; although they aspire to systematic coherence, they function (like the cathedrals at Cologne and Barcelona) as a perpetual work in progress; as partial grasping at specific aspects of the multiplicity of becoming (Hui, 2019). As we will argue later, nomadic ethics require a nomadic epistemology, an acknowledgement that a full understanding (and control) of reality may be beyond our reach, and therefore an acceptance of partial, tentative, and diverse forms of knowledge.

§2

We are who we meet along the way. Daniel Innerarity has proposed an ethics of hospitality, that recongnizes that our existence "is structured around reception and encountering" (Innerarity, 2017, p. 3). Unlike a stone, humans need "relational goods" (2017, p. 24) such as friendship, love, or political associations. This implies both activity and passivity, a letting oneself be affected by the other. This openness to otherness is at the origin of human intelligence; it also makes us (biologically, cognitively, emotionally) vulnerable. Responses to danger that wall us off from the environment in the name of safety are reactive, and can diminish our power of acting (Hardt, 1993).

Although human beings have a particular way of being open to difference, life itself is characterized by its being an open system, constantly exchanging energy and matter with an environment. Human subjectivity and communities are just more sophisticated ways in which autopoietic (self-making) beings affirm and produce themselves in relational networks (Maturana and Varela, 1994).

§3

Death is when the music stops. Maturana and Varela (1994) define living beings as self-organizing systems that need a permanent relationship with their environment in order to survive. Viewed as a system, a living organism is an ensemble of harmonized processes; and physical equilibrium is tantamount to their cessation (Capra, 1996). Life is an unbalanced formula that can only persist in time, in defiance of entropy, through constant exchange with the environment.

This openness to the environment does not imply a sacrifice of identity, but it does put it at risk (Varela, 2000). It requires that the different parts of a complex living organization have cohesion —operational closure— as they are in constant communication with the environment. This is the primordial form of a situated and embodied cognitive process. Cognition is to be understood as the transformation of a system in response to an environment, in order that its autopoietic processes can persist through time.

Isolation, rigidity, and immobility are malignant and fatal (Chen J., Jing, X., Volkman, A-M., Chen, Y., Lui, Y., et al., 2019) and can be understood as a cognitive failure of the autopoietic system. Death can be seen as a cessation of exchange, a starvation of otherness (Napier, 2021) (Is this true, though, of all kinds of death? Consider apoptotic death. It is a suicidal sacrifice in the name of the community of living partners. That such a death is possible is in itself a philosophical problem —see Silverstein, 2009—).

§4

Living systems have different degrees of complexity; the more complex a system, the more its openness to the environment requires richer forms of cognition. A cell has a tighter operational closure than a multicelular organism, and its cognition is correspondingly less complex. In multicellular organisms, the immune system is a subsystem that has as its goal the maintenance of a

higher-order autopoiesis (that is, the autopoiesis of the ensemble of subsystems); it is, in itself, a cognitive system (Varela, 2000).

§5

Life seeks motion, change and adaptation (Napier, 2021; Braidotti, 2002); strength is creative, adaptive, it has the miraculous quality of the "newly created rose" (García Lorca, 2007). The essence of strength lies in the exploration of boundaries, in the capacity to navigate unknown territories. *Hic sunt dracones*: old maps had painted dragons over the unexplored. And certainly, facing dragons can kill us. But living organisms need dragons in order to grow, to develop new ways of being.

§6

If change and exploration are essential to growth, the human immune system is a glowing example. In "Tolerance, Danger, and the Extended Family", Polly Matzinger (1994) holds that the immune system's primary goal is not to distinguish between internal and external entities, i.e., self, and non-self. The central task of the immune system is to explore the outside, while producing a complex protective biological network.

§7

In her essay about T cell tolerance and the belief that the immune system's primary drive is the discrimination between self and non-self, Matzinger focuses on a particular question: "How is self-tolerance induced and maintained?" (1994, p. 992).

Initially, 'self-tolerance' refers to the fact that the immune system can recognize any part of the body, as compared to any foreign entity. 'Self' and 'Non-self' relate to the concept of identity. In this line of thinking, the body is understood as a clearly delineated entity that is also capable of distinguishing the inside and the outside through its immune system (Matzinger, 1994; Weasel, 2001).

