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Communication as Symbiogenesis
--On the Relationality of Mobile Phoning in Korea

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Thesis submitted for the Degree of
Doctor of Philosophy
Centre for Cultural Studies
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2011

Declaration

I declare that the work presented in this thesis is entirely my own.

Namsook Park

London,

August 2011

Abstract

This study understands communication as parasitic and symbiogenetic. It recognizes an object or technology no less and no more important than a subject, and appreciates the “process” of the “becoming” of both a subject and an object. Media and individuals create and recreate each other. In the symbiogenetic space in-between, what happens is not a physical addition of a technological object to an individual, but, rather, it is a chemical fusion of the two, which holds unprecedented, distinctive qualities that have not been seen from any of the two constituents. Among various communication media, this study examines why and how the mobile phone is particularly parasitic and symbiogenetic. It means an introduction of relational level to contemporary media theories. The mobile phone is itself a symbiosis; it *simulates* and *blends* all possibilities from other media and cannot be reduced to the sum of all the media incorporated in it. Furthermore, it extends its machinic quality to human subjectivities. To address the immanent, processual, and onto-genetical effect of the mobile phone on the individual’s everyday life and the emergence of new modes of subjectivity, this study brings together contiguous concepts and theories (complexity theory and vitalist thought) so that they can converse and resonate with one another, like organisms in symbiogenesis. This transversal of ideas is coupled with the empirical study on the mobile phoning in Korea, which substantiates the fact that individuals constitute their subjectivities through everyday interactions with the technology. It is a present-centered approach based on the *enacted* and *bodily* experience of the individual to achieve a real-time understanding of actual users’ everyday practice of mobile phoning. Users’ experience and the mobile phone’s material quality interact with each other, evolving and creating new modes of relationality as elements of their becoming.

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Chapter 1

Introduction

It is raining; a passer-by comes in. ... the traveler is asked to join the diners. His host does not have to ask him twice. He accepts the invitation and sits down in front of his bowl. The host is the satyr, dining at home; he is the donor. He calls to the passer-by, saying to him, be our guest. The guest is the stranger, the interrupter, the one who receives the soup, agrees to the meal ... The parasite is invited to the table d'hôte; in return, he must regale the other diners with his stories and his mirth. To be exact, he exchanges good talk for good food; he buys his dinner, paying for it in words. It is the oldest profession in the world. ... The parasite invents something new. Since he does not eat like everyone else, he builds a new logic. ... He wants to give his voice for matter, (hot) air for solid, superstructure for infrastructure. ..., he cheats us; but he invents anew. This novelty must be analyzed (Serres 1982a: 15; 34; 35).

The biological parasite enters the body of an organism and absorbs substances meant for the host. At first it presents itself in a negative guise, as an operator which interrupts the system of exchange. As such, it can be considered a malfunction, an error, or a *noise* which, occurring within a given system, is situated between two positions in an informational circuit and disrupts the messages they exchange. (It is interesting that the word *parasite* in French has a broader meaning than it does in English, designating not only a biological or sociological parasite, but also static or noise.) Apparently, a parasite therefore elicits a strategy of exclusion—if the system is perceived as primary, the parasite should be treated as an unhappy addition. Serres (1982a: 63-65) argues, however, that the parasite is in fact an integral part of the system and he equates it with *The Demon* or *The Third Man*, to emphasize that, by experiencing perturbations caused by the parasite and subsequent integrations of them, the system passes from a simple to a more complex stage. By virtue of its power to perturb, the parasite ultimately constitutes, like the *clinamen* and the demon, the *condition of possibility of the system*. In this way the parasite attests to the primacy of disorder within order; to the fact that it produces, by way of disorder, a more complex order.

Serres' notion of the parasite brings into question the conventional view that treats human interaction as reciprocal, as a process of give and take in which one has to pay in kind for what one receives. In Serres' parasitology the relationship between the host and guest is not equal; the guest intercepts roast beef (the dinner) and pays for it with stories, while the host intercepts the journey and offers dinner. These would be two ways of writing the new contract. The parasite institutes an agreement that is unfair, at least in terms of conventional accounting methods; it constructs a new balance sheet. It

thereby expresses a logic that until then had been considered irrational, establishing a new epistemology, another theory of equilibrium. In a word, the parasite enables the emergence of new relationships. If the parasite did not exist, there would be only a homogeneous stasis of balanced exchanges, which Serres characterizes as the perfect reversibility of all processes—paradise, without time or history. Only with the parasite, which violates the system of exchange by a logic that is far-from-equilibrium, there emerges an element of irreversibility and thus a mark of the commencement of duration, history and social organization. In Serres' theory, the parasite exchanges paradise for a problematic of beginnings, that is, the beginnings of human *relations*. Serres considers parasiting as the atomic form of our relations. He urges us to face it head-on, like death, like the sun (1982a: 8). For Serres, what is essential in life is neither the image nor the deep meaning, neither the representation nor its hall of mirrored reflections, but the system of relations (ibid 198).

The atomic form of our relations—the parasitic relation—is *intersubjective*, because, once we take a closer look at what is happening in the relationship, we cannot say which is which—the host and the guest change places. It is not clear who bears the gift and who suffers the loss, that is, who is the parasite and who is the host. When the host wants the guest to leave, it is the guest who has both his meal and his story interrupted. The difference between the master and the passer-by, the active and the passive, generosity and outrage, good-will and hatred, is blurred. The host and the guest become interchangeable; both of them give, offer, and invite while receiving, accepting, and being invited at the same time. (It is also interesting that the French word *hôte* corresponds to both *host* and *guest* in English.) Co-inhabiting the space of ongoing exchanges, the host and the guest acquire a different life through the emerging possibilities that are effected by their new experience. The new experience, which has arisen as a result of the interaction between the two, is something that does not belong to or originate from either party. It emerges from a *third* space, a *relational* space, created *in-between*; and it continuously feeds back to both parties to help them transform themselves. The host and the guest benefit—or lose—not only from each other but also from the new experience that arises out of that relationship. They proceed as one entity in the in-between space; the host's generosity and meal is transformed into the guest's energy and story, and, at the same time, the guest's wit and energy is turned into information for the host. The energy and information are being fed into their new experience, just as the new experience is being fed back into the energy and information.

In a word, the host and the guest are engaging in a dynamic continuum within their relational space and so their relationship is *transversal*. The host is a medium for the guest's energy, just the same as the guest is a medium for the host's information.

Parasiting does not only happen among people. Ever since humankind picked up a stone as an aid for hunting or marked a stick to memorize the number of animals in a herd, the story of parasiting among people, objects and technologies has begun and continues to this day. The stone or the stick has become a medium to constitute technology, embedded with human passion to go beyond limits. Through taking part in people's everyday activities, a medium introduces new possibilities of life, and, at the same time, it also blocks, and synthesizes their possibilities. In this way, the medium becomes informational, leaving behind its original objective qualities. From the moment it is picked up by a hunter as an aid for hunting, the stone is no longer the same as the ones scattered on the ground nearby; and, in the same way, from the moment it is marked with simple notches by a herdsman, the stick is no longer the same as those around. Incorporated into everyday human life, they become "quasi-objects" (Serres 1982a: 224-34; 1995a: 87); they get stripped of their objective status to become embedded within everyday human practice. But this does not mean that they lose all of their material characteristics as objects. They do not lose their fundamental physicalities which contain great informational value. It is clear that two different technologies, for example, a stone and a bow, would not lead the hunter to think and act in the same way, just as a notched stick and a layering of pebbles would not induce the herdsman to carry out his tasks in the same way.

In this process of mutual parasiting and transformation, the communication media are motors, producers of energy and movement. The nature of this operation is not straightforward; while individuals continuously form themselves through expression, enunciation, and interaction, communication media often arouse humans' "inventive rigor," which brings about creative assemblages rather than simple association. Hence the media and the individuals cross-fertilize each other, for their "creative evolution." As Bergson (1998: 251-71) maintains that any novelty arising in life is a pure creation and not an unraveling of the predetermined program, the process of this evolution comprises a part of the continuous creation of life, mobilized by an original impulse, the *élan vital*, which disperses itself through evolution into contradictory tendencies—a multiplicity—rather than orienting itself towards a teleological aim. Bergsonian wisdom thus informs us that there is no pre-inscribed destination for the evolution of media and

we cannot foretell the final product of this creative process. As the communication media have made their technological assemblages ever sophisticated to render themselves parasitible on more and more individuals, the possibilities for individuals to assemble momentary choices in their everyday life—the individuals' parasitibility on media—have become accordingly compounded. In the space in-between, what happens in this complex process of mutual parasiting is not a physical addition of a technological object to an individual, but, rather, a chemical fusion of the two, which holds unprecedented, distinctive qualities that have not been seen from any of the two constituents.

One of the greatest breakthroughs in this development is perhaps the incorporation of digital technology into one of the most ordinary everyday communications media—the mobile phone. The International Telecommunications Union, a United Nations agency, reports that there are around 4.1 billion mobile phone subscribers across the globe, as of March 2009. According to the report, the mobile phone is the fastest growing technology of all time: as recently as the year of 2002, it celebrated reaching one billion subscribers, just twenty years after it was introduced; it has carried on its growth unabated, adding the second billion in a record three years by the year of 2005; and, the number has been doubled again in another three years, to exceed four billion, which means more than half of the planet's estimated 6.7 billion inhabitants. There are now more mobile phones than personal computers. With their unprecedented range of connectibility and multimedia functions, mobile phones are opening a new field for human experience. The mobile phone is now a showcase for contemporary media convergence on the move, which combines the possibilities of not only talking and texting, but also digital photography, blogging, internet, television, and email. A conflation and fusion among these functionalities has been brought about, creating new possibilities and productive tensions between these unprecedented material properties and the phenomenologicality of the user's perception of and experience with it.

The mobile phone is now called a "third screen" (Marchioni 2009) after the television and the personal computer, on (and in) which individuals live and constitute their subjectivities. While using their mobile phones, individuals open themselves up to a multiplicity of uses, which is all the possibilities emerging from their parasiting. Subject and object (no clear distinction can be made between them), and their relationships are multiple, complex, and continuous in this process—"The parasite

parasitises the parasites.” As the process is that of creative assemblages through concrete everyday experiences, a subject’s self-formation—subjectification—with this technology is not about returning to *the* subject, but rather responding to the Nietzschean preoccupation with inventing new possibilities of life. The production of a new way of living is not the production of *the* subject, but of *a* “specific” subjectivity. Rather than a finite entity, subjectivity is thus a mode of *intensity*, and its becoming takes place at the molecular level, where a subject, communication media, and information move in “unstructured” flows. In other words, subjectivity is *a* mode of *relationality* that emerges from these flows. The notion of relationality is not to be reduced to a certain interaction or to the characteristics of a specific relation; it means a potential, an openness of an interaction to being affected by something new in a way that qualitatively changes its dynamic nature (Massumi 2002: 224-25). It is therefore *transversal*, being created in what Serres (1982a: 22-25) calls a third, intersubjective, in-between space. The individual’s relationship to the mobile phone is not bound to causal relationships, nor does it follow a pre-inscribed universal law. In this relationship, different practices are constituted into actual events, as *experienced* by the individual who is using the machine. The relationship has become ontological, because a mobile phone is not a mere extension of an individual but may be considered a part of him or her. Or, it would be more appropriate to see the relationship as onto-genetical, if we recognize the fact that individuals constitute their subjectivities through their everyday interactions with the technology.

