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## From “Sign-Traces” to “Human-Trace”.

### The Production and Interpretation of Traces from an Anthropological Perspective

Béatrice GALINON-MÉLÉNEC<sup>1</sup>

**RÉSUMÉ.** Dans cet article, Béatrice Galinon-Mélénez explique comment, après avoir étudié le rôle des comportements en situation de recrutement, elle en est venue à définir le paradigme des signes-traces et celui de l’Homme-trace. Le paradigme de l’Homme-trace postule d’une part que les interactions de la personne avec son environnement s’inscrivent dans tout son corps, y compris dans le cerveau et, d’autre part, que ses pratiques produisent des signes-traces dans l’environnement. L’ensemble fonctionne en boucle, dans un processus d’intériorisation de l’extériorité et d’extériorisation de l’intériorité, processus qui constitue un système d’interaction de signes-traces.

*Mots-clés :* Anthropologie et communication. Les limites de la rationalité. Les signes-traces du corps. Le paradigme des signes-traces. L’échoïsation des signes-traces. Le paradigme français de l’Homme-trace.

**ABSTRACT.** From “Sign-traces” to “Human-trace”. The Production and Interpretation of Traces from an Anthropological Perspective. In this paper, Béatrice Galinon-Mélénez explains how, after studying the role of behavior in terms of recruitment, she came to define the paradigm of “signes-traces” (“sign-traces”) and that of “Homme-trace” (“human-trace”). The “Homme-trace” paradigm assumes on the one hand that a person’s interactions with their environment are written all over their body, including in the brain; and, on the other hand, that their practices produce sign-traces in the world around them. The whole operates in a feedback loop, a process in which externality is internalised and vice versa.

*Keywords:* Anthropology and communication. The limits of rationality. The sign-traces of the body. The sign-trace paradigm. The echo effect of sign-traces. The French paradigm of the “Homme-trace” (“human-trace”).

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## PRELIMINARY NOTE

The aim of this chapter is to give a brief summary of several studies and publications that have lead the author to create the anthropological paradigm of the “Human-Trace”.

The first part of this article recounts each step of the procedure, presenting both theoretical and practical source material. The author begins by analysing the parameters that have an impact on interpersonal communication in the work environment (I. 1, leading her to “Thinking Differently About Recruitment”<sup>2</sup> (I. 1. 1). It seems to her that, in this context, participants underestimate the role the body plays and the signs it emits (I. 1. 2). In order to render certain interactive processes visible to the participants she has had to choose words that non-academics would understand, an interface between theory and practice (I. 2). The author begins by distinguishing between trace and imprint (I. 2. 1). Then, in order to clarify the processes that are in place, she incorporates the “corporeal sign-traces” (I. 2. 2). The body appears not only as medium, an unavoidable interface initiating all connection between coexisting individuals, but also as matter in which the traces of an individual’s life story are engraved. These “corporeal sign-traces” are gradually placed in relation to other “sign-traces” (I. 3): primary sign-traces (I. 3. 1), secondary sign-traces (I. 3. 2), tertiary sign-traces (I. 3. 3), all of which are presented by the author in an illustrative table. As the analyses progress, these sign-traces appear muddled and complicated (I. 4). The author continues by stating the limits of the classifications (I. 4. 1) and proposes a non-specialised terminology of the sign-trace by applying it to everything that attracts an individual’s attention; this attention is itself a sign-trace (I. 4. 2). The hodgepodge of interactions between human and non-human sign-traces produces a complexity that highlights the limits of human rationality (I. 5). In other words, a scientist is tempted to push the limits of his reason even further by applying interpretive methods that are more rigorous than those used by the general population (I. 5. 1). The author tested these methods in order to interpret corporeal sign-traces (I. 5. 3) and concluded that all judgement is the product of an interaction between sign-traces (I. 5. 3). The figure of the “Human-Trace” steadily emerges as a new paradigm in communicational anthropology.

In the second part of this article, the author presents the figure of the “Human-Trace” by introducing the term *surroundings* (II. 1. 1) and giving a first definition (II. 1. 2). She asserts that, in a transversal anthropological vision in time and space, the Human-Trace is both a producer of traces and a product of traces operating in a constant feedback loop that becomes a system. The author draws attention to the fact that even if there is general agreement about the external aspect (Man as producer of traces, II. 2), it could not be understood without including the hidden aspect (Humans as products of traces, II. 3). The author mentions the works on Humans as producers of traces (2009-2013) that have already been carried out under her supervision and that have been published, for the most part, by the CNRS (France’s National Centre for Scientific Research). She then communicates the subject of her current research (Humans as products of traces), outlining its theoretical starting point (*habitus*) in the light of recent research on the plasticity of the brain. She draws on these findings to shift the meaning most commonly given to the visible or invisible nature of signs and

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<sup>2</sup> This title refers to the developments presented in Galinon-Mélénec Béatrice, (2007), “Thinking differently about communication”. Paris, L’Harmattan.

returns to the notion of sign-trace. Both aspects of the sign (index-based in relation to the past and signal in relation to the attention it is given) once again appear here as the interactive result of sign-traces that functions just as well between the body matter as a whole, opening up to sentient space, as it does in the realm of consciousness conscience. Intuition again becomes important, and the Western view of the connections between subject and object and Man and his surroundings (II. 4) is subject to thorough scrutiny.

In her conclusion, the author returns to the original problematic: communicational interactions in the process of recruitment. In light of the previous findings, she contextualises the impact digital-traces have on recruitment. Defining the figure of the Human-Trace allows her to bring to the attention of applicants the fact that activating traces they wish to make immediately noticeable and burying those they do not, which would then require the recruiter to carry out an archaeological study, makes the different behaviours part of an approach that is not new. The production, application and interpretation of digital traces fall within ancestral processes, just like any other form of trace. By understanding the system that connects them, the source of their value can be situated in an interaction of multi-scaled sign-traces that underpins the interest taken in them.

## I – FROM COMMON SENSE TO SCIENTIFIC SENSE

### 1.1 – *Observing a Professional Situation*

#### I. 1.1 – Recruitment

Recruitment practices are slow to change<sup>3</sup>. In this chapter, we will summarise a few general trends of the 20<sup>th</sup> and 21<sup>st</sup> centuries.

Once a company has established the position it is offering and the type of applicant it seeking, recruiters should more often than not specify and rank the behavioural expertise required for the position. Once the position is advertised, the media for which the today are increasingly diverse, applicants send their *curriculum vitae*<sup>4</sup> to the company or recruitment office. Only applicants whose details correspond to pre-established interpretative grids are selected for an interview.

The interview places people in a situation of coexistence. The conversation, which may or may not be friendly, begins with the recruiter asking the applicant about his or her professional experience and the skills he or she believes to have developed as a result. The recruiter becomes an investigator seeking to identify the candidate's personality based on their gestures and body language, the spatial organisation of their

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<sup>3</sup> Part of these observations and conclusions were presented in 2012 at a conference at the Pôle de Recherches en Sciences Humaines (Centre for Research in the Humanities and Social Sciences) of Le Havre under the title Béatrice Galinon-Mélénec, *From Sign-Traces to ST. From S-T to the Human-Trace* [orig. "Des signes-traces aux ST. Des S-T à l'Homme-trace"] in *Multidisciplinary Approaches in Research in the Humanities and Social Sciences* [orig. *Approches croisées de la recherche en SHS*], a seminar whose proceedings were published by Rouen-Le Havre University Press.

<sup>4</sup> The curriculum vitae establishes itself as a systemised technique in Northern Europe. Survey participants see this method as part of the phase "first cull of applications" in *The Evaluation Methods of Recruiters: Situation, Changes and Determinants* [orig. *Pratiques d'évaluation des recruteurs : situation, évolutions et déterminants*] in Sonia Laberon (dir.), *Psychology and Recruitment. Models, Practices and Normativities* [orig. *Psychologie et recrutement. Modèles, pratiques et normativités*]. Brussels, De Boeck, 2011, 79.

conduct and the quality of their voice, etc. The recruiter provides the candidate with stimuli and studies their reactions. His judgement is based on subconscious or learnt categorisations. He assimilates the behavioural signs to *sign-signals*<sup>5</sup> to which assessment criteria<sup>6</sup> are associated (example: leaning forward = being attentive<sup>7</sup>).