This view has heavy philosophical implications. Obviously, the first question is 'What is the Self?'. Is 'Self' the name of an encoded sequence of information, including the structures that share it —i.e., genome and commensal genomes? Is 'Self' better defined as any tissue accessible to white blood cells? Is 'Self' an idiotype: a network of unique elements— i.e., amino acids?

According to Matzinger, the attempts to define the nature of the Self show:

> How some of the most creative thinking in immunology has evolved to search for practical definitions of self and non-self. Ultimately, they all boil down to variations of the view that the immune system makes its definitions. It regards a certain subset of the body as self and a particular fraction of the rest of the universe as foreign. In short, it does not really discriminate self from non-self, but some self from some non-self". (1994, p. 994)

The most common image of the immune system is that its task is to detect and attack foreign organisms by maintaining surveillance over abnormal cells (Lucas, Swaminathan and Dear, 2015; Pradeau, 2019); it is seen as chiefly defensive (Bula & Garavito, 2013) and research is centered on the mechanisms that eliminate invasive pathogens. The language used in this context is militaristic: there is talk of surveillance mechanisms, targeted physiological attacks, strategic communication, the capture of opponents, repelling invaders, and subversive agents, etc. (Esposito, 2011; Weasel, 2001).

But perhaps our immune system, ignorant of the political philosophy of Carl Schmitt (2007), does not care about friends and foes; perhaps, having never heard of national borders or passports, it does not care about the foreign. Rather, being a product of evolution, our immune system cares about survival. Which foreign bodies are worthy of an immune response? How does the immune system choose between attacking, ignoring or tolerating? According to Matzinger: "the criteria have to do with what is dangerous rather than the Self" (1994, p. 994). What is in play,

instead of a simple polarity between self and non-self, is a complex set of distinctions and information processing procedures. The central immune system aims to recognize dangers by evaluating realities (Matzinger, 1994). It operates more as a network capable of identifying multiplicities than a dialectic machine dividing the world between friends and enemies.

§8

No learning takes place in the School of Life except through struggle. Matzinger (1994) distinguishes between virgin cells and experienced cells (those that have responded at least once to entities challenging the body). The latter help train the former, stimulating them to action at the appropriate time.

§9

This is the Law of Lymphotics: you must defend against threats, but you cannot be constantly wary of possibly threatening events. The immune system responds to encounters with external contingencies by being activated in situations that raise red flags; otherwise, it must rest, lest it make its own the body the object of its attacks:

> At first glance, an immune system, once attacked, would seem to be best prepared for the next invasion by keeping its primed effector cells ready. However, though efficient, this is simply too dangerous to allow. Autoreactive effector CTLs (Cytotoxic T Lymphocytes) could destroy tissues; effector T helpers could secrete up to 2000 antibodies per second. Resting cells, by contrast, are entirely innocuous (until activated). The immune system is therefore stingy with its effectors and does not allow them unlimited life spans. Plasma cells are thought to die after a few days, and killer and helper effectors either die or revert to the resting state, from which they must be reactivated to become effectors once again. The transition from resting cell to effector is thus a critical and carefully controlled step that occurs only

in the presence of signal two —i.e., help for B cells and co-simulation for T cells. (Matzinger, 1994, p. 998)

Furthermore, maintaining a permanent state of vigilance is costly. It is more efficient to be idly prepared for potential threats than to view everything as threating (this can produce harmful auto-immune responses, Bula & Garavito, 2013). Responding correctly and proportionally to events is all about inducing adequate cell activation and timing.

Activation and triggering are distinct immune responses. Activation is a change of state: from resting to activated cells through stimulation and co-stimulation among different kinds of cells. Triggering is a prior awakening of the immune system, in response to unusual events (Tauber, 2016).

Finally, timing refers to the gap between triggering and activation (Matzinger, 1994). Responding too late can give dangerous foreign elements time to grow and cause serious damage (Velasquez-Manoff, 2020). Responding too early can lead to an equally dangerous uncontrolled flood of antibodies in the system (Wu, 2020).