My study aims to contribute to a new theoretical approach, to be additive, to be “metonymic,” to previous and current studies on mobile phone technology and human life. Since the end of last century, there have been more and more studies about mobile phone technology and human life, corresponding to the extent of the technology’s penetration into the lives of more people in more countries. There have been exemplary cases of extensive descriptions on the diffusion of the technology (notably, Castells et al. 2006), studies about the mobile phone’s personal and sociological significance (Katz & Aakhus 2002, among others), field studies with particular interests in countries like Japan (Ito et al. 2005) and Finland (Glotz et al. 2005), and ethnographic studies of youth culture or new users in underdeveloped countries. They are the engagements with specific moments in the evolutive passage of mobile phoning, which has been marked by rapid changes following incessant developments in the technology and the interaction of individuals with it. But it is regrettable that none of those studies has

delved into the practice of mobile phoning beyond providing sociological analysis or phenomenological observations. Though there have been produced some theoretically deserving concepts, for example, the neologisms of “thumb culture” (Glotz et al. 2005), “tele-cocooning” (Habuchi 2005: 178-79), and *Apparatgeist* (Katz & Aakhus 2002: 312-14), most studies stop at describing how individuals *use* mobile phones for their *purposes*. They lack a crucial, and perhaps the most important level, that is, a *relational* level—how individuals *interact* with the technology and the object, that is, the mobile phone, to constitute their subjectivities and how the subjectivities of both parties, the individual and the object, are evolving *transversally*. This study is therefore concerned with the parasitic and onto-genetical effect of mobile phoning in a way that has yet been explored in spite of its crucial importance.

1.1. Mobile phoning as a parasitic and symbiogenetic communication practice

The mobile telephony system is more than simply mobile handsets and subscriptions. The mobile phone in our hand is just the access point. While using it, we are involved in a whole system of relationships that encodes, transmits, switches, channels, notifies and decodes our shouts, whispers, texts, and emoticons. It is the networks, not the handset, that allow us to connect. A confluence of factors has made mobile phone technology possible: the development of radio-based communication; the rise of modern electronics, the transistor, in particular; the development of the cellular concept; the rise of the computing power needed to support the system; and the desire to provide (and enjoy) expanded communication services beyond the limitations of the landline telephone network. Making or receiving a call or text messaging on the move involves a sophisticated and complex system of radio links and computers but all of this process happens seamlessly to the extent that we are not aware of it happening.

Mobiles are not simply facilitating and speeding up social interactions as a part of the *control revolution* (Beniger 1986: 427), as a response to the crisis of control precipitated by industrialization in which innovation in information-processing and communication technology lagged behind those of industrial production and commercial interactions. Telecommunication unquestionably helps to control the way that industrial and commercial processes interact and proceed, and mobile communication follows in this spirit. But for the mobile phone this is only part of the story. The mobile’s remarkable processing power is bringing data, images, music and

videos to our fingertips, along with widespread access, individual addressability and the ability to interlace interactions, and has introduced a new norm of connectedness, an assumption that all of us are available via a mobile phone. It is not merely an expectation that we can make connections to others in an emergency, but rather something deeper and habitual. With the mobile phone, planning is different, travel is different, togetherness is different, and privacy is different (Ling and Donner 2009: 135). Mobile phones alter our experience. In contrast to the traditional media, where audiences can have a very limited role in the process of communication, the mobile phone empowers its user to become active and creative while using it. Traditional, linear approaches to media—the so-called SMCRE model (sender-message-channel-receiver-effect)—have thus become inappropriate to deal with the practice of mobile phoning.

Serres' parasitology presents a good perspective for the study of mobile phoning. The insistence that what matters in communication is not a sender or a receiver but the channel emphasizes the importance of the process and this perspective is very helpful in studying mobile phoning where the inventive toolings of users are causing changes in the mobile phone itself. The fact that it regards the space between the host and the guest—the channel (process), the excluded middle—as *multiple*, prioritizing *interactions* emerging from that very space, is also a pertinent point which can illuminate mobile phoning as depending not on a stable and linear communication system but on an unstable system in which casual and purposeless interruptions bring about the arrival of new elements. More radically, Serres' parasitology holds that the host and the guest are *interchangeable* and this perspective suggests a transversality of a subject and an object, providing a very advantageous point from which we can look into the contemporary scene of mobile phoning.

With his logic of the “fuzziness” of the parasite (1982a: 56-57), Serres' conception of transversality can be applied to the description of current situation where various digital media exchange and combine their elements with almost no boundaries, while humans are defining and re-defining those media, and themselves as well, through their unprecedented and extensive uses of communication media. Serres' parasitology as such contributes to the re-examination of subjectivity, not as a pre-inscribed entity (being), but as a relational and thus communicative becoming, which is incomplete and always-on-the-making. Resonating with related scientific theories, it also emphasizes the complex, nonlinear, and chaotic characteristics of the subject's becoming, in which small changes bring about big, disproportionate consequences. In this process, subjects

and objects are not simply in the environment of *symbiosis*, but in that of *symbiogenesis*, as their subjectivities are possibility itself, for an inventive *emergence*.

Serres uses concepts of information theory, focusing on the “channel” where information and noise mix into a “new” message, a mixture of anticipated and unanticipated data. He calls them “passage,” and investigates them in the most varied forms and through multiple models. Throughout his own passages from Hermes to the parasite, and to the angels, Serres tells stories of how communication is a matter of process, and how the process is inhabited by chances and multiplicities. Actually Serres is in the passage itself, which he calls the “north-west passage” (1995c: 103), mixing multiple disciplines and theories together—humanities, natural and social sciences.

Serres’ parasitic operator sets the stage for intrusive activities, collapsing the relationships between the signified and the signifier. Serres posits what precisely had always been excluded from the conceptual frameworks of binary logic: the non-unitary, loose aggregates, the deviate, the disorderly and monstrous, all of which cannot be recuperated into a system of linear thinking. He names this excluded middle “the multiple” because it comprises a vast, open region in which binary concepts merely account for limited situations and linear systems remain singularities. He writes that “the multiple” is a possibility itself, a set of possible things (1995a: 22). It is therefore nonlinear and non-quantitative: having the “parasitic” nature of the excluded third, it may be thought of as “chaotic.” Serres shares with chaos theorists the desire to establish a new kind of perspective in which information is “created” rather than “conserved” in the communication process, which he sees as a fluid multiple. He concurs with deconstructionists in assigning a positive value to chaos. But, while poststructuralists appropriate it to subvert order (Hayles 1990: 176), Serres regards chaos as the source of order, a possibility for a truly inventive life (Assad 1999: 7).

Serres is adamant on characterizing his own praxis of theoretical endeavor as one of finding (including) and not of searching (excluding) (Serres with Latour 1995: 132); finding, which embraces an element of randomness, is seen as the action of a truly creative person. For him one who re-searches what has already been found only reuses what he or she already knows. On the contrary, in those who find lies the promise of invention, and this Serresean invention is isomorphic to what in dynamical systems theory is referred to as dissipative behavior of complex nonlinear systems, in which its creativity changes along its own inventive activity. In contrast to systems that conserve their energy, dissipative systems experience a loss of energy as a result of their

dynamics. Therefore, if a dissipative system does not absorb new energy from outside sources, it is fated to end in motionlessness. But if it interacts with outside sources of energy, the system proceeds to a more complex stage, incorporating outside sources as a part of the system's dynamics, which means, inventive activity.

As it emphasizes that communication is, most of all, a matter of the channel in which emergent interactions take place, Serres' parasitology shares a common understanding of the world with quantum mechanics, a world in which interactions play an ever more important role. For the past two centuries, there have been physicists imbued with the Laplacean dream (Prigogine and Stengers 1982: 145), which affirms that the whole world could be described as if it were an integrable dynamic system. Quantum mechanics decisively parts company from this view of classical dynamics, in that it does not define the determinist and reversible description as being "complete." It associates a second type of evolution with it, one that is irreversible and discontinuous: there are *interactions* in the physical world which cannot be eliminated by a dynamic transformation. The process that ends with the amplification and recording of a quantum phenomenon at the macroscopic level is one such interaction, as is the world of unstable sub-quantum particles (ibid 146-47). Seen from the perspective of quantum mechanics, a system is no longer stable. While a stable system is the type of system for which, with the exception of these individual rare cases of uncertainty, an approximate description is sufficient to avoid any unexpected evolution, an unstable system is one in which the initial conditions determining various qualitatively distinct behaviors are not clearly separated but are, on the contrary, as close as one might wish. It is therefore of no use to increase the level of precision; uncertainty always remains complete—it does not diminish as precision increases.

Serres writes: "Without the declination, there are only the laws of fate, that is to say, the chains of order. But the angle interrupts the stoic chain, breaks the *foedera fati*, the endless series of causes and reasons. It disturbs, in fact, the laws of nature. And from it, the arrival of life, of everything breathes; ..." (1982b: 99). Trajectories can become unstable and stochastic chaos can become creative. In certain circumstances, evolution bifurcates, and from disorder and instability a new order of organized functioning is established, with amplified fluctuation. For example, laminar flow in parallel sheets "spontaneously" becomes turbulent. It is no longer necessary to ask where the clinamen comes from or how one might justify the disturbing of laws. All laminar flows can become unstable when past a certain threshold of velocity, and that was known just as

the productive nature of organized forms, of bifurcating evolution, of what we call dissipative structures, was known (Prigogine and Stengers 1982: 154).

Serres thinks that the clinamen marks the beginning of the world. Concurring with Prigogine who sees the transition from Laminar flow to turbulence as a process of *spontaneous* self-organization (Prigogine and Stengers 1984: 141), Serres (2000: 91) explains the clinamen as an “infinitely small deviation” that marks the beginning of the world as atomic turbulence. It is the “smallest possible angle” by which an atom deviates from the straight line of the fall of the atoms through a laminar void; and, according to Lucretius who equates atoms and letters, it marks “the birth of things and the appearance of language” (ibid 23). Though he has a shared interest with Serres in similar things, in nonlinear dynamics in particular, Deleuze talks of the clinamen in its relation to multiplicity rather than to generativity. In his work “Lucretius and the Simulacrum” Deleuze proposes a nonlinear and dynamic philosophy in which the logic of the clinamen not only allows us “to think the diverse and its production” as such, but comes to function, in the context of the idea of nature as a complex machinic system, as “the principle of the diverse and its production” (Deleuze 2003: 266) as such.

Deleuze stresses Lucretius’ statement that the clinamen occurs at an indeterminate moment and in an indeterminate place, and that it “takes place” in “a smaller time than the minimum of continuous, thinkable time,” so that it comes to designate a fundamental rather than a merely supplementary state of complexity (Deleuze 2003: 270). The clinamen thus manifests neither contingency nor indetermination; it manifests the irreducible plurality of causes or of causal series, and the impossibility of bringing causes together into a whole” (ibid 170). As a figure of irreducible complexity, the clinamen also designates, for Deleuze, a fundamental positivity: “The multiple as the multiple is the object of affirmation, just as the diverse as diverse is the object of joy” (ibid 279). As Serres (2000: 111) would later put it, it designates “nascent nature in joyous pleasure.” For Serres (2000: 64; 85), the concept of the clinamen already “contains” the logic of nonlinear dynamics, and Deleuze and Guattari (1987: 361; 489) acknowledge that “the strength of Serres’ book is that it demonstrates the link between the clinamen as a generative differential element, and the formation of vortices and turbulences in so far as they occupy an engendered smooth ‘vertical, projective, or topological’ space.”