### I. 1.2 – Analysis

Various recruiters draw on publications on body language just as they might consult a dictionary. Such books visualise a certain gesture and attribute a meaning to it. However, in doing so one is assuming that a gesture functions in much the same way as a word, which is a crucial mistake. It is true that such assimilation conceals the fact that the body sends out an array of signs and that the act of concentrating on just one sign produces an artefact. In this article, a sign<sup>8</sup> that incites the interest of recruiter t is called a “sign-signal”. That being said, a sign does not produce this effect per se: the attention given tells as much about the recruiter as it does about the sign itself.

Nevertheless, if, like E. Goffman (1973), we admit that Man is himself also responsible for what happens in and to the world, we therefore also admit that a human being, in this case the applicant, can voluntarily make visible any artificially<sup>9</sup> set and immediately interpretable<sup>10</sup> *sign-symbol*. By using a sign-symbol, the visibility of a sign increases, which leads the other (in this case the recruiter) to focus on this specific sign. The sign-symbol thus becomes a sign-signal. This method reduces not only the number of signs to which the recruiter pays attention (other signs being set aside), but also their openness to interpretation (the sign-symbol corresponds to a collective interpretation that is divided)<sup>11</sup>. This sign, set apart from

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<sup>5</sup> Signs are double-sided: on the one hand they refer to the past (it is in this context that we attribute an *indexed* value) and on the other hand they refer to the present by drawing attention (it is in this context that we attribute a *signal* value). As will soon be demonstrated in this article, the double dimension of a sign is worth questioning, based on a new definition of the sign that we shall call “sign-trace”, in order to distinguish the approaches developed in the 21<sup>st</sup> century by semiologists and semioticians. We will see that *sign-traces do not always function when in isolation: they are always the result of interactions*. This process enables fragments of reality to be distinguished (*signum*: to sign, to distinguish), and reveals its existence and its meaning (a revival of the definition of the sign in France in 1580).

<sup>6</sup> “One of the characteristic traits of human language is the continual body movement that accompanies almost anywhere the effort of verbal communication. Among the components of this behaviour, manual gesticulation is the one that best translates, even if it sometimes betrays, the nuances of thought that are expressed. The unconscious structures of the mind, even perhaps the fundamental concepts of the culture of which language is one of the vehicles”. Cresswell, R., (1968), *The Manual Gesture Associated to Language* [orig. Le geste manuel associé au langage], in *Languages*, 10, 119. See also Birdwhistell, R. L., (1968), *Kinesthetic Analysis* [orig. L’analyse kinésique]. *Languages*, 10.

<sup>7</sup> Morris, D., (1994). *The Language of Gestures* [orig. Le langage des gestes]. Paris, Marabout, 23.

<sup>8</sup> “What we call signs should be seen as the result of complex operations, throughout which diverse modalities of production and of recognition come into play” “processes of semiosis are even active in perception,” Eco, 7.

<sup>9</sup> For a better understanding of the general techniques of manipulation, see *A short Treatise on Manipulation for the Use of Honest People* [orig. Petit traité de manipulation à l’usage des honnêtes gens], de Beauvois, J.-L. & Joule, R.-V., Grenoble, PUG, 1987, 232.

<sup>10</sup> Goffman, E. (1973). *The Dramatisation of Everyday Life* [orig. La mise en scène de la vie quotidienne]. Paris, Éditions de Minuit.

<sup>11</sup> Morris, D., (1994). *The Language of Gestures. All the Keys to Decipher the Silent Expressions of Gestures and Attitudes* [orig. Le langage des gestes. Toutes les clefs pour déchiffrer les

others, becomes functional, all other things being equal<sup>12</sup>. Interpretive instantaneity of the sign-symbol falls within a semiotic connection to the world that is much too rudimentary for the complexity of reality. This instantaneity leads to forgetting the rules and standards that define its meaning, as well as that which influences the conversation, the source of assessment criteria and the judgement<sup>13</sup>.

There are actually many different corporeal signs. Contrary to words written down on a page, they are not set once and for all. As will later be presented, they are the result of constant interactions between the body and the environment.

In short, these observations have led us to conclude that corporeal signs are not stable, and nor is their interpretation. Consequently, it was important to invite the recruiters to remember at least the following:

- Immediate visibility and presence of corporeal signs must be differentiated;
- Interpretation reveals as much about the person interpreting as it does about the one being interpreted.

Differentiating between sign and sign-signal proved to be difficult to convey in a professional context, and yet the difference between the two was very easily integrated. To be precise, in the professional practice of the recruiter the sign remained assimilated to sign-signal and the term “sign-trace” meant it was possible to make a more intricate representation of the communication that takes place during recruitment. This led us to deepen our understanding of the concept.

## ***1.2 – Choosing meaningful words. Interfaces between theory and practice***

From our point of view, signs are also traces. The difficulty lies rather in the fact that this assimilation cannot be carried over to cultural or social groups. The association of both terms (sign and trace) in one terminology (“sign-trace”) aims to recall the sign’s double-sided character and to separate the previously cited interpretative models essentially concerned with just one side: the sign as assimilated to sign-signal. This is what initially led us to mention the existence of “*corporeal sign-traces*” that may not necessarily be visible but that are nonetheless real. This description hopes therefore to highlight the fact that an individual’s life story is forever embodied in the body. Hence when two individuals are in the same space, each body shows, internally and externally, the traces of their story. The bodies, hodgepodes of sign-traces, are physically present. Yet presence does not mean that they are visible or that they have been seen.

The difficulty is that by complicating things, the understanding of *corporeal sign-traces* strays from what is called “*fast thinking*” (Bourdieu, 1996)<sup>14</sup>. The question is then to know the extent to which this approach is acceptable by companies<sup>15</sup> that are

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expressions silencieuses des gestes et des attitudes]. Paris, Marabout.

<sup>12</sup> For Desmond Morris, four sections accompany each gesture: “Meaning, Action, Circumstance, Region”.

<sup>13</sup> All in all, an individual trace is only understood as replaced in the collective, in the surroundings.

<sup>14</sup> Expression used by Pierre Bourdieu regarding the information found on television and in media, where journalists favour common sense (and therefore do not bring true added value to the awareness of viewers) to the detriment of scientific knowledge and its analyses. See Pierre Bourdieu, *On Television* [orig. Sur la télévision]. Liber, 1996.

<sup>15</sup> The relation individuals have with time is a *sign-trace* because the relation with time as sign shows traces of interactions between the individual and his or her environment.

under short-term pressure, which is why, in order to facilitate progressive assimilation, we not only rely not only on terminology that is simple without being simplistic, but also on a specific didactic both in the initial training phase and in on-going training<sup>16</sup>.

### I. 2.1 – Trace, imprint or sign-trace?

People most often ask about the difference between trace and imprint. It is therefore important to make it clear that we distinguish between the concept of trace and that of imprint in terms of degree. The origin of the term “*imprint*” comes from the verb “to impress on” (1213), from the Latin *impremere*, meaning “to press”. Its meaning is first and foremost (1250) “to mark by applying pressure to a surface”<sup>17</sup>.

The term “trace” has more varied uses enabling it to include the infinitesimal or even the invisible. Homeopathy, for example, is an alternative medicine founded on successive dilutions that render original molecules undetectable<sup>18</sup> by modern science without actually interrupting their effects that endure complex processes. We speculate on the existence of certain traces even though they might not currently be visible, understandable or subject to interpretation. These traces simply provide evidence that Man is limited in his ability to see, understand and interpret them.