§10

Traditionally, the immune system has been understood as a mechanism of self-recognition and elimination of the foreign, of the non-self (Pradeau, 2019). The work of the immune system boils down to recognition and elimination: "Theoretical immunologists are unanimous on this point. Without recognition and elimination, the body would become 'a toxic dumpsite'. Without the capacity to recognize and eliminate potentially toxic viral matter, the body could not repel antigens" (Napier, 2013, p. 29).

In contrast, both Matzinger and Napier believe the immune system is better understood in terms of exploration and protection. For Napier our "so-called immune system resembles more an advanced guard (*avant-garde*) that constantly seeks out new information than it does the armed battalion that acts on that

information. It is plainly a search engine as much as a defense mechanism" (2013, p. 26).

This point of view is a refreshing departure from a long tradition of dualism and Manicheism (Braidotti, 2002). Safety does not necessarily lie in the defeat of a nefarious other. The appearance of the Other need not be an invitation to war, but perhaps to hospitality (cfr. Innerarity, 2017). Our body is open to environmental challenges, it can adjust to new information. We are not mere survivors but experimenters. The human body can be understood as *xenophilic*, as well as xenophobic (Napier, 2013).

§11

New views on the immune system are an invitation to question fundamental assumptions about difference, organic autonomy, and identity:

> Several areas of science have emerged to examine and rethink the symbiotic relationship between human identity and its boundaries. New research on the microbiome has focused, for example, on the vast diversity of commensal organisms that occupy our bodies and influence and adjust for our interactions with our local environments. These, we now know, are not only critical for organic health but have significant effects on our susceptibility to allergies, our chances of contracting non-communicable diseases (such as diabetes), and our ability to adjust to irritants and related toxic stimulants. Moreover, there are many examples of plant, animal, and cross-species dependency that are literally life-giving and without which entire species would disappear. (Napier, 2017, p. 60)

§12

Life, well lived, is rife with risks and challenges. Recent scientific research regarding immunology insists on the idea of learning through exploration and the formation of connections with diverse entities. These need not be a cause for fear, but for curiosity.

"Closing off the outside is only a short-term answer that can bring no new life" (Napier, 2017, p. 79).

§13

Curiosity requires a certain generosity; a willingness to diverge from one's tired path from work to home and check out that dodgy carnival tent someone set up in the park. Diverging from what a stingy and competitive view of evolution might expect, living beings consistently show a propensity to seek out otherness (Napier, 2017). With this idea in mind, we turn to the topic of individuation and difference in the ethical and political fields.

§14

Novel challenges can be met in one of two ways. We can modify existing practices and accommodate the new through a kind of conservative budgeting of resources: homeostasis. But we can also invent solutions through experiment. This latter option implies uncertainty: a lack of guarantees, of tried-and-true solutions. Perhaps this sort of leap into darkness is more common than we like to think; perhaps all life, all evolution, is a mindless leap into darkness (cfr. Dennett, 1996). Perhaps, no one is transcendentally responsible for our fate (Deleuze, 2002). What sort of *ethos* should accompany this realization? Perhaps, something close to Melville's "desperado philosophy", which he ascribes to whalers; a sort of active abandon, a lucid and playful dancing with the world, expecting nothing from it:

> There are certain queer times and occasions in this strange mixed affair we call life when a man takes this whole universe for a vast practical joke, though the wit thereof he but dimly discerns, and more than suspects that the joke is at nobody's expense but his own. However, nothing dispirits, and nothing seems worth while disputing. He bolts down all events, all creeds, and beliefs, and persuasions, all hard things visible and invisible, never mind how knobby; as an ostrich of potent digestion gobbles down bullets

and gun flints. And as for small difficulties and worryings, prospects of sudden disaster, peril of life and limb; all these, and death itself, seem to him only sly, good-natured hits, and jolly punches in the side bestowed by the unseen and unaccountable old joker. That odd sort of wayward mood I am speaking of, comes over a man only in some time of extreme tribulation; it comes in the very midst of his earnestness, so that what just before might have seemed to him a thing most momentous, now seems but a part of the general joke. (Melville, 2003, p. 189)