Serres proposes continuity between the material and the psychic that is missing in psychoanalysis and deconstruction. He writes that “physics is faithful to the world,

since the formation of its text is isomorphic with the constitution of the natural tissue” (2000: 159). Thus the subject is, like nature, incalculable and measureless. It always exceeds the machines’ capacity for calculation” (1995a: 127). In other words, the subject partakes of the real not as a pure cut (as in Lacanian psychoanalysis, and also in Derridean deconstructionism) but as a complex and chaotic force-field. Deleuze has taken account of this in the unilateral topology of what he calls the “plane of immanence” (1994; 2002), which allows him to think of the material and the informational as part of the same space. In a Lucretian context, such a theory attempts to consider physical and psychic “inclinations” as happening on the same “projective plane.”

Just as the Lucretian smallest possible angle disrupts a system spontaneously, the parasite might interrupt it by chance (Serres 1982a: 239). But its effects are necessary, precisely because the parasite is the essence of relation. And this relation is also non-relation as the parasite is being and nonbeing at the same time” (ibid 79). Vaccination, Serres reminds us, explains this principle: the parasite that enters the body as contaminant then protects it against further contamination: “The parasite gives the host the means to be safe from the parasite” (ibid 193). The inside lets itself at once be contaminated, fulfilled, and supplanted by the parasite. Perhaps the inside is always attracted to the contaminant despite its efforts to distinguish itself, above all, from that very thing. Slipping out of the simple alternative of presence/absence, the parasite is undecidable in its essence. Serres prefers to call it “fuzzy” (ibid 56-57), taking the term from mathematics, where it designates an alternative to binary logic. Rather than two discrete binary positions, inside and outside, yes and no, zero and one, a fuzzy subset blurs bi-valences into a continuum composed of an infinite number of values. Incorporating an infinite number of values amounts to having no value per se; at once being and nonbeing, the parasite is also fuzzy in its effects as it acts as potion and poison.

In the process of communication, this logic of the “fuzzy” resonates with that of “the multiple,” a condition for creation, as well as with that of “randomness,” a possibility for invention, which gives an object the status of “quasi-.” For instance, Hermes, the parasite, fulfils the function of a “quasi-object” because it is nowhere at home, yet is everywhere present. Serrean quasi-object is not entirely an object nor is it a relational phenomenon, but it is rather an indicator of possibility in a communication process as it works as a marker of the subject, constructing inter-subjectivity, that is,

relationships, at the same time. Humans, Serres claims, are distinctive because they make things into objects that act as stabilizers of social relations. For him humans owe their present sociality to this invention of the object: “Our relationships, social bonds, would be as airy as clouds were here only contracts between subjects. In fact, the object, specific to Hominidae, stabilizes our relationships” (1995a: 87). Through objects, we know how and when we are subjects. According to Serres, we are precisely the fluctuating moving back and forth of the “I,” and this vicariousness of the subject weaves the collection (Abbas 2005: 227).

The saturation of our intimate and physical lives by objects with digital, wireless, and virtual technologies has been remarkable. We are finding our environment materially and conceptually reconstituted. Over the past three decades or so theorists have radicalized the way they understand nature, science, technology, and subjectivity. The so-called cultural turn, which privileges language, discourse, culture, and values, has encouraged a de facto neglect of more obviously material phenomena and processes, but its rather linguistic or discursive approaches have had the consequence of dissuading critical inquirers from more empirical kinds of investigation that material processes and structures require. What is really needed is an engagement with human experience as a complex, pluralistic, relatively open process which is thoroughly immersed in productive contingencies of materiality. The Cartesian definition of a subject as the *cogito* and that of matter as inert substance cannot provide the basis for this new materialist approach. An alternative to this dualist ontology has been worked out almost contemporaneously, by Spinoza, but it remained a far more subterranean or subjugated existence until recently. Deleuze, who writes himself as a “vitalist” (1995: 143), is among the philosophers finding insights in Spinoza for his materialist account of humans and matter.

As a move towards a more appropriate approach to proper descriptions of the world, a group of physicists from the beginning of the twentieth century began to undermine the mechanical model of matter and of the world. Among others, Einstein argued in 1905 for the existence of atoms, which consist of a positively charged nucleus surrounded by a cloudlike, three-dimensional wave of spinning electrons and he observed the subatomic behaviors, which demonstrate none of the comforting stability or solidity that had been taken for granted in the Newtonian model of matter (Dobson et al. 1997: 571). Newtonian conception of *mass*, the most important property of a material object, and that of *energy*, which sets an object in motion to make it perform

work, have become liquidized as Einstein showed that mass and energy can be converted into one another and are in this sense equivalent. Forces, energies, and intensities (rather than substances) and complex, even random, processes (rather than simple, predictable states) have become the new currency.

Alongside particle physics, which as such has radically changed our sense of the composition of matter, other currents within physics, notably chaos and complexity theory, have also transformed our sense of the patterns or characteristics of matter's movements. Since the latter half of the twentieth century scientists began to focus their attention onto nonlinear dynamic systems that seem structured yet unpredictable and which traditional physics had tended to ignore because they are inexplicable in mechanistic terms. As Gleick (1988: 5) remarks, fractals and bifurcations, intermittencies and periodicities are the new elements of motion, and to some physicists chaos is a science of process rather than state and of becoming rather than being. Contemporary social, economic, and environmental systems appear better understood as emergent systems that move with a seemingly chaotic randomness underlain by patterns of complex organization, which in turn function as foci for further organization and development. Such systems are marked by considerable instability and volatility since their repetition is never perfect; there is a continuous redefining and reassembling of key elements resulting in the capacities of systems to evolve into new and unexpected forms. There is hardly a quantitative relationship between cause and effect and therefore to predict or to determine patterns of organization is almost impossible. In such cases, as Urry (2006: 5) explains, it is not that the sum is greater than the parts, but that there are system effects that are different from their parts; the components of a system "spontaneously" develop collective properties or patterns through their interactions. These are nonlinear consequences that are non-reducible to the individual components, which comprise such activities.

It should be noted that the new methodological or epistemological approaches towards nonlinear and complex phenomena do not entail any definitive antithesis to all of the traditional approaches. They hardly ignore the role of "social" constructions of reality and subjectivity. It is only that the focus has been moved to the generativity and resilience of the material forms with which social actors interact, and which circumscribe, encourage, and test their discourses, and that the methodology to address them properly needs to be different from, for example, a constructivism that over-estimates human construction and authorship (Smith and Jenks 2005: 147) and

presumes matter's passivity or plasticity in the face of human power, awaiting cultural imprint. For the last a few decades a range of theoretical approaches has shared this spirit, complementing one another in a pragmatic way, notable examples being Derridean deconstructionism, Foucauldian genealogies of power, sociologies of everyday life by Bourdieu, Lefebvre, and de Certeau, interest in the phenomenology of ordinary, and particularly corporeal, experience such as those developed by Merleau-Ponty, and, Deleuze and Guattari's nomadism as a model of rhizomic becoming of subjectivity (Berressem 2005: 51-68). They have in common a will to investigate a multitude of interconnected phenomena and processes that sustain its unpredictable proliferation and unexpected crises, as well as its productivity and reproduction. They insist upon the openness, contingency, unevenness, and complexity of ongoing, materialist processes within which social actors are irremediably immersed. They envisage a dense, inexhaustible field that resists theoretical totalization.

Serres' parasitology holds a special place in this phase of broad movement occurring in the humanities as well as in the sciences. It consistently emphasizes the inventiveness of human experience and spontaneous and emergent formations of subjectivity. Unlike psycho-analysts such as Lacan (1978), or deconstructionists like Derrida (1981; 1997), Serres' parasitology is free from the problematic of the material real/the realm of representation. In this regard, it would be profitable to look into the Bergsonian conception of creative evolution as the model of a subject's becoming, and to think of how Serres' parasitology converses and resonates with the Bergsonian notion of matter and memory. To avoid the major problem inherent in Descartes' treatment of the mind-matter relation—the difficulty of explaining how thinking mind interacted with non-thinking matter—Bergson proceeded through conceptual analysis of the relation between memory and perception. Perception, for him, was a function of the material brain, while memory, or more accurately, recollection, was a faculty of the immaterial mind. Bergson argued that all real perceptions occurred over time, extending from a past into a present, and memory must be called in to bind together this duration of perception. He writes: “we ought to be able, by placing ourselves at their meeting place, to throw some light on the reciprocal action of spirit and matter. ‘Pure’ that is to say instantaneous, perception is, in fact, only an ideal, an extreme. Every perception fills a certain depth of duration, prolongs the past into the present, and thereby partakes of memory” (1998: 325).

As such, mind and matter become continuous, and the same logic can be applied to the distinction between quality and quantity; quality is a characteristic of mental event in time while quantity is a characteristic of material things in space. Distinctions between mind and matter, time and space, and, quality and quantity have thus become liquidized. Bergson in such a way situates his creative evolution as an alternative to Cartesian-Newtonian mechanism, which he sees as having a limited validity because it is only applicable to “systems that our thought artificially detaches from the whole” (ibid 36). Moreover, in Bergson’s thought the conception of intuition, along with that of “*élan vital*,” an original impetus, is an essential element. Instinct, for him, is the key to the vital operations of mind and creativity (and novelty) is the key to the evolutionary process (ibid 176): “Every human work in which there is invention, every voluntary act in which there is freedom, every movement of an organism that manifests spontaneity, brings something new into the world” (ibid 239). In a word, it is not continuity (reproduction), but novelty (spontaneous emergence), that is essential to the evolutionary process of a subject’s becoming.

With this Bergsonian conception of creative evolution, Serres’ parasitology provides us with a picture of the evolutionary formation of subjectivity, that is not only symbiotic, but symbiogenetic. It should be noted that there is a difference between the two: the notion of symbiosis denotes a state or a relationship of “living together” (Cheng 1970: 11-12), while that of symbiogenesis describes the evolutionary origin and development of new morphologies and physiologies by symbiosis (Sapp 1994: 48). Symbiogenesis is therefore far from geno-centric evolutionism, as in, for example, Dawkins (2006a). Anton de Bary, a German botanist, first used the term symbiosis (*Symbiose*) in 1878 in an address entitled “The Phenomena of Symbiosis,” defining it as “the living together of unlike named organisms.” De Bary studied the case of lichens, and he remarked that lichens were “a form of vegetation comprising thousands of species, in which all the individuals not only show an association of two or even three different species, but are constituted *only* by this association” (Sapp 1994: 7).