We decided to keep the term *trace* for its greater degree of generality and nuance<sup>19</sup>, and have therefore introduced the term “*sign-trace*”. The term “trace” refers to the past processes from which it originates, so by renaming it as “*sign-trace*” we hope to convey the fact that the processes continue and integrate its observation and interpretation.

### I. 2.2 – The “corporeal sign-traces”<sup>20</sup>

By introducing the expression *corporeal sign-trace* in a more theoretical way, we have changed the notion of *habitus* (Bourdieu, 1979)<sup>21</sup> with its systemic dimension of interiorising exteriority (of incorporation) and of exteriorising interiority (by way of lifestyle, habits or social judgement). The concept of *habitus* is not a new one<sup>22</sup> and

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<sup>16</sup> Observation of various training methods designed for a company setting indeed shows how, basing their legitimacy on serious research, complex theories have been simplified in practice. NLP is one example of this.

<sup>17</sup> Bearing in mind that the historical use of the terms “trace” and “imprint” illustrates a broader meaning in favour of the term “trace”, and that we consider the former to be a generic term indicating that the present results from previous processes (A. Rey, *Historical Dictionary of the French Language* [orig. Dictionnaire historique de la langue française]. Paris, Le Robert, 2006).

<sup>18</sup> The presence of traces is the subject of controversy and the placebo effect is therefore alluded to. Our answer to this would be that if the effect exists after all, it is – as we will write later in this report – because what is involved in the given effect results from a process in which everything is at stake in the continuum of interactions.

<sup>19</sup> Traces encompass imprints, which are traces connoted by a more emphasised marking.

<sup>20</sup> To create this new paradigm, we tried to grasp the irregularities of processes in action. Generalisation through induction presents in our view a pragmatic interest that is non-negligible. Nevertheless we consider, as with Popper, that all theories are hypothetical or conjectural and function in the same way as suppositions.

<sup>21</sup> Pierre Bourdieu, (1979). *Distinction: A Social Critique of the Judgement of Taste* [orig. La distinction, critique sociale du jugement]. Paris, Les Éditions de Minuit, Collection du sens commun.

<sup>22</sup> The concept of *habitus*, which Aristotle had conceived already, is associated with Mauss’s “body techniques”. Norbert Elias, Weber and Husserl were also concerned with this concept. We mention Pierre Bourdieu’s approach here for at least two reasons: the first is due to the fact that

“appears as a system of incorporated representations (in-body) that produces habits. Different situations of existence produce different *habitus* and different *habitus* produce different habits, which in turn lead to all *habitus* working as a system with a tendency to reproduce”<sup>23</sup>.

We have associated the concept of *habitus* with a section of contemporary semiotic communicational analyses<sup>24</sup>, some of which closely examine the role that corporeality plays in communication<sup>25</sup>.

## I. 3 – Classifying Corporeal Sign-Traces

We have progressively distinguished “corporeal sign-traces” from other sign-traces. The universal designation of “*sign-trace*” aims to suggest that all signs carry traces of the complexity of the intertwining of the living (be it human or otherwise) and the non-living, joined at the intersection of the representations referring to the past and the present and the projections of the future. Very diverse signs draw their origins from the same source.

The necessity to satisfy essential needs for survival produces sign-traces (from this necessity), and their production varies. The resulting sign-traces can be classified differently according to how significant their contribution is to the evolution of the human species.

### I. 3.1 – Primary sign-traces

First of all, corporeal *sign-traces* do not only concern human beings. They are linked to all kinds of corporeality, which is why they can be categorised as “*primary sign traces*”. For example, an individual entering a space takes on a particular dimension when this space is referred to as a territory<sup>26</sup> by (an) individual(s) who consider(s) it their own. Entering this space is therefore regarded as an intrusion, and the individual an intruder:

- For animals, any entry into “its” territory will provoke the emission of *sign-signals* (excretions, odours, cries, etc.). Entering regardless into a space that

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we first became aware of the concept through his work in *Distinction: A Social Critique of the Judgement of Taste* [orig. La distinction, critique sociale du jugement]. The second reason is related to the interest of the concept for processes linking interiority and exteriority, as well as for solving the antagonism between objectivity and subjectivity.

<sup>23</sup> A tendency to reproduce: linked to complex systems of transmission of *habitus* and unable to consider itself a simple determinism.

<sup>24</sup> In semiotics contributions to the notion of “sign-trace” resemble what Jean-Jacques Boutaud refers to as “*open semiotics*”: beyond a model or particular school or line of thought, this semiotic openness refers to the opening up of meaning through the complexity of the interpretative process. See J.-J. Boutaud & E. Veron, *Open Semiotics: Semiotic Itineraries in Communication* [orig. Sémiotique ouverte : Itinéraires sémiotiques en communication]. Paris, Hermès Science, 2007. J., Davallon, Y., Jeanneret, E., Flon, C., Tardy, *Traces of Writing, Traces of Practices, Traces of Identities* [orig. Traces d’écritures, traces de pratiques, traces d’identités]. In *The International Symposium H2PTM’09 Proceedings* [orig. Actes du colloque international H2PTM’09]. Paris, Hermès-Lavoisier, 2009, 181-191.

<sup>25</sup> J.-J., Boutaud (2007), F., Martin-Juchat (2008).

<sup>26</sup> Territory (Larousse Dictionary):

“Area of land that depends on any kind of authority or jurisdiction. (A State’s territory is the terrestrial, maritime or aerial space in which governmental bodies can exercise their power.)

Area of which an individual - or group of animals - gives itself the right of use.

A relatively well delimited area that an individual claims as his own and over which he wishes to keep his full authority: *His room is his territory*”.



has been forewarned in this way therefore provokes confrontational behaviour that represents both signs and traces (and consequently sign-traces) of the integration of the “sense” of ownership of the territory. Excretions, odours and cries constitute primary sign-traces.

- As E. T. Hall proved in “The Hidden Dimension”<sup>27</sup>, it is the same process for Man, whereby Man produces *signs* similar in nature to animals (cries, anger, etc.). With regard to his sense of ownership, it is also a primary sign-trace for Man.

The level of aggression towards an intruder varies; it can be more or less perceptible and more or less immediate. Assuming control of the immediate bodily reaction leads to the production of another kind of sign-trace: the secondary sign-trace.

### I. 3.2 – Secondary sign-traces

There is a time lag between the stimulus and the sign-trace reaction. The secondary sign-trace implies a diagnosis of the origin of the intrusive behaviour (conscious or not, a sign of ignorance or of arrogance, a random gesture or motivated by vital needs, etc.) and of the consequences of such an intrusion. Taking the distance needed in order to allow a sign-trace to pass from “primary sign-trace” to “secondary sign-trace” means defining where rationality and associated control come into effect.

- Secondary sign-traces constitute a very large body, including:
- Techniques (also called “artefact sign-traces”) that an individual uses in order to free himself of immediate obligations and be able to best satisfy his needs.
- Borders drawn on a map.

In fact, everything is considered a secondary sign-trace unless it is:

- A primary sign-trace associated with corporeality, which living beings have in common and which does not assume any a priori rational distance.
- A tertiary sign-trace that results from an analysis of Evolution and of the rules of behaviour that Man takes on in order to express his humanity.

What is considered a secondary sign-trace clearly varies and fluctuates in time and in space, and this happens in different ways depending on the culture.

### I. 3.3 – Tertiary sign-traces

Each society determines what it deems acceptable in terms of values, and institutes rules of law accordingly, which perfectly illustrates the nature of “tertiary sign-traces”. When it comes to human behaviour, sign-traces are principles of generality<sup>28</sup>. They are a product of men who agree on the need to respect a set of rules and values in order to regulate their relationships.

Once institutions consider these forms of behaviour to be legitimate, they must set them up, make them known and implement them, and ensure sure they are respected. The organisation of a moral personality that is institutional<sup>29</sup> is also an example of a *tertiary sign-trace* of the Evolution of the human condition.