### §15

Radical inventions are necessary at the social level. That is, inventions of new ways of life, rather than local improvements of the status quo. It means creating new social worlds, rather than new entrepreneurial technologies of the Self (Han, 2016; Ehrenberg, 2010). Social divergence is often shunned; but, unless we have figured out a way of life that is beyond improvement, we should appreciate new experiments in the field of living well (Mill, 2002). Just as exploration is a dimension of biological life, it is a dimension of social life (Tauber, 2016). Communities commit to experiment under duress (Maffesoli, 2006); under conditions that call for adaptive change (Napier, 2017). We need environmental opportunities for change —with all the danger they entail.

### §16

How can I change for the better? This problem has a paradox analogous to that of Meno (Fine, 2014): in the field of knowledge, if we don't know what it is we are supposed to find, how can we know if we have found it? In the field of existential experimentation, if we don't know what kind of being we are to become through experimentation, how can we know if we are headed somewhere good? How does one do radical change well?

## §17

Nomadic ethics invites us to let go of certain idols: the quest for permanent control, the admiration for strong leadership, the comfort of deterministic systems and unchanging values. Openness, uncertainty, is our destiny. But this is little more than a cliché; a conclusion that is reached too quickly.

In order to avoid a facile conclusion, we can explore this issue in relation to time: experimentation concerns differentiations in relation to past, present and future. History and becoming take place in a struggle between powers of control and forces of change. This dichotomy can be questioned by considering a multilevel structure of history and becoming in which the two productively coexist in diverse ways (Lundy, 2012). The dualism of history and becoming can be overcome by an interest in what produces escapes, jumps, flies, and leaks (Scoones and Stirlling, 2020).

## §18

To view the immune system as an information seeking machine requires an ecological understanding of the body: how its several subsystems cooperate in learning, how it is configured by the environment (Tauber, 2016). This information seeking system works by recording events (history) and facing them by creating productive answers (becoming). What we are is the history of our answers to the challenge of becoming (cfr. Simondon, 2005).

If this is what life is about, difference is *prima facie* not something to be rejected or eliminated, but to be incorporated as precious information. Dualism tends to emerge when the process of life is seen in a chiefly defensive light: friend and enemy, good and bad, inner and outer, self and other, etc. Sometimes this is accompanied by a tell-tell language of contamination: as an example, the Ku-Klux-Klan, in its heyday, saw itself as the white blood cells of the USA (Bula & Garavito, 2013). This path leads to individualism, to transcendental and normative models of action (Braidotti, 2002), and to unbearably facile conceptions

of reality, where some single thing is the enemy and the cause of all evil. To go beyond such puerility, one must engage in more complex descriptions of reality, and adopt some kind of ontology of multiplicity (Grosz, 2017).

§19

Bodies, ecologically understood, are not a mere collection of cells and organs: as sites of experience, as lived bodies, they only exist in their meaning-generating connection with the world (Merleau-Ponty, 2012). Once we understand that living is producing a lifeworld, the dualism of world and body is revealed as artificial. With the concept of lifeworld, Husserl (1989) means the environment in which human life actually happens, that is, the world as we experience it: whatever physics has to say, *our* world is not made up of atoms (save, perhaps, parts of the lifeworld of a physicist). The term *Umwelt* has been used to describe the lifeworlds of different biological organisms (Cf. Uexküll, 1934; Buchanan, 2008); how the world is given to the embodied consciousnesses of bees, dogs, and ticks. And it is in this world that bodies appear as lived bodies.

Do we therefore live as windowless monads, each in our own lifeworld? Absolutely not! The problem of interanimality (cf. Buchanan, 2008), of the connection between apparently closed off *Umwelten* is solved precisely because the creation of meaning, the bringing forth of a lifeworld, is produced through resonance with other living bodies. Resonance has to do with the affective character of the world (*Stimmung* —cfr. Husserl, 2004—) that is given through bodies own affective states. Therefore, to resonate with other bodies is to resonate with other *lifeworlds*; and the coordination between bodies in coexistence leads to the constitution of a common world. The lifeworld, as a subjective world, contains in itself a multiplicity of meanings, historically constituted (Garavito, 2022).