The most significant aspect of symbiosis, as de Bary conceived of it, was that it could lead to morphological variations that were not pathological, as there were many cases of morphological variation that could not be explained pathologically. The association between a host and its symbiont is of such a delicate nature that the slightest shift on the part of one may result in the detriment of one or both of the partners. But initially injurious relationships could evolve into a non-injurious one, and undergo a

series of micro-mutational changes in synchrony (Cheng 1970: 32). If one examines an array of closely related parasites, particularly tissue parasites, one would expect to find the severest host tissue reactions that can be explained as “recognizing self from non-self.” But, in time the foreignness or “non-selfness” of the parasite, which is most evident in the earliest stage of a hetero-specific relationship, results in spontaneous mutations mediated by selective processes (ibid 30-31). The concepts of symbiosis and co-evolution have attracted much attention from evolutionary biologists and ecologists who are not satisfied with classical Darwinian approaches to organic evolution. Co-evolution involves reciprocal genetic changes in the interacting populations and includes co-adaptation as well as co-speciation. Parasitic symbioses are thought to be the principal causes of genetic polymorphism (ibid 228).

As Margulis (1998: 6) summarizes it, the notion of symbiogenesis, rather than that of symbiosis, has been at the forefront of the Russian conception of evolution since the nineteenth century. According to Sapp’s review (1994: 60-64), Merezhkovskii and Reinheimer played a key role in the tradition of Russian symbiogenesis theory. In 1910 Merezhkovskii offered the term symbiogenesis to account for “the origin of organisms by the combination or by the association of two or several beings which enter into symbiosis.” While Merezhkovskii did not discuss his theory of symbiogenesis in direct relationship to the Malthus-Darwinian conception of a struggle for survival, Reinheimer in 1915 directed all of his arguments against the claim that evolution was due solely to the blind agency of natural selection. From his perspective, life was not simply a matter of increased rates of fecundity, and evolution did not act through random changes in structure. His aim was to replace Darwinian natural selection and the Malthusian doctrine of the survival of the fittest with the cooperative “laws of symbiogenesis,” whereby all organisms, including humans, were equal in that they were “responsible members of the web of life.” Hence, symbiogenesis was referred to as “the principle underlying such symbiosis and indeed all instances of mutuality in the progressive transmutation of biological values generally.”

Symbiosis as a means for synthesizing new individuals and symbiogenesis as a principle underlying such a system have remained largely ignored, because neo-Darwinian evolutionism and ecology preferred corporation *within* species over cooperation *among* species. Even for the historians who have analyzed the ramifications of, or the death of, Darwinism, and in most rich and detailed analyses of evolutionary debates in the twentieth century, symbiogenesis as a source, the very root of our being is

virtually never mentioned until the 1960s, when the development of molecular biology began to speak different stories. The new understanding of life argues that the evolution of humans, and that of all plants and animals, is not due solely to the gradual accumulation of gene changes *within* species; in fact, it insists, all life forms on earth evolved from, and are comprised of, a merger of two or more different kinds of micro-organisms living together (Sapp 1994: 14). For Margulis, the story goes back as far as billions of years ago. She criticizes the fact that most popular accounts of evolution and its problems start from just a few hundred million years ago, paying a brief respect to the earliest forms of multi-cellular organisms and then moving quickly on to the triumphant invention of vertebrate forms. According to her argument, the real fact of life is not that all the time that went before the arrival of the vertebrates was occupied by “primitive” and “simple” cells doing nothing but waiting around for the real show to begin; it is that all life forms are meticulously organized, sophisticated aggregates of evolving microbial life and micro-organisms are not to be left behind on an evolutionary “ladder,” because we are now both surrounded by them and composed of them (Margulis and Sagan 1986: 30-31).

Evolution is therefore not a linear progression from the simple—so-called lower—to the more complex, with humans as the absolute “highest” forms at the top of the hierarchy. With a new view of continual cooperation, strong interaction, and mutual dependence among life forms, Margulis declares that life takes over the globe by *networking*; life forms multiplied and complexified by co-opting others, not just by killing them (ibid). The descendents of the bacteria that swam in primeval seas breathing oxygen three billion years ago exist now in our bodies as mitochondria. At one time, the ancient bacteria combined with other micro-organisms; they took up residence inside, providing waste disposal and oxygen-derived energy in return for food and shelter; the merged organisms went on to evolve into more complex oxygen-breathing forms of life. Here, then, was an evolutionary mechanism more sudden than mutation: a symbiotic alliance that becomes permanent. By creating organisms that are not simply the sum of their symbiotic parts but something more like the sum of all the possible combinations of their parts, such alliances push developing beings into uncharted realms. Symbiogenesis, the emerging of organisms as new collectives, proves to be a major power of change on earth (ibid 34).

More and more people are relying on their mobile phones for their everyday activities and the greater capacity for switching modes, enhanced flexibility and

integration means that the mobile phone is not just mobile. It is an interactive and multi-functional device which enables greater and greater possibilities as time goes by. Furthermore, the mobile's dispersed, differentiated, and multi-modal connectivity and interactivity have become embedded in various other objects, environments, human bodies, and zones of transmission and reception. For instance, with radio-frequency identification devices (RFIDs) there has been created an animate environment of the "internet of things" in which things talk to each other (Hayles 2009: 47-72). The binary divide between active, communicative humans and passive, silent, fixed objects no longer works, as mobile phones are provided with ID tag computer chips and a transmitter/receiver. Such tags can also be embedded in objects such as cars, clothes, wallets, shoes and perhaps in anything, so as to enable the mobile phone and its user to communicate with the network of things in the environment, where things around are constantly offering, passing and collecting information. In this case, mobile phones are what Hayles (*ibid*) calls "small sub-cognizers," which perform very limited ranges of operation, being combined with embedded sensors (readers) that interpret information and communicate with related databases.

What is remarkable here is that these databases have the power to make correlations on much wider and extensive scales and, if combined together, their components can constitute a flexible, robust, and pervasive network that senses the environment, creates a context for that information, communicates internally among themselves, draws inferences from the data, and comes to function in a scope far exceeding what an unaided human could achieve. They can even interface with human cognition well below the threshold of consciousness through embodied actions such as gesture, posture, and habituated motions that give rise to and embody unconscious presuppositions, as Thrift (2004: 177) has explored in positing the technological unconscious that is constituted through "the bending of bodies-with-environments for a specific set of addresses without the benefit of any cognitive inputs." Communications across and between humans and mechanical phyla in information-intensive environments emphasize context over generalization, processes over static objects, embodied and distributed systems over hierarchical abstract ones, and a full range of cognitions over a sole focus on consciousness. In this environment humans are no longer the only cognizers who can interpret information and create meaning; there are distributed cognitive systems surrounding us and that is precisely who we ourselves are. This is not simply a state of symbiosis, in which things and humans are living together,

but a rigorous scene of symbiogenesis where things and humans are continuously reconfigured transversally without any ontological differences between the two. As Serres insists, there is no distinction between the host and the guest; humans, technologies, and machines are interchangeable.

1.2. Theoretical approach

The theoretical aim of this study is to push contemporary media theory one step further, to extend it towards another level. Considering its current state of evolution, notably its incorporation of numerous previously-independent communication technologies—the telephone, portable music player, watch, camera, World Wide Web, to name a few—the mobile phone cannot just be seen as an “autopoietic” machine, which simply supplements, enhances, or augments its existing function. It is rather a new species of media, a “hybrid,” born out of the complicated interfacing of various media. It is thus not a “remediation” (Bolter and Grusin 1999) of older and other current media. What happens in current mobile phone technology is not a borrowing or a repurposing of one medium in another; it is rather a simulating or a blending of all possibilities at hand enabled by “deep remixability” (Manovich 2006: 6-7)—the defining character of present-day digital technology.

While Manovich’s theory on new media is insightful, his focus remains on the dimension of software design. He does not go further to acknowledge the relational nature of human experience with technology. In order to develop a more sufficient and proper account of individuals’ practice with digital media, Manovich’s insight and other current media theories need to be extended, so as to be able to enter uncharted territories. It is precisely for this purpose that this study brings forward the philosophical discourses of Serres and Simondon, with the evolutionary biology of Margulis. Regarding the mobile phone as an individual, which is just the same as its user, this study examines how its relationality emerges as a mode of subjectivity, as in the process of an organism’s self-production. In this process, the organism—the mobile phone, its user, information, or any parties involved—always opens up to the possibility of change in its organization and structure, approaching a “techno-ontological threshold.”

To illuminate the lived relationships between individuals and technologies, and, subsequent emerging subjectivities, Marshall McLuhan’s (2001) famous phrase of “Media—Extensions of Man” also has to be extended much further. The extensions of

Man are only a small part of media: what is being extended is not only Man but also the machine—media—itself and the relationship between the two parties. What has been neglected is the dynamism and transformability of the machine itself and its relationship with individuals. Media and individuals recreate each other. In the third space in-between, between a subject and a medium, there happens an ongoing series of perturbation, incorporation, disequilibrium, equilibrium, and integration. Those seemingly noisy states are the promise of possibilities of the emergence of the new, if we follow Serres' parasitology; or, we can see this third space as in *meta-stability*, following Simondon's (1992) theory of individuation. This space is where a subject and a medium constitute their subjectivities, through ever-new experiences and the resonances they have with older ones. A new subjectivity arises as a *duration* of those resonances, to borrow from Bergson (1998). Their becoming (Bergson) or individuation (Simondon) is an ongoing parasiting: a subject or a medium is always engaging in the process of parasiting as an *individual*, and a newly constituted or transformed subjectivity is a new mode of their existence which becomes a new constituent for another subject-formation.

This means a truly creative model of evolution, which asserts that evolution does not simply involve self-preservation or self-reproduction through the dissipation of outside forces and the nullification of dimensions of alterity. It is linked to and resonant with a way of thinking about evolution that challenges Darwin's model of evolution based on linear or filiative evolution. It draws on the contentious rethinking of evolution in the work of Margulis (1981; 1998) and Sagan (1986), who point to the parasitic and symbiogenetic relations that precede the appearance of reproduction through nucleic DNA. If we look into the history of its development, we can see that the mobile phone has evolved rather like bacteria; just as bacteria moves through without fidelity to genus or species, transmitting information through simple contacts and re-engineering the genetic material of each lineage, so the mobile phone has had no hesitation in taking up profitable elements from outside its original territory (the phone), mixing them in its own way to become a totally new medium.

By way of parasitic complement and mutual heightening among the theoretical points made by Serres, Simondon, Margulis, along with other related arguments, this study intends to address the emergent nature of mobile phoning. In what follows, contiguous concepts and theories will converse and resonate with one another, like organisms in symbiogenesis, for understanding of individuals' practice with the mobile

phone, which is itself a symbiogenesis. And this transversal of ideas will be coupled with an empirical study, to achieve real-time understanding of actual users' everyday life with mobile phoning. It thus moves towards a new humanism, which recognizes an object and technology as being no less and no more important than a subject, and appreciates the "process" of the "becoming" of both a subject and an object. The ontogenetic characteristic of individuals' everyday practice with mobile phone technology cannot be easily and properly deciphered within any single discipline of theory. The landscape itself is continually on the move, escaping from any clear explanation. It calls for a multi-, or, rather, anti-disciplinary approach, as Pickering (1995) argues in his approach to the unpredictable nature of knowledge, machines, and human beings that are "mangled" together in shifting relationships.