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<sup>27</sup> E. T., Hall, (1971). *The Hidden Dimension* [orig. La dimension cachée]. Paris, Points Seuil.

<sup>28</sup> In the previous paragraph, we briefly mentioned the complexity of the “*sign-trace*” interactions that encourage judgement (judgement is a secondary sign-trace).

<sup>29</sup> G. Lapassade (2006), *Groups, Organisations, Institutes* [orig. Groupes, organisations, institutions]. Paris, Anthropos, 5<sup>th</sup> Ed., 272, and R. Lourau (1971), *Institutional Analysis* [orig. L’analyse institutionnelle]. Paris, Éditions de Minuit.

### I. 3.4 – Summarising boxed texts

The following boxes give illustrative examples, as well as specifications with regard to terminology. They help simplify things and cannot be understood outside of their particular context (cf. *infra* and *supra*).

#### *Visibility and Invisibility of Objective Reality*

##### A hypothesis leading to a contextualised use of the term “sign”

The starting point of our analyses is based on the concept of *continuum* between the human world and the non-human world and on its multi-scaled dimension, which results in the fact that a large section is invisible to the naked eye. What follows is the assumption that there may exist an objective reality that would exceed the sentient reality of today’s human species. It is this hypothesis that incites many researchers to dig deeper in order to discover what exists beyond the visible. The latest scientific research shows that it is becoming increasingly plausible, based on mathematical calculations, that there exists a *black matter*, one into which light cannot enter, rendering it invisible, at least for the time being. This hypothesis results from a logical inference called *abduction*. This inference leads to formulating hypotheses that encourage us to make judgements of what we perceive and also leads us to carry out an investigation in order to gain access to what would exist if our inference were correct. In this regard, abduction is what initially drove us to push the limits of observation and reposition the dividing line between the visible and the invisible. Research that is increasingly separated from the world tends to incessantly reposition the representation that Man makes of it, thereby leading to the idea that Man only distinguishes one part of reality. We introduce discontinuity in the continuum of the world and by doing so we break it up into pieces, according to our observations.

Based on the idea that not everything that exists is visible, only the real that is visible can correspond to the notion of the *sign*.

According to the *Historical Dictionary of the French Language*, the French term “sign” comes from the Latin *signum*, one root of which is *secare*, meaning “to cut”, as *signum* originally refers to a mark made by incision<sup>30</sup>. This root leads to it being used in a way that is different to the English *sign* used in 1900 by Charles S. Peirce who, by distinguishing between icons, clues and symbols, gave each term its own definition. The specificity of Peirce’s method of conceptual clarification is not to be confused with any other. Now, a century later, we propose an approach we hope will stand out from authors of the late 19<sup>th</sup> and early 20<sup>th</sup> centuries (William James, John Dewey, Charles Sanders Peirce). This approach brings us to discuss the concept of the sign, to situate it in a process of interaction called “*the interaction of sign-traces*”<sup>31</sup>, all of which can be situated within a third-generational pragmatic aim<sup>32</sup>.

<sup>30</sup> Sign in A. Rey, (2006), *Historical Dictionary of the French Language* [orig. Dictionnaire historique de la langue française], Le Robert, 3505.

<sup>31</sup> See graph entitled “The Sign-Trace Paradigm”.

<sup>32</sup> First generation pragmatism is William James, John Dewey and the pragmatism of Charles Sanders Peirce. Second generation is Derrida. On this topic, see R. Rorty (1979) and (1982) quoted by Claudine Teircelin, *op. cit.*, 6.

### *Sign/Sign-Signal/Sign-Trace*

a) Being able to distinguish between signs in the continuum of the real is the result of a cognitive process that is a product of our life experiences (a complex mass of information that becomes interiorised through the interactions we have with the human and non-human environment around us). In this respect, the signal aspect of a sign being activated is confused with the fact that the attention given is a sign-trace of a person's life experiences.

b) If we assume that the present has a past, then it is always feasible to assume that the perceived sign is a key to the past anterior. It then becomes possible to know this past. The *present sign* appears as a *clue* to this past, which means that in order for the sign to become a clue, we must concede that the sign is a *sign-trace of this construction*.

c) It is by taking a) and b) into account that we propose the following working hypothesis:

*The interpretation of the real is an interaction between sign-traces<sup>33</sup>.*

*Analysis of the way in which sign-traces repeat themselves has resulted in information not only about the sign-traces themselves, their interactions and the dimensions of recognition via a memorial similarity of past experience but also about the environment in which these sign-traces have interacted.*

We will return to the above-mentioned hypotheses during the course of this report.

### ***An Example of SIGN-TRACE Typology in a Given Social Context***

At the same time as admitting that interpretation is an interaction of sign-traces, it is possible to envisage a sign-trace typology. That is, if it is understood that *taxonomy is itself a sign-trace* whose construction is also worthy of scrutiny. To illustrate a possible typology, we take a configuration of the real that corresponds to a "visible" reality (in the broad sense) in contemporary society and to it assign a qualifying term (primary, secondary, tertiary) that integrates evolution.

An example regarding the demarcation of territory:

- The growl of a dog as we enter its territory is classified as *primary sign-trace*.
- The symbolic outline on a map of territorial demarcation is classified as *secondary sign-trace*.
- The existence of a customs administration is classified as *tertiary sign-trace*.

A growl, an outline or the existence of an administration all form the sign-traces that prove a territory has limits. However, each sign is mixed with another trace: its level and the time it takes to develop. *A concept of sign-traces of societal*

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<sup>33</sup> See graph entitled "The Sign-Trace Paradigm".

*evolution* appears, whereby a sign-trace leads the process of classifying social anthropology (primitive societies, etc.)<sup>34</sup>, for example.

*The level and the time it takes to develop*

- Tertiary sign-traces = *symbolic* signs collectively developed by a society.
- Secondary sign-traces = traces of *reason* in the sign.
- Primary sign-traces = no trace of reason in the sign.

### *The Instituted*

The instituted is the phase in a process that comprises the instituted, the institutor<sup>35</sup> and the institutionalisation (Loureau, 1971)<sup>36</sup>.

By institutionalising the rules that govern their relationships, people set them in stone and endow them with a particular inertia in relation to change, which is why tension exists between the instituted (whose goal is to protect the rules) and the institutor (that which wants to question the instituted so it will adapt to the evolution of contexts).

Note: For more on this, see B. Galinon-Mélénec (1998), “Organisational Inertia, Institutional Communication and Financing: the Case of the University” in Ch. Le Moëne, “Communication within Companies and Organisations”. Rennes, University Press.

To analyse institutions as tertiary sign-traces is to try to understand how they are established. This understanding constitutes the sign-trace of the interaction between two sign-traces.

To say that it is the result of the interaction between the *object* of interpretation and the *subject* doing the interpretation is also possible, at least in Western cultures that clearly distinguish between object and subject (a cultural sign-trace of the delineation of the real)<sup>37</sup>.

## ***I. 4 – The De-compartmentalisation of Classifications Enables the Re-establishment of Complexity***

### **I. 4.1 – The limits of classifications**

These classifications are practical. Nevertheless, they only take one part of the real into consideration. In fact, the concept of primary sign-traces is not only applicable to the sign-traces of the human body or even to any species with a body. This concept is applicable to all matter.

All matter is both the sign and the trace of what creates it and so is a “sign-trace”.

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<sup>34</sup> As indicated above, this typology is itself a sign-trace, whose construction also merits scrutiny.

<sup>35</sup> That is to say, the results of interactions between men who make up this society.

<sup>36</sup> We will not return to these previously presented developments. We refer to R. Lureau & G. Lapassade (1971), *Keys for Sociology* [orig. Clefs pour la sociologie]. Paris, Seghers.

<sup>37</sup> See *supra* and A. Berque (2009). *Ecumene. Introduction to the Study of Human Environments* [orig. Écoumène. Introduction à l'étude des milieux humains]. Paris, Belin.