Resonating with other lifeworlds in the constitution of a common world is an affective experience. Whereas cognitive

psychology conceived the personal world as something solipsistically private and confined to a single mind, a perspective that sees the world as both subjective and intersubjective proposes that the private is in interaction with the public. This can be seen in the way bodies express themselves, in the way that they deal with the world. According to Colombian philosopher Laura Quintana (2021) affects (as opposed to emotions or feelings, which are usually understood as private phenomena), are essentially relational. Affects cannot be understood as something that occurs within an individual; rather the individual is an instance of a collective force that produces common worlds. For Quintana, the militarizing immunitary logic we have been criticizing is at the heart of social problems. Social systems are paranoid and see the common world as something to be protected. This paranoia leads to social practices in which militaristic metaphors become public policies, such as restrictions on immigration, militarized riot police, etc. (Cfr. Sloterdijk, 2012).

<div align="center">§20</div>

The task of living can be seen as a kind of haptic cartography: going down different paths, looking for openings and passages, orienting and re-orienting oneself, facing, from time to time, a *cul-the-sac*, an open landscape, a rocky trail, a smooth and pleasant path. Overall, the place that is being mapped is a desert: open, wild, and indifferent to our needs or preconceptions (Deleuze and Guattari, 2005; Massumi, 2002).

Wayfarers all: nomadic existence moves without transcendent plans or previously structured guidelines. Wandering beggars: seeking alms in each new place, learning all that can be learned from others. Nomadic ethics has this in common with Innerarity's ethics of hospitality: it leaves the door open for unsuspected treasures. "Be not forgetful to entertain strangers: for thereby some have entertained angels unawares" (Heb: 13, p. 2). The nomadic ethos implies going from a militarizing immunitary logic (Quintana,

2021) to an immunitary logic of openness. The affects that impede transformations should be replaced with those that produce an openness to difference: empathy, curiosity, desire, etc.

§21

Travelling need not go from A to a pre-determined B. Striving to get to the top, to win, going for the gold; these are goals one can reject. In the words of the protagonist of *Trainspotting*:

> Choose a life. Choose a job. Choose a career. Choose a family. Choose a television. Choose washing machines, cars, compact disk players, and electrical tin openers. Choose good health, low cholesterol, and dental insurance. Choose fixed-interest mortgage repayments. Choose a starter home. Choose your friends. Choose leisurewear and matching luggage […]. Choose sitting on that couch, watching mind-numbing, spirit-crushing game shows. […]. Choose your future. Choose your life. But why would I want to do a thing like that? (Macdonald, Figg, & Boyle, 1996)

This is not to say that heroin addiction (as perhaps celebrated in the film) is any kind of active or creative response (it is, rather, the misery of the reactive neurotic; Deleuze, 2007). But young Mark Renton has a point: to follow the straight and narrow path to a pre-set destination means that all trajectories but one is eliminated. From home to work and back again: fatigue, frustration, apathy, boredom (Arnett, 2004; Han, 2016; Ehrenberg, 2010). Is there no alternative? (cfr. Fisher, 2009).

§22

Nomadic ethics takes wandering seriously: "If you are ready to leave father and mother, and brother and sister, and wife and child and friends, and never see them again —if you have paid your debts, and made your will, and settled all your affairs, and are a free man— then you are ready for a walk" (Thoreau, 1863, p. 161). Not having a particular home or destination, nomadic wandering releases living from

any debt with supernatural entities —The State, The People, Nature, God, The Promised Land (Thoreau, 1863).

If becoming is the nature of reality, if existence is both historical and destined to mutate towards novel forms, ontology must keep up, and be constantly challenged (Deleuze, 2001). If there is no ontological tack holding things in place, then reality is a mess: an exciting and unavoidable mess (Law, 2004).

Nomadic adaptation is the ability to face this mess (Khazanov, 1981). For this reason, nomadic wandering must not be understood merely as walking freely or anarchically within open territories as a kind of tourist. In order to learn and create, we need contact, contagion. The first step is to recognize the role of others in my own subjectivity (Quintana, 2021); the second is to embrace this fact of life. Creativity is only possible through engagement with the other. This is the principal characteristic of nomadism: "its indissoluble and unavoidable connection with the outside world" (Khazanov, 1981, p. 142).