This approach has to be a journey itself – a "randonnée"- a hiking or walking, full of unexpected discoveries (Serres 1982b: xxxvi). Rather than embracing either misanthropic technological determinism or what may be called an "opportunistic humanism," it needs a materialist engagement with "techno-humanistic culture," in which concrete human practices intertwined with the ordinariness of everyday lives with objects. The scene of mobile phoning, however simple and instant it may seem, is in fact very complicated. There the dimensions of parasiting are multiple, involving relationships not only among various communication technologies but also between a subject and the machine, and within a subject's activities in his or her own body and mind. As the relationships arise from the "concreteness" of an individual's everyday life, this process of parasiting is fundamentally materialist and this perspective marks an important move for theoretical interest in technology and individuals. To ensure an engagement with this concreteness, any theoretical pursuit of an individual's everyday life with the machine has to be present-centered and experience-based without any ideological presuppositions; it has to focus on the *enacted* and *bodily* experience, which is untethered from any transcendentals so that the lived relationships between individuals and the technology can be properly addressed. Instead of a moral or a political critique of science and technology, the engagement is thus rather like a "modest witness" (Haraway 1997) to the scene of everyday practices. It is also an engagement based upon the humanism of classical pragmatism (James 1978). As Geertz (1973: 3-30) maintains, the true generality of studies into human culture comes from their complex specificness and circumstantiality, which can give us a sort of sensible actuality from which we can think creatively and imaginatively *with* them. It is to

achieve a real-time understanding and to work out the incisiveness and delicacy of its distinctions.

To be a meaningful study on mobile communication practices, what is needed is thus a mapping, not a tracing, through a *randonnée*, in a *topological* space. To see the landscape of mobile phoning as topological means to consider it as a dynamic and durational space of becoming, for the individuals, technology, and their relationships. Topology concerns the *process* of arriving at a form through continuous deformation and transformation (Massumi 2002: 184-86). A topological figure is thus continuous and multiple: it is not defined by invariant formal properties or coordinate points but is characterized by vectors, which are moving-through points, and therefore it is transpositional. Because of its vectorial nature, the topological figure cannot be considered without its duration; the figure runs through an infinity of static figures. It is not itself determinate, but determinable; each static figure stands for its determination but does not exhaust it. Though it is oriented, it is not sequential; it is vectorial and recessively “transitional.” It cannot be separated from its duration due to its transitional excess of movement. Topological space is therefore where becoming, in the Bergsonian sense, takes place, with its infinite movement and duration.

The notion of the “traveler” seems suitable for the reading of this ontogenetical and topological space of becoming. In Serres’ (1995c: 51-55) words, geography overtakes knowledge, because “geo”-“graphy” is the “spatial” language of writing the world, which marks the moments of passage towards a new epistemology. Hence, the traveler, in the space of becoming where new relationships between individuals and mobile communication technologies are constantly emerging, appreciates the passage (process) rather than the final destination (position). To make the journey fruitful, the traveler is also ready for various detours and bifurcations because, to borrow from Serres (1982b: 51), the space is sporadic, not unlike the Greek islands, and it is with fluctuating tatters, like the North-West Passage. It is the third space of ongoing parasiting, and the space of complex movements and durations for the emergence of the new.

This perspective is exactly what is needed for the proper understanding of the current landscape of individuals’ practice with mobile phones. The study of mobile phoning has to be like a traveler who is willing to parasite on the host’s meal at any time and to pay for it with stories, precisely because the constant emergence of new technological assemblages and the users’ creative tooling of them (another machinic

assemblage) show us that it is no longer appropriate to see the phenomenon solely from sociological or cultural point of view. As the landscape involves immanent, onto-genetical scenes of emergence in the complex and dynamic space of topology, the understanding of this landscape requires extensive “parasiting”; conceptual resources are to be drawn from a wider range of theories, so as to be able to illuminate the complex process of emergent becomings of a subject and an object and their relationships. Like the traveler who does not fear alien territories, the study of mobile phoning needs to incorporate profitable insights from a much wider range of disciplines than today. The traveler needs to welcome a trans-logic, not a meta-logic, to describe the way multiple logics and the operational levels they model hold together. A trans-logic “enters” the fabric of relations and pulls as many strands as it can, to see what emerges. As the event of individuals’ mobile phoning is “emerging” in the onto-genetical space of becoming, it is appropriate to engage with raw phenomena, rather than with ideals, so as to encompass the concreteness of experience in its everyday ins and outs.

Traveling the path of mobile phoning thus requires that techniques of “critique” be used sparingly. For the traveler in the topological space of mobile phoning, the balance has to shift to *affirmative* methods: techniques which embrace the events’ own inventiveness and are not afraid to own up to the fact that they *add* to reality. It is not that critique is wrong. It is not a question of right and wrong; rather, it is a question of dosage. It is simply that when the traveler is busy critiquing, he or she is less busy augmenting and fostering, and this approach is the most notable characteristic of Serres’ work. It would be profitable at this point to look into how Foucault (1997: 41-81) uses the word “critique” in a different way to mean something close to this affirmative approach rather than to its traditional meaning. Arguing that critique is a “generative” practice, Foucault tries to extend the meaning of the term. He writes that critique provides openings, pathways, and alternatives that were previously foreclosed by the structure of a discourse, at precisely the moment of its negativity. Critique in this sense is therefore less concerned with defining or creating concepts than with generating what Foucault calls “problematizations,” and it works at the interstices of its objects, revealing the points of fissure in the forces that come together to form a given practice, discipline, or a body. This Foucauldian term of critique shares common ground with affirmative approaches in that it has to do with pragmatics, seeing that particular instances are themselves carriers of infrastructural questions, providing points for interrogations.

Pragmatics is a strategy of a proper recognition of emergence, which precedes any evaluation or judgment. It aims to achieve incisiveness and a delicacy of actuality in human practice, as in James' (1978, 1996) radical empiricism, which sees reality as always in the making—as *snowballing*. The traveler in the space of mobile phoning thus depends on pragmatics; of prime importance is the “performative” image of science and technology (Polanyi 1966; Pickering 1995), which puts an emphasis on operational principles, rather than pre-described instructions for them. As the space is relational, the traveler supports the argument that things have “social lives” of their own (Appadurai 2000) and are subject to “deep play” (Geertz 1973: 412). The traveler also appreciates the philosophy of becoming, which has been threaded through from Spinoza and Bergson, to Serres, Simondon, and Deleuze and Guattari. The traveler recognizes becoming as “molecular” activity; as a matter of emitting particles in between, rather than that of a “molar,” which defines and constrains identity. The becoming of individuals is therefore a “rhizomic” activity, contrary to a “root-based” system (Deleuze and Guattari 1987: 3-25; 2000: 283-96), which takes place in “a third position,” not unlike a practice of “translation” (Serres 1982b: 54-62), which is the forging of a novel association or an act of invention, brought about through the combining, mixing, and fusing of varied elements.

For the traveler in the onto-genetical space of mobile phoning, relevant concepts and theories are adjuncts, things added to become a complex entity as supplementary rather than essential parts. They are contiguous, sharing a common border, touching on one another; they are therefore metonymic, rather than metaphoric. To be metaphoric presupposes a meaning to be transferred onto somebody or something else via the logic of similarity; it prioritizes quality (product) rather than becoming (process). But to be metonymic requires no finite meaning to make a transfer. Metonymic concepts and theories propagate themselves, “snowballing” their meanings, while sharing and interchanging their properties via contiguity on the borders in-between. They are “open” to “creative contagion.” At stake is not a similarity in their qualities but a connectibility among them, and it is the most important point of Serres’ parasitology as it institutes a new theory of relationality.

For Serres the parasite does not simply cancel the existing system; it treats the system as a resource for the creation of the new, different system of relations. Serres in such a way gives us relational thought, offering a “corrective” to the tradition of Western thought which has failed to acknowledge that it is relations that create human

life and the world and keep them moving. While Christian, Cartesian, and Kantian ethics totally neglected the notion of relationality by adhering to pre-given order, the idea of the “survival of the fittest,” which has been applied by Spencer in 1864 and then used by Darwin in 1869 to explain the notion of “natural selection,” nurtured a far-reaching conception of competition and tension as the prime mover of all relationships in this world. Relationality as a creative force, which brings about the emergence of the new, has hardly been brought into focus. At best, the notion of relationality has been subsumed as a double structure of competing forces, as in Benjamin (the original and mechanical reproductions) and Derrida (the said and the unsaid) or, as an expression of the cultural psychology of the pre-existing order, as in Levi-Strauss (1992).

The following begins with chapter 2, a brief literature review and explanation of empirical methods used in this study. Then it continues to chapter 3, which deals with how Serres recovers the Other, the guest, in order to complement one-sided story, so as to write a new theory of relationships. His parasitology is based on his unique understanding of reality and knowledge, and his kind of structuralism always connects apparently disparate elements to weave relationships by traveling through noisy, cacography-like scenes, which he says are nothing other than reality itself. Serres’ argument is unique and innovative, as it radically differentiates itself from traditional western thought on subjectivity, undoing the closures imposed by the Christian, Cartesian, and Kantian blockages. There are also other thinkers who devote themselves to a similar project to Serres—the recovering of the Other—and the later part of this chapter treats their arguments to see how they reconfigure the notion of subjectivity to overcome the closures by cross-fertilizing one another.

Chapter 4 is a speculation about how complexity theory and vitalist philosophy have changed the way of looking at the world, and accordingly, at subjectivity, conversing and resonating with the arguments discussed in the previous part. It looks into how those discourses, performing in and across many disciplines and occasions, show that the real is multiple and contingent with no pre-existing orders, and that humans and machines are interchangeable. The two notions of boundarylessness and performance will then be coupled with Simondon’s seminal conception of individuation and Margulis’ revolutionary theory of symbiogenesis, to constitute a theory of the emergence of the new for an individual, which means a subject, an object, an event, a collective, or any entity in the world. The theoretical aim of this part is thus to establish a conception of relationality at the level of ontogenesis, as a converging point for a new

theory of subjectivity, by way of parasiting on relevant discourses from wider disciplines.

Before turning to discussions on digital media and my empirical research into how people use their mobile phones in Korea, chapter 5 travels to the *other* relationality, by which this study means traditional Asian conceptions of the relationship between things and humans in a world based on Confucianism. With combined influences from Daoism and Buddhism, it reflects a completely different way of seeing the world from its western counterpart. It provides an understanding that things (and humans) exist only by virtue of their interrelationships and these relationships have open, immanent, and pragmatic structures which are in a state of continuous modulation. It is interesting that this Asian conception of relationality seems to share some basic elements with the underlying logic of digital media, but it is not the purpose of this study to argue for any theoretical correspondence between them. Moreover, it is neither the aim of this part to claim that this *other* relationality defines the characteristic of mobile phoning in Korea. Though it is true that there is rather stronger cultural inheritance from Confucianism in Korea than in China, due to the fact that Chinese people experienced a radical break with their Confucian tradition under the Communist regime (especially in the aftermath of the Cultural Revolution), I do not intend to make any argument for constructing a parallel. It is rather an acknowledgement, a pointing to the fact that Korea is a particular kind of hybrid—of Asian tradition and western influence—and this position of being “in-between” tells that it is a place with a great potential for a “becoming-individual.” What I want to suggest is the extent of the contiguity and connectibility, to “enter into the relations,” following Serres’ kind of structuralism. A proper examination of the interrelationship between this *other* relationality and the underlying logic of digital media, or a theoretical account of the interrelationship between the Asian notion of relationality and the practice of mobile phoning in Korea would require a whole separate volume of study.