#### I. 4.2 – Universal use of “sign-trace” terminology

Generalising the *sign-trace* paradigm boils down to stating that everything that is human or non-human is a-historical. This perspective results in a kind of “*General theory of sign-traces*”, where everything is *sign-trace* and everything is a matter of intertwining systems of interactive *sign-traces*. In this regard, if we admit that everything is sign-trace, the intertwining nature of human and non-human sign-traces enters into multi-scaled systems of interaction that entail complexity.

The entanglement of orders of scale leads to a complexity that forces Man, who seeks to “think” the world, with a view to acting upon it, to implement representations that reduce complexities. This gives rise to models and taxonomies. As representations that simplify complexities, these acquire the force of proof for the group adopting them. Profitable insofar as they underpin action, they lead to the creation of exclusions without any real foundation, making it necessary to organise interpretative methodologies in order to protect oneself as much as possible from significant errors of judgement.

### I.5 – Limits of Rationality in the Face of Complexity

#### I. 5.1 – Methodology

Complexities make interpretation difficult<sup>38</sup>. To imagine providing a definitive interpretation is an *illusion*, so we will keep from doing so. Nevertheless, the need for action requires coming up with hypotheses. Even if the future will eventually reveal their limitations, they allow for choice as an attempt to reach *optimisation subject to constraint*. Fully aware of the risks of interpretation, it is possible accordingly to try to limit them by different methods, including:

- The “Tom Thumb” method: for the majority of authors<sup>39</sup> this refers to *deliberately* leaving *sign-traces* in order to find the same path back.
- The cartography method<sup>40</sup>: enables traces to be drawn in relation to one another, which in turn allows for the distance between them and nearby elements to be determined.
- The contextual method<sup>41</sup>: applies to the context being taken into account both in the production and in the interpretation of *sign-traces*.
- The historical method<sup>42</sup>: by definition no *sign-trace* is a-historical. This dimension must then be reintegrated into the interpretation of present *sign-traces*, be they material or not.
- The quantitative method<sup>43</sup>: aims to reach a “critical mass” that allows for the *sign-traces* to be collected and separated. Even though it may not be

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<sup>38</sup> E. Souchier (2008). *Internet, the Birth of a Divinatory Writing* [orig. Internet, naissance d'une écriture divinatoire] in *Communication and Languages* [orig. Communication & langages], 158, 93-106.

<sup>39</sup> For example, the fact that Web users leave numerical traces enable them to retrieve *the path* of their browsing, or even of their associations of ideas or of their reasoning.

<sup>40</sup> E. Souchier & P. Robert (2008). *The Map, a Medium between Semiotics and Politics. The Map on the Border of Communication Sciences* [orig. La carte, un média entre sémiotique et politique. La carte au rivage des SIC] in *Communication & Languages* [orig. Communication & langages], 2008, 25-29.

<sup>41</sup> This is very much used, in particular in communication sciences.

<sup>42</sup> B. Galinon-Mélénec (2011) and L. Merzeau (2011).

<sup>43</sup> In principal, this method is used in criminology.

sufficient, reaching this threshold is necessary to avoid encountering a risk of excessive reduction of the complexities<sup>44</sup>.

These potential methods, introduced in order to channel the interpretative risks of *sign-traces* created by Man, gain efficacy when mixed together. They can be generalised to all kinds of *sign-traces*, including those that develop Man himself<sup>45</sup>.

### **I. 5.2 – Application of the interpretation of corporeal sign-traces**

As mentioned above, the “corporeal sign-traces” are both within and out. They are integrated in a continuous process of interiorising the exterior and exteriorising the interior.

Corporeal sign-traces are partly the outcome of a process that integrates the constant interactions between Man and his surroundings<sup>46</sup>. The environment produces stimuli, and there are also primary sign-traces (corresponding to Man-as-animal) in the sign-traces that come from this, just as there are secondary sign-traces (a philosophical thought resulting from a particular cultural level, for example), all of which function in a specific framework (a political regime is a tertiary sign-trace, for example). The interactive process between all these systems of sign-traces is a continuum of which the individual is more or less aware. The resulting sign-traces are more or less visible to a third party, but all behaviour and “body matter” are borrowed, at least if we admit there is no division between individual and environment. We will return to this last point in the second half of this report.

### **I. 5.3 – Judgement and “the echoing of sign-traces”**

As a consequence of what precedes, the meanings given to what we usually call signs are not to be searched for in the transmitter of the sign or in the receiver<sup>47</sup>. The interpretation is in the interaction of sign-traces between individuals.

When mutual recognition of sameness occurs in this process we talk of “*a positive echoing of sign-traces*”. This determines the type of relation that exists between two individuals and leads to behaviour that is either open or not open. This phenomenon happens subconsciously and can become objectified in a judgement, which in turn is what we consider to be a sign-trace insofar as it is a *sign-trace of interactions*.

## **II – THE HUMAN-TRACE PARADIGM**

The previous analyses progressively led us to develop the anthropological figure of the *Human-trace* (hyphenated). This new designation of what fundamentally constitutes the human condition aims to raise awareness of the fact that Man is by nature a “*Human-trace*” and that he has always been confronted with traceability, with the interpretation of *corporeal sign-traces*, and by the whole set of *sign-traces* that constitute the real. The distance thus created by the contemporary questions on traceability introduces a necessary relativity vis-à-vis the fears of a new century that tends not to resituate the consequences of the appearance of new tools in the context of the knowledge of human history.

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<sup>44</sup> Therefore of error in interpretation that can have serious consequences.

<sup>45</sup> Different branches of psychology demonstrate this.

<sup>46</sup> Simondon also confirms the principle of the inseparability of the individual and the environment. See *infra* B. Stiegler & G. Simondon (1964). *Individuals and their Physicobiological Genesis* [orig. L'individu et sa genèse physico-biologique], Grenoble.

<sup>47</sup> Our perspective complements that of authors who understandably began by stressing, in certain contexts, the receiver's role in the construction of traces.

Each and every human being, finding himself in a several millennia-old history and in a multidimensional space, is both a producer of traces and the product of individual and social history – his own and that of the generations that preceded him. Reflected by the real, the intertwined sign-traces that form him are so complex that human reason does not allow for them to be completely defined.

## ***II. 1 – The Figure of the Human-Trace***

### **II. 1.1 – Human-Trace and milieu**

The Human-trace is not taken from its surroundings, nor is it more generally from the environment. The Human-trace is in a set of multi-level interactions where nothing is discontinuous. The *Human-trace* is incorporated into a complex system where identified and designated elements function like the “cauliflower” of fractal theory, *pars pro toto*.

### **II.1.2 – General definition of the Human-Trace**

The *Human-trace*<sup>48</sup> is both a “*producer of traces*” and a “*product of traces*”<sup>49</sup>. Both dimensions function as feedback in mutual and permanent interactions<sup>50</sup> and constitute a continuous system of interrelations.

This definition requires clarification at each stage.

## ***II.2 – The Visible Side: Man as “Producer of Traces”***

### **II.2.1 – Presentation of method**

In order to test the validity of Humans as “producer of traces”, we invited a group of researchers to explore this within the scope of their scientific field. Sociologists, psychologists, geographers, philosophers, semioticians, computer engineers and researchers in information and communication science all worked on this project for over three years. The traces produced by that Humans are analysed and criticised in two publications<sup>51</sup> in which the term “trace” is developed in various ways.

### **II.2.2 – Production of traces: one generally accepted aspect**

The project’s findings show that authors do not always use the term “trace” in the same way, but all traces produced by Humans are detected as a result of permanent interactive processes. As such, the traces authors report on can be put in the *sign-traces* category, in the sense in which we have defined this above.

Integrating each author’s findings into the one research dynamic concerning the Human-trace improves our understanding of the intertwining character of the *sign-traces* that form the complexity of what it is to be human. The immediate

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<sup>48</sup> B. Galinon-Mélénec, *The Human-Trace. Contributions towards a New Anthropology in Communication* [orig. L’Homme-trace. Apports pour une nouvelle anthropologie de la communication] in A. Mille (dir.), Seminar, 14<sup>th</sup> February 2012. Paristech.