§23

Otherness can come from inside: we sometimes blurt out opinions we didn't know we had or find within ourselves the growth of new feelings and desires that, initially, look like housebreakers rather than welcome guests. There is no dialectical opposition between inside and outside but rather, a productive relationship related to the processes of exploring territories and incorporating new ways of being (Nandi and Sarin, 2001; Tauber, 1996).

In fact, there is no dialectical opposition between nomadism and territorializing structure: no wandering is possible without campsites or reference points; no reconfiguration of identity is possible without a previously existing identity. If Black Sabbath invented heavy metal, they did so by modifying the existing genres of psychedelic rock and, especially, blues, as is evident in their first two albums (cfr. Bula, 2010). There are interesting relationships between nomadism and sedentarism in terms of economy,

resource availability, subsistence sources, and population size (Khazanov, 1981). In our attempt to overcome the dualism of the internal and the external, we have, admittedly, overemphasized nomadism. The productive relationship between nomadism and sedentarism is a necessary topic for further research; this dualism should also be overcome.

## Conclusions

### §1

The beautiful ethical lesson derived from thinking about the immune system is that the adventure of living is all about "problem-events" and constant interactions between inside and outside (Deleuze and Guattari, 2005, p. 365). Nomadic ethics highlights the importance of movement and adaptations well as the need for active and dynamic modulation of our responses to environmental challenges. This view of life contrasts sharply with one that could be called paranoid: it is all about eliminating enemies and establishing control (over language, nature, affects, even chance) (Zoja, 2013).

### §2

We have used a discussion in biology (about the nature of the immune system) to build an ethical outlook (nomadic ethics). This interdisciplinary move requires further discussion:

> Disciplinary fields are a point of departure. Concepts are nomadic: concepts are neither invariable 'things', nor do they change only in time. The way they function and change depends on their cultural embedding: a concept in one discipline may operate differently than in another, making travel from one milieu to another a factor of modification. (Surman, Stráner, and Haslinger, 2014, p. 2; cfr. Braidotti, 2006, p. 7)

Working in between disciplinary fields provides a space for novel thought. Specifically, ethical thoughts: grasping realities through

theoretical frameworks leads to ethics —i.e., the constitutive practical nature of ontological principles (Deleuze, 1990; Hardt, 1993).

§3

How is one to creatively respond to a world composed of generative forces and diverse relations among multiplicities of beings and events? A world composed of unpredictabilities: pains and pleasures, hopes and horrors, intuitions and apprehensions, losses and redemptions, mundanities and visions, individuals and communities, things that appear and disappear, change shape, or have no form at all (Law, 2004).

We tend to face uncertainty through a paradigm of command and control: gather data, produce a complete, precise and reliable model of the situation, control the situation in detail (see Heidegger, 1977). Just think about recent ideas of Big Data generation, Bid Data acquisition, Big Data storage, and Big Data analytics within the framework of governance and political-administrative decision-making processes (Al-Badi, Tarhini, and Khan, 2018). The aim is to make events predictable, and to make life the subject of control (Sanderson, 2003).

We would prefer to explore a humbler alternative. Yes, we want to understand. But understanding can be partial, tentative, metaphorical, even mythical (is this not the origin of scientific thought? See Lloyd, 1999). Understanding can eschew pretensions of universality, and use new concepts and methods adjusted to becoming (Law, 2004). What if we say realities cannot be completely understood? What if our endeavors to know work under the premise that "events and processes are not simply complex in the sense that they are technically difficult to grasp (though this is certainly often the case)", but rather, "they are complex because they necessarily exceed our capacity to know them"? (Law, 2004, p. 6). Nomadic ethics calls for a nomadic epistemology.