Chapter 6 engages with the media, which is an individual itself that is involved in a continuous co-evolutionary passage of becoming. It questions how a medium comes to have a parasitic, transversal and symbiogenetic relationality, and how it testifies to the fact that human communication is always an onto- and symbiogenesis of subjects and objects in the world. As a part of the real world, a becoming-individual, a medium resonates with changing conditions in society and the theoretical constellations of its time. In this regard, I look in this part at the contexts of a few representative media

to consider how their relationalities co-evolved by interacting with humans, societies, and among themselves at specific moments. The mobile phone, which is based on digital technology, exhibits a specific relationality of our present time. The mobile phone's continuous coupling, blending, and remixing of its elements informs its processual character: therefore, what matters is not an instrumentality of an object or the autonomy and mastery of human subject but the interaction, performance, and on-going process of becoming. This new mode of subjectivity is connected with cross-fertilizing discourses from new materialisms, such as Simondon's theory of transductive individuation and Stiegler's argument about the technology of grammatisation, and this fundamental remapping of subjectivity will be incorporated into the theoretical points made by Serres and Margulis.

The empirical exploration of the mobile phone's performance in the setting of Korea constitutes the next chapter. Mobile phone diaries kept by the users themselves and further in-depth interviews with them exhibit local cycles, regional evolutions, partial accelerations, and, equilibriums and dis-equilibriums—a manifestation of the materialist concreteness of lived experience. With this exploration and the empirical findings I do not intend to establish a causal, transparent logic. My commitment is rather to "local" knowledge, because, as Serres tells us, it is the best strategy for the traveler in a sporadic space. The empirical findings of this study reveal that the space of mobile phoning is totally different from the McLuhanesque global village; it is a chaotic, unstructured, emergent, and transversal space of becoming. Chapter 6 thus bears witness to the multifaceted and unexpected scenes in which the users' experience and the mobile phone's material properties interact with each other, to evolve and create new modes of relationality, that is, subjectivity, which is fundamentally performative, processual, and materialistic.

This study's inquiry into the question of communication as symbiogenesis and the claim for the ontogenetical relationality of the mobile phone may appear provocative, but it has been substantiated throughout by empirical findings and theoretical research. The closing part of this study does not produce any reductive generalization or teleological account, because I have chosen to follow the users as they find their way through, attending closely to how they describe their activities and how they interact with the technology. It concludes that the noisy scene of mobile phoning is itself a "process" full of potentials, which in-forms information, en-frames experience, and instantiates embodied affectivity, to constitute a mode of relationality—subjectivity—

for humans as well as for objects and technologies.

Two important questions, which have not been dealt with in this study, could be explored further to enrich and expand the arguments made by this study. One is that of the interrelationship between the mobile phoning of Korean people and the Confucian conception of the relationality of humans and things in the world. As it is clear that the participants in this study are human subjects *individuated* within their own social and cultural context, certain enduring elements of Confucian relationality might have influenced their practice of mobile phoning. Though a brief study on this *other* relationality has been provided, the topic deserves a huge research itself.

The other is about how symbiogenetic patterns are articulated in the development of mobile phone services and software. Currently the mobile phone boasts a wide variety of unprecedented functionalities, as a result of that its manufacturers and service providers have not only been following the users' need but also leading it on many occasions. The users themselves are also participating in the constitution of new mobile communication services and software through their own creative toolings. This is a relentless scene of parasiting, which merits a whole volume of separate study.

Chapter 2

Literature Review and Method

2.1. Literature review

Until the mid-1990s, the mobile phone seemed to evoke much less intellectual enthusiasm and scientific research endeavors than the Internet. In the extensive work by Castells (1996), for instance, only the Internet was given the status of being the prime mover towards the formation of the Network Society, while mobile communication technologies were almost totally neglected. The two technologies are in fact almost contemporaneous; both have been introduced to households in 1980s. But it has been the Internet which has mostly attracted the theoretical spotlight. It is perhaps for the reason that the mobile phone seems pedestrian compared to the nebulous depths of cyberspace. And it may also be for the same reason that, from 1990s, the mobile phone could permeate into populations of all ages, even those at the bottom of socio-economic pyramid. In 2001 the total number of mobile phones worldwide surpassed for the first time the number of television sets (Katz and Aakhus 2002: 4), and the four-billionth mobile phone subscription was activated in the end of 2008 (Ling and Donner 2009: 148).

This worldwide diffusion has occurred rather independently of different cultural basis. Mobile phones have become popular even in rather “technophobic” contexts like Italy, where computers and other modern technologies have a difficult stand (Fortunati 2002: 53), and in Scandinavian countries, where traditionally people are introverted, and silence in talk is highly valued (Puro 2002: 25). It has also emerged that mobile communication technology has a capacity to penetrate into populations living in less developed countries where they could never have landline telephones, let alone computer networks. In 2001 the International Telecommunication Union found striking evidence of how the mobile phone has contributed to narrowing the century-old gap in telephone usage between highly developed and less developed countries. Its report tells that, as in 2001, about one hundred nations, including many African countries, have more mobile phones than landline telephones in service, and that mobile phone technology is far more potent than computer technology in connecting less privileged populations to the benefit of digital communication (World Telecommunication Development Report 2002).

In its early stage the mobile phone was a rather elitist device, which was mostly

used by middle- and higher-class males for business or professional purposes. As late as in 1996, European surveys showed that less than 14 percent of users reported using their mobiles for private, intimate conversation (Fortunati 2002: 51). But it did not take long for the mobile phone to be used by people living in rural areas for the purpose of gossiping (Fox 2001: 3). In accordance with the mobile handset becoming more and more sophisticated multimedia, the scope of the users' experience with the technology has been expanded, bringing about unintended patterns of usage. Though people typically start with rather narrow conceptions of why they need a mobile, they considerably enlarge the range of uses with evolving time, gradually changing habits and learning to apply the new technology for a growing variety of purposes in a wider range of situations (Palen et. al. 2001: 3-4).

It is therefore natural that, from the late 1990s, researchers increasingly began to be interested in the mobile phone's specific functional capacities to facilitate or inhibit various modes of social behavior and interactions, and their implications, rather than focusing on "causal impacts" or "determinate consequences" of the technology. But, as the remarkable growth in its functionality has modified and extended the technology beyond its initial capacity to move human voices over distances, turning it into another path to the variety of content, services and communities on the Internet, it has become impossible, and perhaps undesirable, to render a linear, global, or unified explanation of the mobile phone's implications for human life and society. This literature review on the mobile phone studies is thus inevitably a restricted one, being limited to some of notable researches and findings.

Given the broad range of focal interests, methodologies and theoretical perspectives of the researchers involved, it cannot be summarized as a systematic, integrated "theory of mobile communications" to cover comprehensively all of the issues at hand. The diversity of interpretations of the mobile's influence and interactions with individuals and society is driven as much by the complexity of the technology itself and the vast variety of its uses. In what follows, meaningful literatures are grouped into three categories—socio-political, individual, and cross-cultural perspectives. This is nevertheless not a mutually-exclusive categorization. The borders between the categories are unquestionably porous and overlapping, because human experiences with the technology are liquid and encompassing. Moreover, mobile users' experiences are always continuous and interchangeable —on the levels of, for example, the individual and the social, the utilitarian and the expressive, and, the practical and the symbolic.

2.1.1. Socio-political perspectives

Taking a broad view, theories from socio-political perspectives observe, define, and contextualize the new patterns of connectivity brought about by mobile communication technology. Among others, Castells et al. (2006) see the mobile phone as a universal trend in the constitution of current society. Through examples drawn from around the globe, they identify the “relentless connectivity” (248) offered by the device as a source of a coherent “network logic” (6), which drives a range of social transformations. This approach is explicitly built on the Castells’ earlier conceptualization of the network society (Castells 1996; 2000), but they do not think mobiles are simply up-ending the logic of the network society. Rather, the authors argue, “the mobile communication society deepens and diffuses the network society, which came into existence in the past two decades” (2006: 258). They insist that, while being locally constructed and infinitely variable at the micro level, mobiles ultimately play a role similar to that of other information and communication technologies at the most macro of levels.

Some other mobile-specific theories share a sense that mobile communication is sufficiently “different” from landline telephones or personal computers, to require an explanation of its own. Ling and Donner (2009: 91-94) conceive the idea of *micro-coordination*, arguing that the mobile phone allows for a type of nuanced and fine-grained interaction between individuals within the intimate sphere—family and friends. This connectivity means that we are able to coordinate our interactions at a greater level of specificity than before, affecting the use of time- and place-based activities. They argue that, because we have become *individually addressable* regardless of where we are and what we are up to, we often engage in iterative planning, rather than making a relatively fixed agreement as to when and where we are to do something, and it changes the boundaries between family and work, altering the way we interact with friends and near family and how co-present interactions get played out. As a consequence, they continue, our “sense of place” has been changed, and a type of *mobile logic* has been introduced into our interactions, thanks to widespread access, individual addressability and the ability to interlace interactions. They add that the currently emerging norm of connectedness, an assumption that all of us are available via a mobile phone, is not merely an expectation that we can bother others in an emergency, but rather something deeper and habitual (ibid 134-35).

Rather than employing the vocabularies of “always on,” “connected presence,” or “co-presence,” which have been used to capture some aspects of social relationships mediated by mobile phones, Ling and Donner argue that the notion of *multi-modal connectedness* (79) would be more appropriate to define various new modalities through which people maintain their connections with each other in everyday life with their mobiles. Being multi-modally connected with one’s social networks means being immersed in an increasingly tethered—to each other and to the sphere of mediated cultural content, rather than to place—and technologically mediated form of sociability and of consuming information. People therefore increasingly have to distribute their relationship maintenance, their desire for information, and their consumption of leisure content across various functions of the mobile phone (ibid 85).

Ling and Donner add a report on cultural differences in this multi-modal connectedness (80-81). They point to a continuing divergence, comparing the high use of mobiles and the rather low use of computer-based Internet in Japan and Korea, with the relatively low use of mobile phones for the Internet and high use of the Internet with computers in the USA and Sweden. They see Japanese and Koreans might remain wedded to using mobiles for many computer-based Internet functions, particularly given long public transportation commutes in these countries. Transportation factors might also help to account for differences between Sweden (with more public transportation), the USA (with heavy reliance on private automobiles), and Japan (reading books on mobile phones makes sense, given the long commutes on public transportation).

Katz and Aakhus (2002: 305-17) have coined the neologism of *Apparatgeist* to suggest the spirit of machine that influences both the design of the technology as well as the initial and subsequent significance accorded to them by users, non-users and anti-users. They link the word to the Hegelian conception that there is an underlying *Geist* to history, and use the term to imply a “spirit” in the way of incremental change followed by occasional, unpredictable bursts of drastic changes in (media) history. In other words, their notion of *Apparatgeist* refers to the common set of strategies or principles of reasoning about technology, and the logic that currently informs it is “perpetual contact.” They insist that, as a socio-logic, a deeply embedded image, and a “socially developed sense of practical reasoning” (ibid 307), perpetual contact now underwrites how we judge, invent, and use communication technology. But, they make a clear point against technological determinism. Disagreeing with McLuhan, they do not think of technology as determining what an individual can do; rather, they regard it as serving as

a constraint upon possibilities. Their conception of perpetual contact can, therefore, be seen as rather an obligation, than emancipation, for the people living today with the mobile phone.