<sup>49</sup> We make reference here to an overview presented at the seminar on comparative epistemology in the Humanities and the Social Sciences (dir. Ch. Chevandier), Le Havre, March 2012.

<sup>50</sup> We have already mentioned above that the *Human-Trace* paradigm enables us to get beyond Aristotelian and Cartesian logic and the “I think, therefore I am” that posit Man, the “subject”, as independent from the observed “object”, be it human or non-human.

<sup>51</sup> B. Galinon-Mélénec (CNRS Editions, 2011) and B. Galinon-Mélénec & S. Zlitni (CNRS Editions, 2013).

consequence is the realisation that interpretive errors may arise when we fragment complex intertwining systems of *sign-traces*<sup>52</sup>.

The habits of Humans (or of one Human) at a particular time in their History (his or her history) appear as “*sign-traces of interactive traces*” between people and what surrounds them, whether that be other humans or non-humans, in a direct relation or not.

### ***II.3 – Man as Product of Traces: A Hidden Aspect and Subject of Controversy***

#### **II.3.1 – Starting point**

In order to understand the Human-trace as “product of traces”, we set as starting point that since birth<sup>53</sup>, or even since the womb, interactions between an individual and his or her surroundings play a part in the processes, conscious or otherwise, of the subsequent reception of stimuli from the environment<sup>54</sup>. Further to Ledoux (2002)<sup>55</sup>, we have also accepted that amongst these acts of receiving, feeling and emotion feed into specific processes that enable the brain to calculate the value of a stimulus. Furthermore, all later processes of interaction will be affected by it (in both senses of the word).

#### **II.3.2 – Difficulty of proof: the relative invisibility of certain sign-traces**

For the everyday man, certain sign-traces are visible and others are invisible. Others again are infinitesimal<sup>56</sup> and visible only to experts. A sign-trace’s visibility criterion is not relevant to determining the importance in the interactions between individuals and their surroundings because the line between visibility and invisibility varies depending on time and space. This awareness is becoming widespread and today several disciplines are propagating it<sup>57</sup>.

#### **II.3.3 – Visible space**

Corporeality gives a specific role to sensory channels that transmit information from the environment to Humans. According to Martin-Juchat (2008)<sup>58</sup>, the body

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<sup>52</sup> Application: Simply by their construction, the interpretation of digital traces constantly undergoes this risk.

<sup>53</sup> H. Montagner (1998). *Attachment and the Beginnings of Tenderness* [orig. L’attachement et les débuts de la tendresse]. Paris, Odile Jacob and, (1993), *The Child, Agent of His Development* [orig. L’enfant, acteur de son développement]. Paris, Stock.

<sup>54</sup> *Ibid.*

<sup>55</sup> J. Ledoux (2002). *The Neurobiology of Personality* [orig. Neurobiologie de la personnalité]. Paris, Odile Jacob, 2003.

<sup>56</sup> Incidentally, it is the third meaning that the French dictionary *Le Robert* gives to the word after that of imprint and a mark left by a nondescript passage or act.

<sup>57</sup> M. Foucault (1976). *The History of Sexuality: The Will to Knowledge* [orig. La volonté de savoir, histoire de la sexualité]. Paris, Gallimard.

J. Ledoux (2005). *The Emotional Brain* [orig. Le Cerveau des émotions]. Paris, Odile Jacob.

J.-M. Berthelot (1998). “*Sociological Discourse and the Body* [orig. Le Discours sociologique et le corps] in *Which Body?* [orig. Quel corps ?] 34-35, 72-83.

F. Laplantine (2001). *Anthropology* [orig. Anthropologie]. Paris, Bibliothèque Payot.

F. Varela, E. Thompson & E. Rosch (1991). *The Embodied Mind: Cognitive Science and Human Experience*. Cambridge, MIT Press.

<sup>58</sup> In this context, senses are considered to be channels of transmission for information provided by the environment, “interfaces” or “media” (depending on the meaning we attribute to the



appears in this perspective as “medium”. Sensory perception<sup>59</sup> comes across as leading to an ability to be open towards the physical reception of information coming from an individual’s surroundings. Further to Varela (1999), we hypothesise that sensible space connected by “mutually correlated”<sup>60</sup> processes becomes embodied in body matter and flesh<sup>61</sup> and leaves traces.

### **II.3.4 – Beyond the notion of *habitus***

In the first section of this presentation, the notion of *habitus* analysed the problematic of interiorising individual and social history in an individual’s psychic make-up. In this section, however, it appears to be a stage or a part of the analysis of sign-traces. Our theory is that the Human-trace as “product of traces” goes further than simply that which has been acquired: it integrates the traces that have been transmitted between two or more generations and it does not establish any break between what is innate and what is acquired. For example, precocious and chronic stress that is based on a dramatic separation from the mother can lead to depressive, impulsive and antisocial behaviour in adulthood. Furthermore, these persistent symptoms<sup>62</sup> are not only present throughout adult life, but they are also passed on to subsequent generations.

This hypothesis is the subject of controversy that has become all the more fraught in that ethical questions concerning birth management are quickly being raised in this connection.

### **II.3.5 – Scientific development improves our ability to access what was previously invisible**

Admitting that Humans are a product of traces would entail new difficulties to be resolved. Despite this, research should continue to be conducted in order to validate or contradict this hypothesis. Here are two examples:

The research in epigenetics currently being carried out by Mansuy (2010)<sup>63</sup> finds that stress is associated “with changes in the methylation of the DNA of several genes

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terms) that transmit information. See Fabienne Martin-Juchat, *The Body and Media. The Flesh Experienced by Media and Social Spaces* [orig. *Le corps et les médias. La chair éprouvée par les médias et les espaces sociaux*]. Brussels, De Boeck University, 2008.

<sup>59</sup> “This is not a new description for materialism: Condillac had already radicalised it by considering the prototype of feeling and by claiming to establish cognition on his strict and progressive sensualism. However, developmental neurobiology, embryogenesis and neurocognition renewed this sensualism by scientifically describing the material methods of the constitution of a neurocognitive body with the world. The body is henceforth described as if its mind were founded by the interaction with the world [Montero 1999]. This interaction accompanies the creation and relations of the body by using the undefined perfectibility of matter”, (Andrieu, 2009).

<sup>60</sup> A. R. Damasio (2003), *Looking for Spinoza: Joy, Sorrow and the Feeling Brain* [orig. *Spinoza avait raison, joie et tendresse*]. Paris, Odile Jacob.

<sup>61</sup> See Maurice Merleau-Ponty, second way.

<sup>62</sup> We have studied the symptoms as corporeal sign-traces in B. Galinon-Mélénec, CNRS (2011, 177-178).

<sup>63</sup> Mansuy (2012): T. Franklin, H. Russig, I.-C. Weiss, J. Graff, N. Linder, A. Michalon, S. Vizi & I.-M. Mansuy (2010). “The epigenetic transmission of the impact of early stress between generations”. *Biol. Psych.*, 68, 408-415. Isabelle Mansuy studies the genetics and epigenetics of cognitive functions and of the behaviour in mammals. Her work aims to better understand the approaches of intracellular signaling and the epigenetic mechanisms that are inherent in the functions of the brain of higher order such as the formation of memory and the behavioural and emotional control in adult life. She also studies the influence that surroundings have on their

in germ cells (...)”. In the brains of those involved<sup>64</sup>, as well as in those of their descendants, the incorporated (in-body) traces appear as registered in the matter and as producing cognition and representations.

Cerebral imagery techniques currently allow for the live observation of the impact the interactions between an individual and his surroundings have on neuronal connections<sup>65</sup>.