It also calls for a nomadic form of planning, and of institutions. "Planning" is usually understood in the restricted sense

of "exhaustive planning" (anything else is sloppy planning): the city planner, the business strategist, must know with maximum accuracy what is going to happen in three months, two years, five. This causes a feeling in planners that they must control everything in order to do their jobs well: the planner's itch (Bula, 2021). But another kind of planning is possible: one can plan for self-organization; that is, one can put in place structures that help the emergence of the new and creative, without knowing exactly what will emerge (cfr. Bula, 2021 for the case of city planning; Bula 2015 for the case of education).

§4

Lockdowns, curfews, isolation, etc., are sometimes necessary emergency measures in high-risk scenarios; but they can only be temporary (and if the current social order can only subsist if such restrictions are permanent, then we need another social order). Certainly, if something unexpected arises we need time to understand and design adequate responses. But, if extended and exaggerated, even in the name of health, they can be detrimental to life (e.g to mental health, Kischhoff and Kiverstein, 2019). Indeed, uncertainty is essential to life. The immune system "situated at the crucial point in which the body encounters what is other than itself, it constitutes the hub that connects various interrelated entities, species, and genera such as the individual and the collective, male and female, human and machine" (Esposito, 2011, pp. 148-149), shows us that self-protection involves an opening towards the other, and exposure to risk.

§5

This does not mean that risk is an absolute value. In a better world, certain kinds of risk are minimized. Let us look at peacemakers, people who live, love, work, eat and sleep in the midst of armed conflict — certainly the most unstable and uncertain of social milieus:

This kind of life can be dangerous and difficult, and sometimes I've had to rely on dumb duck to stay safe. In Malakal, South Sudan, I left my hotel just a few hours before heavy fighting broke out there. In North Kivu, Congo, I found a driver who had 'brothers' and 'cousins' in all of the rebel groups and army units deployed in the area, so he always made sure we would be safe on the road. I trusted him with my life, literally.

I've become relatively good at protecting myself. I've found out that bulletproof vests are heavy and uncomfortable and not really made for slight women like myself –especially when you put them on backward, as I did the first time. In fact, the vests mark me as a potential target, so I never wear them. Instead, I've learned to develop an adequate understanding of the area I'm in, to build a sufficient network to avoid ending up in the wrong place at the wrong time, and to establish contingency plans in the event I don't come back from one of my meetings or visits. I also listen to my gut and leave them when something looks suspicious —as I did the day I met with a Congolese lieutenant whose leery smile, slurred speech, and aggressive talk made me nervous, or the evening one rebel leader told me point-blank he 'knew' I was a spy for the French government. And I had to answer for the state officials who start flirting instead of answering my questions —'Miss or Mrs. Autesserre?' 'It's professor!'. (Autesserre, 2021, p. 7)

Far be it from us to romanticize such a life as *prima facie* desirable! It is admirable, indeed, but in a better world, such heroics would not be necessary.

A distinction must be made between migration caused by dire necessity and nomadism. Migrants go into the uncertain, the unforeseen, to seek shelter, protection, security —they go from one point to another, even if the last one is unknown. In contrast, relays determine nomadic movements: campsites, refuges, sanctuaries reached only to be left behind. "The life of the nomad is the intermezzo" (Deleuze and Guattari, 2005, p. 380). Nomads undergo processes of change occurring within multiplicities in

becoming. They explore, look for opportunities in new environments, bargain: nomads are similar to bandits (Hobsbawm, 2000).

### §6

Nomadic ethics challenges the old notion that the new can only be incorporated by assimilation to the old (e.g., "the trunk is the elephant's nose"). Nomadic ethics call for alternative conceptual procedures that can know the strange as strange (Hui, 2019). This is an ontological step which is followed by an ethical one: the realization that understanding the real outside is more interesting than our subjective inside. Reality simply surpasses all our cognitive and sensory apparatus (Hui, 2019).

### §7

What is the ethical import of discussing the immune system? It helps us think about identity; not in a subjective sense (cfr. Miller, 1993), but in an ontological sense. The immune system is an example of a biological network capable of learning, changing, and creating through exposure to difference and internal communication. It is a springboard to think about bodies as highly complex processes that can be understood nomadologically. In his Ethics, published posthumously in 1677, Spinoza stated that "what the body can do no one has hitherto determined "(E3P2S). Let us attempt this task.

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