How people sense and make use of this state of connectedness can vary, according to personal and socio-cultural backgrounds. Plant (2000: 70) writes: “to use David Riesman’s famous terminology, mobile phones are especially useful for ‘other-directed’ persons who ‘live in a world of multiple connections and relationships which may also be rather looser and more transient than the fewer, stronger bonds maintained by more tradition-directed or inner-directed individuals.’” However, Ling (2008: 186) tells a different story, seeing the mobile phone as enhancing traditional bonds. He finds the technology to be a means through which people can perform social rituals that result in social cohesion. The mobile phone therefore enhances small group solidarity, through exchanges of messages and by fostering a ritual sense of connectedness, while facilitating the instrumental coordination of everyday life at the same time.

Researchers have also shown that mobile phones have been shifting the dynamics of connectivity from places—typically households or worksites—to individuals. An interesting example of this emancipative effect is found in the case of prostitutes, for whom mobiles open the way for individual arrangements with their customers, thus promoting their independence from any hierarchical controls and organized exploitation (Plant 2000: 59). And, in Arabic countries, this dynamic of connectivity may work in a way specific to their culture: “... unable to meet her fiancé face-to-face, a young woman in Dubai described the ease with which the mobile allowed her to talk to him, sometimes while watching him across a busy street” (ibid 56). As a similar story, a British Asian woman describes that she has spoken to her boyfriend under the cover of darkness, her bedclothes, and loud music, many, many times (ibid). Moreover, this dynamics of individual connectivity can even constitute a livelihood, as in the case of a Somali trader who exports small electrical goods, including mobile phones, to East Africa. Plant reports that his mobile is his livelihood, perfectly suited to the small and immediate transactions in which he is engaged, as he says “no mobile, no business” (ibid 74).

Regarding the social implications of mobile communication technology, there is a considerable volume of work which finds mobile communication able to encourage rule transgression and quasi-legal or illegal activity. Use of the mobile phone in schools, for instance, can assist students with exams, and the mobile can be used for different

types of chicanery or for illicit calls or the takings and the distribution of inappropriate photos, possibly causing a serious problem for the victim (Ling 2007: 60). It has been observed that the mobile can also be connected with a variety of illegal activities such as breaking and entering, stealing, vandalizing and fighting with weapons and it is sometimes used for various forms of fraud and electronic sabotage (Leavitt 2005). The adoption and use of the mobile phone has altered the sales channel for drugs, as in the New York City region (Furst et al. 2004); it has facilitated mobilization for gang fights in Norway and Australia (White 2006; Carlsson and Decker 2005); and has aided in the organization of prostitution in Vietnam and Bangkok (Plant 2000). Mobiles have helped protesters arrange demonstrations and terrorists have used them to trigger bombs (Cumming-Bruce 2005). But mobiles have also been used to help survivors in the wake of bombings (Cohen and Lemish 2005).

Despite the basic characteristic of the mobile phone, which encourages people to use it for individual purposes, it has been reported that the mobile phone can eventually act as a medium for collectivization, at least in situations where many people are ready to exchange calls and texts so that they could spread a targeted message in a tree-like fashion. This has happened in the protest actions against President Estrada in the Philippines, where the mobile phone net was successfully used, firstly by agitators to propagate hostile slogans and jokes, and afterwards by protest leaders to redirect the demonstrating crowds (Katz and Aakhus 2002: 2-3). Similarly, in the Korean presidential election in 2002, the mobile phone, alongside the Internet, was effectively utilized in the process of participatory politics, as younger generation voters made calls to their friends and family members to urge to come out and vote, while at the same time cross-checking the results of exit polls with their mobiles (S. D. Kim 2004: 93).

In this type of social gatherings, the loss of centralized control can be a problem for the fact that organizers of meetings may have a diminishing power to decide the size and composition of participants, because everybody can easily call others to join the gathering. This is critical in the case of many street demonstrations where the organizers face the risk of possible degeneration into violent riots as uninvited additional groupings mobilized by mobile phones may “take the lead” (Geser 2001: 44). It is for the reason that mobile communications introduce an element of “entropy” into the groups and institutions, permeating individuals with communicative relationships, which transcend system boundaries in highly heterogeneous and unpredictable ways. By increasing the volume of decentralized interactions among

multitudes of different actors, the mobile phone makes it very hard for any centralized agency to have the capacity to pre-plan, steer or control collective actions, despite the undeniable fact that their capacity for centralized data gathering is being increased.

As a type of unintended consequence, the always-on connectivity of the mobile phone has been found to be providing people with a very good chance to become “cellular Samaritans.” Chapman and Schofield (1998) write on civic minded citizens calling radio stations to report traffic hazards and congestion, storms, long queues, and other imminent events relevant to communal life. In aggregate, these often anonymous and voluntary acts presumably benefit countless thousands, if not millions, of people. Chapman and Schofield consider that mobile phones provide a means for people to become more active citizens by engaging in small acts of social responsibility and concern for the community.

The new kinds of social connectivity and human interactions brought about by mobile communication technology inevitably entail the problematic of (city) space. While the main question concerning the Internet and the personal computer has centered on how one constructs digital spaces, it seems now being rephrased to the question of how physical space is being re-conceptualized by the connectivity of digital mobile media. According to Townsend (2000: 14), the mobile phone might lead to a dramatic increase in the size of the city, not necessarily in a physical sense, but in terms of activity and productivity. He notes that, though technologies for a high degree of mobility across the city have been around since the invention of the automobile, the ability to coordinate social actions in *real time* has occurred only with the advent of mobile communication technologies. What he means by coordination is not only micro-coordination among individuals, but also macro-coordination, as is the case of flash mobs, political manifestations, and location-based games. Townsend introduces the notion of the *real-time city* where mobile communication facilitates, for example, the efficient dispatching of taxis through informal interactions among the drivers themselves. He considers that what defines this real-time city is not massive physical infrastructures; rather it is the intensification of urban activity—the speeding up of *urban metabolism* (ibid 10). The idea is that mobile communication has also become a system through which we work to control the tempo of our lives, just as the city has grown with and been shaped by automobiles.

While Townsend is concerned with the metabolism of the city, other theorists have been interested in the transformation of public space caused by the unprecedented

use of mobile media. Among others, Lasen (2002a) observes that the mobile phone leads to a more intensive use of public space for informal social interaction, turning it into a “third place” (39f.). With the ubiquitous presence of the mobile phone, public space is no longer a vacuum zone, used for traffic purposes alone. The Restaurants, hotel lobbies, railway stations, airports, supermarkets, and many other formerly “polyvalent” places, which have not been committed to specific purposes, have become enriched with communicative behaviors, to the disadvantage of offices and other spaces traditionally dedicated to social interactions.

The new kind of space inhabited by ubiquitous mobile media has also been theorized as “this place,” because the technology has a capability to locate the medium and therefore, the user. As mobile phone systems are tightly knit cellular structures based on a fine distribution of local antennas, the geographic location of every mobile phone (and its user) can be quite precisely assessed at any moment. Such functionalities are beginning to be exploited by emerging “location-based services” which allow individuals to call the closest taxi-driver, to identify the address of the nearest pub or liquor store, or to verify the current whereabouts of one’s closest friends. Hemment (2005: 32-39) directs his theoretical focus to this capability of the mobile phone of informing its present location to the network. Calling the mobile phone a “locative media,” he emphasizes the fact that the mobility of the mobile phone, its freedom to roam, paradoxically leads to a reassertion of place and location. He makes a pertinent point, as location-awareness, the technical capability to locate, has emerged as a key concern across a broad range of contexts, not only for the purpose of the routing of calls but especially for that of the delivery of contextual, location-specific information. It means a convergence of geographical and data space, and a practice of “putting a sense of place back into cyberspace.” Taken at face value, Hemment writes, this would imply that when we speak of the *Any-place* of the mobile phone or of the *Non-place* of the Internet, we might literally be referring to the *This-place* of “locative media,” in which the user both occupies and constructs (33-34).

2.1.2. Adoption and user-experience

To provide an answer to the question of how this hugely influential technology has reached its current stage, Hyvönen and Repo (2005: 166-78) start from the perspective of the diffusion of innovations, and find that the adoption of mobile services does not take place as straightforwardly as the theory of the diffusion of innovations

proposes. Literatures on the diffusion of innovations illustrate, mostly at the aggregate level, that new information and communication technologies will firstly be adopted by young, high income and well-educated males with a strong interest in new technologies (ibid 168). But, in contrast to this theory, Hyvönen and Repo show that socio-demographic characteristics were not central predictors of the adoption of mobile services. Apart from age and gender, most of the other characteristics, such as education or income, did not explain differences in the adoption process. It also emerged that the “adoption” of mobile services does not necessarily follow the diffusion patterns of mobile phone “use.” In other words, it is one thing to purchase a mobile phone to make phone calls and another to start using the mobile phone for other purposes. Hyvönen and Repo (175-76) emphasize that users are not simply passive adopters of new innovations; instead, they shape the supplied technology in ways that fit their own current and future needs. Their findings that users also function as innovators complement diffusion theory with the element of “social shaping.”

As another model of adoption process, McBride (7-10) relies on Actor Network Theory. The point is that, in order to adopt and use mobile communication technology, the interests of the actors in the network have to align, involving the *translation* of those interests into a common interest. This translation is achieved in the network through the common definitions, meanings and *inscriptions* attached to the technology. The actors then *enroll* others into the network, which will grow to reach a critical mass and the technology eventually reaches a state of stability so that the notion of *irreversibility* can be established. The use of mobile communications becomes an essential and standard part of everyday life at this point. And, once the shift to using mobile communications becomes irreversible, the technology turns into a *black box*, whose contents and operation no longer need to be considered, being taken-for-granted and treated as a part of everyday life, embedded in everyday activity.

McBride introduces the cases in Gabon, Senegal, and Nigeria to explain that where the interests of the actors do not align, the network disintegrates and the adoption of mobile communication technology is halted; but, if the actors and their network operate properly, the new technology can be introduced successfully. While in Gabon the introduction of mobile communication technology was not very successful, in Senegal and Nigeria the technology has been popularized in a short period of time and now farmers look for market information and traders communicate across Lagos with their mobiles (ibid 9). Criticisms on this approach are possible because the direction in

which the actor network moves towards stability may be strongly influenced by those actors who have the power of access and resources, and can therefore direct the network towards a state which meets their requirements. But the prime value of this approach lies, according to McBride (12-13), in its use as a sensitizing device, which makes us aware that the spread of mobile communication networks is not merely a technical exercise in establishing physical infrastructure, but a social one involving understanding of the social dynamics of the technology and the intimate relationship between the technology and the geographical and social environments in which it operates.