When it comes to interpreting, it is clearly advised to be cautious, especially as everything is multi-factorial and functions in intertwined systemic processes, as we have previously mentioned. Nevertheless, it is possible to claim that new scientific discoveries validate the hypothesis regarding the intertwining characteristic between body<sup>66</sup>, emotion<sup>67</sup> and cognition<sup>68</sup> and find that there are complex relations between these elements and communication<sup>69</sup>.

### **II.3.6 – Scientific development improves our ability to understand humans**

From our point of view, and given the current state of knowledge, the progress made by different sciences confirms that the human body, including the brain, is a matter that takes shape and transforms itself depending on its interactions with its surroundings. It also carries the sign-traces of these interactions.

This understanding is underpinned by recent improvements in science, not only in the humanities and social sciences but also in everything that concerns itself with the living. It closely follows the breakthroughs made on brain functions, which make it possible to understand that this inter-actionist structure already occurs *in utero* and that it carries biological sign-traces etched in genetic memory. These genetic sign-traces make the cortex susceptible to particular modes of development<sup>70</sup>. Interactions with the surroundings will more or less activate them and render them visible.

## ***II.4 – Beyond Western Logic***

### **II.4.1 – What is lacking in Western logic**

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functions and on the mechanisms by which environmental, genetic and epigenetic factors interact in order to regulate the behavioural responses throughout generations. The legacy of behavioural changes induced by early trauma and linked to mental illnesses like depression, *borderline personality disorder or antisocial behaviour, and their potential treatment*, are of major interest. Source: 48<sup>th</sup> Medical Sessions, Le Havre, 20 January 2012.

<sup>64</sup> The observations concern mice, but they are carried out in conditions that allow for analyses to be transferred onto humans and for communications in the medical framework. Source: 48<sup>th</sup> Medical Sessions, Le Havre, 20 January 2012.

<sup>65</sup> The observations concern mice, but they are carried out in conditions that allow for analyses to be transferred onto humans and for communications in the medical framework. Source: 48<sup>th</sup> Medical Sessions, Le Havre, 20 January 2012.

<sup>66</sup> The feeling caused by sensory receptors. On these questions, see B. Andrieu (2009). *Physical Ecology* [orig. L'écologie corporelle]. Biarritz, Atlantica.

<sup>67</sup> F. Martin-Juchat (2008). *The Body and Media. The Flesh Experienced by Media and Social Spaces* [orig. Le corps et les médias. La chair éprouvée par les médias et les espaces sociaux]. Bruxelles, De Boeck.

<sup>68</sup> A. R. Damasio (2005). *Descartes' Error* [orig. L'erreur de Descartes]. Paris, Odile Jacob.

<sup>69</sup> Ph. Descola. 2001.

<sup>70</sup> B. Andrieu. *Externality of the Body with a Brain* [orig. L'externalité du corps cérébré]. *Philosophia Scientiae*, 11(1), 2007, 11.

Western logic tends to divide body and mind and to apply observation and reason to everything that according to it is external to Humans. As Varela emphasises<sup>71</sup>, the consequence of this is that before the arrival of new scientific innovations, other cultures, and in particular Buddhism, offered a better understanding and a greater mastery of mental and emotional phenomena.

#### II.4.2 – Beyond traditional Western logic

The Human-trace paradigm offers the opportunity to emerge from customary divisions (innate/acquired, individual/milieu) and from reasoning that posit subject and object as independent entities<sup>72</sup>. The paradigm opens up the contemporary Western human and social sciences to different logics. It falls within a thought process whereby it is possible to consider all phenomenon as being a “node in a causality network” (Varela), in other words like a sign, a trace of these causalities. Varela adds that this knot undergoes constant change and we agree with him on this, which is why we consider that every Human-trace is in perpetual movement, insofar as the Human-trace is a product of systems of interacting sign-traces and as a node resulting from processes of complex relationships. Along with Augustin Berque (2009), this is why we consider that the Japanese writing system, which has no place for pronouns (I, you, etc.), reflects this situation better than the Western written system. The word “milieu” takes on a strong significance: it means “both a thing (a centre) and its opposite (entourage)<sup>73</sup>”. It ensues that the milieu cannot be defined independently from interactions and relationships occurring between existing entities<sup>74</sup>. Everything we have stated concerning the connection between Human-trace and its surroundings is therefore reinforced.

### CONCLUSION

The theoretical section of this article now brings us to specify that, by associating the corporeal sign-traces to the external sign-traces produced by Humans, the *Human-trace* paradigm can be found in the following:

- on the one hand, in an anthropological perspective introduced in particular by Marcel Mauss, Claude Lévi-Strauss and André Leroi-Gourhan<sup>75</sup>.

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<sup>71</sup> Varela, *op. cit.*

<sup>72</sup> “What “I think therefore I am” irrefutably denotes” Augustin Berque, (2009), *Ecumene. Introduction to the Study of Human Environments* [orig. Écoumène. Introduction à l’étude des milieux humains]. Paris, Belin, 2000, 2009.

<sup>73</sup> Berque, *Ibid.*

<sup>74</sup> Berque, *Ibid.*

<sup>75</sup> In this way, he picks up on the relations that André Leroi-Gourhan already identified with respect to Prehistory:

A. Leroi-Gourhan shows “the interrelation between the transformation of the “animal body” of the being becoming human and the deployment, out of this animal body, of a “social body” made up of technical and symbolic systems “that, by projecting certain initial functions of the animal body towards the exterior (choppers deploying the functions of teeth and claws, for example), have by counter effect also slowly transformed the animal body into *Homo sapiens*. It can be said that this is how a system was set in motion, one whereby hominisation (the evolution of the body), anthropisation (the transformation of the surroundings through technique) and humanization (the transfiguration of the surroundings through symbol) not only went hand in hand, but also co-created each other”. A. Leroi-Gourhan, *Le Geste et la parole*, vol. 1 (“Movement and Speech, Vol. 1”). Paris, Armand Colin, 1964 cited by Augustin Berque, *A Prehistoric Ontology, and no more?*

- on the other hand, in a vision illuminated by the contribution of Oriental cultures. In this context, the meaning of signs (in the normal contemporary sense of the term) is not to be sought in the transmitter nor in the receiver, but *in-between, in the milieu*, that is to say in the space between interactions, in relations that, in our view and as we have presented here, are the result of sign-trace interactions<sup>76</sup>.

For didactic purposes, we present below an overview in the form of a graph. It should be borne in mind, however, that a graph by its very nature simplifies the complexity of the real.

The pragmatic section (the starting point of this article) consisted in placing research in the service of a better understanding of what happens in the here and now, in what is made explicit and what goes unsaid by those involved in the recruitment process<sup>77</sup>.

After having analysed the connections between “behaviour and corporeality”, “corporeality and matter”, “matter and product of traces”, we came to put the behaviours we analysed into the category entitled the *corporeal sign-traces*. We then situated the body-as-matter in a material continuum from which Man cannot escape<sup>78</sup>.

We will end this return to the practical side by presenting a graph that places the anthropological traits of the Human-trace in the context of the digital. This use, which is particularly well developed in “*digital natives*”, is likely to have consequences (sign-traces) in the brain by dint of its plasticity (according to our posited principle whereby Humans are products of traces). Incorporated sign-traces become externalised in practices that are themselves sign-traces.

Put into the context of the market economy and recruitment, the resulting processes enable us to define the interest of Human-trace paradigms and of sign-traces in a pragmatic approach to communication.

By proceeding systematically, moving back and forth between fieldwork observations, analysis and the emergence of explanatory paradigms, we advance step by step towards developing a theoretical model. Our hope is that this will eventually have a wider impact in helping us to understand certain aspects of the human condition, as well as the relational modalities between human beings and between Humans and their surroundings.

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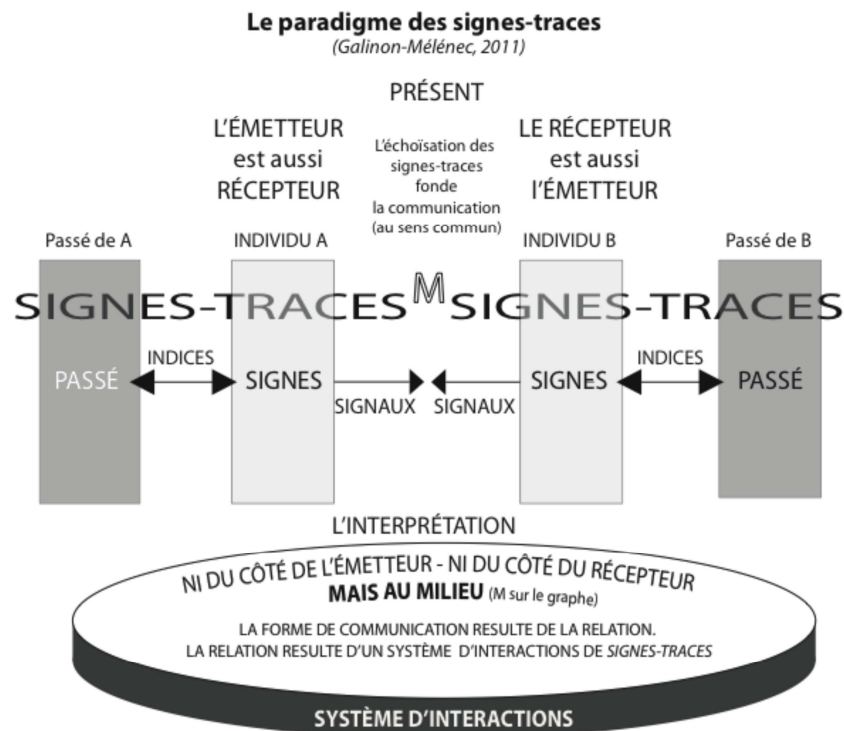
Husserl, Leroi-Gourhan and Prehistory [orig. Une ontologie préhistorique, seulement? Husserl, Leroi-Gourhan et la préhistoire]. EspacesTemps.net, 2011.

<sup>76</sup> We ask the reader to refer back to the footnote that explains the choice of this word.

<sup>77</sup> As was mentioned in I.1.2, it seems difficult to remain with this approach of decoding gestures, mimics and behaviour in general and “to go against what evolution and life have taught us about the phyletic continuity of organisms, thus devaluating all kinds of biological mechanisms that we share with other organised beings. Our singularity with regard to other beings is relative, as is the consciousness that men have of this” (Ph. Descola, 2001).

<sup>78</sup> Ph. Descola (2001). *The Anthropology of Nature* [orig. Anthropologie de la nature]. Inaugural lesson, Collège de France.



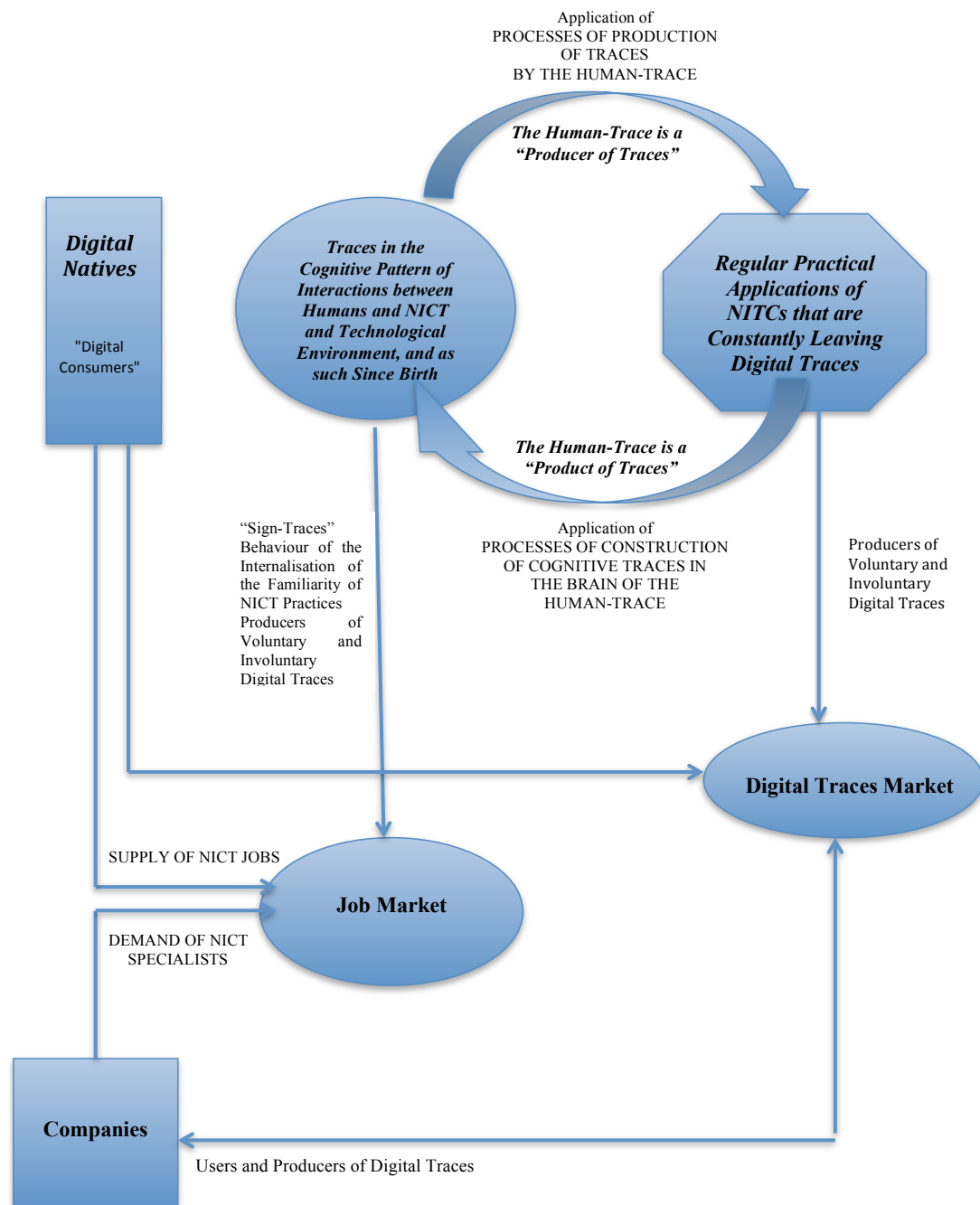


- *In practice*, the term “communication” is, *in practice*, often interpreted in a fragmented way: For some, the content of the *message* is what is most important. For others, it is the communicational channel of the *message*: the most recent example being the importance given to new information and communications technology (NICT). For others again, it is the emitter or, more recently, the receiver and the ways in which it can be opened up to reception. For example, the use of sign-symbols whose meaning is socially shared, the study of the impact of simplifying stereotypes to reduce complexity, etc.

This range can be found in several fields that question *individual communication* (Human-Human, Human-Machine, Human-Organisation, Human-Institution, etc.) as well as the communication of *organisations and/or institutions* (the media, cultural industries, political arenas, etc.).

- *From a scientific perspective*, the term “communication” is also one whose meaning varies according to the discipline. This polysemy is an obstacle to interdisciplinary research. Scholars in the humanities and the social sciences (law, political science, economics, management, linguistics, literary studies, education, sociology, anthropology, history, geography, psychology, cognitive science, to name just a few) who are committed in a cognitive approach for a better understanding of communicational processes should, in our view, enter into an epistemological negotiation in order to gain a better grasp of its complexity. In order to serve the practices of those involved, they must also accept a simplification of this complexity. The sign-trace paradigm that we are proposing falls into this perspective.

**Conceived in a logic of interactions and connections, the sign-trace paradigm must be understood by incorporating multi-scale systems produced by history, not only an individual's personal history but also that of the living and non-living environment with which the individual interacts.**



***Digital Natives: A Category of Human-Trace that is of Interest to Markets***

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