While perspectives from Actor Network Theory describe the process of the adoption of mobile technology in a broader social context of involved actors, theories based on the domestication of technology focus on how individual users accept and use, or reject a certain technology. Y. S. Lee et al. (2009) apply the theoretical standpoint of the Domestication of technology to their investigation of older adults' experience with mobile phones. As it has been developed from the "social shaping of technology" perspective, the basic assumption of the theory of the Domestication of technology is that the user has a dominant role in defining the nature, scope and functions of the technology (ibid 2). The users are assumed to conduct the domestication process in four phases or dimensions—those of appropriation, objectification, incorporation, and conversion. Appropriation is the process of possession or ownership of the artefact, which gives it significance, while the phase of objectification is through which the users ascribe their cognitive values and aesthetics to the technology. Incorporation is the process during which an artefact is used in everyday life, and eventually there comes the conversion process at which the product reaches a "taken-for-granted" status, becoming part of the user's everyday life (ibid). With this study Lee et al. aim to provide a broader theoretical and practical view for the development of products that can generate high quality user experiences (4).

The primary motive for adopting a mobile phone has been found to be its instrumental functions. Most individuals attribute the motive to the possibility of getting reassuring information about the well-being of loved-ones, or the chance to call for help in emergency cases like car accidents (Ling and Yttri 2002: 142; Palen et al. 2001: 4). But, as mobiles invade more and more of daily routine behavior of all kinds, it has been observed that there is a remarkable increase in the use of other functions. One of the notable cases is so-called "grooming calls," which have primarily (or even exclusively) a non-instrumental, socio-emotional function. Mobile users are observed as showing

concern, solidarity and commitment, and articulating nearness, compassion, sympathy and love through their mobile phones. For them, to receive a call may in itself be considered a sign that one has not fallen into complete oblivion, regardless of what is actually communicated (Licoppe and Heurtin 2002: 106).

Fox (2001: 1-3) thinks that it is gossip that functions as a “vocal grooming,” the human equivalent of the “social grooming” of other primates, and this grooming is essential to our social, psychological, and physical wellbeing. Through her national survey, she finds that the main advantage of the mobile is, what she jokingly calls the “Martini benefit”—the ability to gossip anytime, anyplace, anywhere. This phenomenon had been observed in most people without differences in gender, as her results reveal men to be gossiping as much as women (2; 6-7). In this way, she describes, the mobile phone, as a new medium for gossiping and as a new garden fence, can be seen as re-creating the more natural, humane communication patterns of pre-industrial times; it may be a space-age technology to return to stone-age gossip (ibid 1). Gergen (2002: 239) confirms this point, writing that “with the mobile phone, one’s community of intimates more effectively sustains one’s identity as a singular and coherent being. One is continuously, if sometimes painfully, reminded of one’s place in the flux of social life.”

However, Fortunati (2002: 42-62) tells a different story in her exploration of the reasons for the mobile’s success in Italy. Her analysis reduces support for what are commonly accepted hypotheses that the mobile is *par excellence* about mobility and for the maximum of intimacy between people. Based on her research, Fortunati finds that the mobile’s wearability is the most relevant aspect of its identity, and argues that it is wrong to reduce the mobile’s wearability to a matter of handiness, comfort and innovation. According to her research results, there is an increasingly important role of the mobile phone as a necessary “fashion accessory.” It means that, she argues, the mobile’s being near the human body and tending to reside there for long periods will inevitably yield new problems, especially at the existential and phenomenological levels, because the human body is a complex cultural product and contains various argots and relational strategies. It is evident for her that the mobile phone is developing an identity which is much more articulated and complex than that of other communicative technologies, and therefore theoretical concerns on the technology need to call upon a full array of social and aesthetic exigencies of what she calls “the thoroughly modern human” (ibid 61).

The problems related to the mobile's characteristic of "residing closest" to human body have also been examined by Daliot-Bul (2007) from another perspective. She focuses on the socio-cultural impact of the *keitai* (the Japanese name for the mobile phone) on Japanese culture, as it is arguably the most mobile-saturated one in the world. Her argument is that the *keitai* has evolved into a youth-oriented platform of play (954-71). She finds that, in a variety of ways, the *keitai* playscape becomes a greenhouse for new communication possibilities. She points to the fact that the unique duality of the *keitai* as a constant dimension of social life and as a playscape turns it into more than an arsenal of alternative cultural possibilities and strategies. Based on McLuhan's work, she assumes that the message of any medium or technology is the change of scale or pace or pattern that it introduces into human affairs, and that play induces socio-cultural change since it has the power to impose its own assumptions by setting the human community into new relationships and postures.

The colonization of everyday life by the *keitai* playscape, Daliot-Bul argues, thus promotes a strong and irrepressible "everyday hedonism," a cultural ambience, which is expressed in the celebration of sensual pleasures, the pursuit of desires, the idealization of aesthetic experiences and affective sociability. Its imagery is promulgating new kinds of sociality and interpersonal communication in which emotionality rather than reserve and restraint is key, giving young generations the tools to make their lives more pleasurable, to express and distinguish themselves by combining knowledge, information, skill and creativity (ibid 967). Her point is that the *keitai* playscape is more than a popular escapist haven. It is a mechanism of socio-cultural transformation, a clear instance of how popular youth culture is changing contemporary Japanese culture and society at large, because youth styles tend to migrate up the age scale and accordingly the adults tend to be granted greater license for childlike behavior, and vice versa (ibid 968).

The mobile's short messaging service (SMS) has also attracted much theoretical interest. Texting has become a phenomenon, as it is cheap, even free, and has its specific benefits. For example it can be received without anybody else taking notice, and this privacy contrasts with oral calls, which can drop into completely unpredictable environments where unwelcome third parties may be present. It can also be sent regardless of the receiver's circumstances; it enables senders to hit the keypad whenever they like, and for the receivers to retrieve the message whenever they want. With its technical characteristics, texting also nurtures a specific kind of communication

behavior. The need for extreme shortness makes it legitimate to be direct, so that even shy people, or even people from cultures which prohibit very subjective expressions, feel free to communicate. Plant (2000: 56) writes that texting has become particularly popular with individuals and in cultures which tend to be reserved with other people. And, in both Bangkok and Tokyo, teenage boys and girls value texting as a means to communicate without having to voice feelings and thoughts. The demands of brevity can also encourage text messagers and emailers to be candid, frank, informal, and even cheeky, so that ice can be broken, intentions declared, and invitations offered, all without the risk of embarrassment (*ibid*).

Texting, therefore, does not necessarily involve letters. Especially among younger generations, it rather incorporates number, symbol, icons, and emoticons. In a way the mobile phone can catalyze the emergence of subcultural segregations, while connecting people without the limitations of space and time. Among the large number of researchers who have noted various consequences of this unprecedented communication practice, Levinson (2004: 110-12) reports that, as the use profile of the young differs from that of adults, the cleavages are mostly happening at the cultural level, and are mainly visible between age groups. He finds the younger population's use profile to be clearly centered around new, text-based messagings and multimedia functions, rather than voice functions. Adolescents especially have embraced the possibilities offered by mobile communication in a very versatile way: new cultural meanings have been established around the phenomenon and their prank calls and special terminology in text messages do not easily and necessarily open up to an outsider, making their culture partly invisible or hidden from adults (*ibid*).

As a part of the theoretical efforts to address the specific nature of texting, Malik et al. (2009: 469-79) explore how animated texts can convey certain emotions—for instance, anger, sadness, happiness and fear—assuming that certain attributes or features of animated text will communicate those specific emotions. They call animated text by various names, such as kinetic typography, moving text and type in motion, defining it as a mobile message which uses specific animations or motions, such as shaking, twisting, fading, bouncing, looping, jittering and flashing (*ibid* 476). They find that animated texts do in fact communicate emotion more effectively than neutral text. Participants often cite the movements of the text as suggestive of, or comparable to, the movements of the human body. Therefore, the animated text, they conclude, tends to act as a sort of embodied motion, where the movements could easily be associated with

visible physical reactions and responses that correspond to emotional communication.

Still, this does not necessarily mean that everybody is doing totally new things with their mobile phones. Lots of theorists emphasize that, generally speaking, the majority of the things people are doing with their mobiles are the same as before, albeit more efficiently or perhaps more quickly, and in different ways. For example, if we think of whole population, the content of texts is mostly about the affairs of everyday life and the greater part of calls and text messages are actually within the sphere of family and friends (Ishii 2006; K. S. Kim et al. 2006; Reid & Reid 2004; Wei & Lo 2006). The difference is that, with mobile phones, we are living within “co-present situations” (Ling 2008: 93-115), engaging in “real-time networking” (Townsend 2000: 10), and there is a widely taken-for-granted “mobile logic” (Ling and Donner 2009: 135) that assumes we are all available via mobile phones at anytime, anywhere.

It has been argued that this unprecedented convenience and efficiency of the mobile phone has come at a price. Debates surrounding the contradictions and side-effects of mobile communication technology are still an unsettled issue: for instance, researchers have observed a blurring of boundaries in different parts of the world (Castells et al. 2006; Ito et al. 2005; Ling and Pedersen 2005), in public and private spaces as well as within selves, in the possibility of control and freedom, and so on, in addition to health-related problems (Burgess 2004). As examples of the contradictory implications of the technology, for instance, there are studies showing that, while mobile technology enlarges the sphere of employer authority, allowing reachability to employees at leisure hours, it also frees employees to invade their workplace with private activities (Harper 2001; Grant and Kiesler 2001). And, while it has been found that mobile phones work as an instrument for parents to tighten their control over kids, mobiles also help children to evade parental control (Green 2001; Berg et al. 2005).

There are both pressures and releases from pressures in the mobile phone. Hochschild (2003) works on the invasion of private time with work, while Chesley (2005: 1237-48) suggests that the mobile phone facilitates a “work to family spill-over” (1238) that plays out, particularly in the case of women, in terms of increased stress and lower family satisfaction. Her results point to the Faustian dilemma: in the hope of gaining a type of control, we are adopting the tools that allow further split-ups in addition to speed-ups. The mobile phone permits women to exist in their domestic and work worlds simultaneously; they are now working “parallel shifts” rather than what has been described as the “double shift” (Rakow and Navarro 1993: 153). As a

consequence, traditional asymmetries of social power and control—the authority parents exercise over their children, the dominance of males in society and in family life, and the vulnerability of women—may be accentuated. In a Finnish study, for example, it has been found that males are more prone to evade social control by switching the mobile phone off at certain hours, while women leave it on even at night (Puro 2002: 23). This highlights important differences between the genders still reign; women are more often expected to give their location to make them reachable at all times—for instance, by their kids in cases of sudden need (Fortunati 2002: 51).

Users of mobile phones often experience psychological or existential splits. Answering a phone call means disengaging oneself psychologically from face-to-face discourse, at the level of verbal communication at least. While we talk into the mobile, we give the person at the other end of the call more importance than the person in front of us (Ling and Donner 2009: 112). This ambiguous dimension of presence/absence in space also means the restructuring of the sense of belonging to a place. It is actually transformed into the sense of belonging to one's communicative network. Our partial mode of adherence to a single place is translated at the same time into a sense of potential belonging to a host of different places. The mobile phone thus requires its user to manage the intersection of the real present and the conversational present in a manner that is mindful of both (Plant 2000: 26).

These splits and speed-ups are addressed by Katz (2008b: 444) as the “added new complexity” to the management of life situations. Katz (ibid 435) writes that, though the mobile enhances physical and social freedom and increases choices in life, the reachability conundrum is a prominent reason for non-adoption of the mobile, even though non-adoption is no longer really an option, especially for younger people and perhaps eventually for everyone. Westlund (2008: 448) makes a similar point, observing that Swedes show little interest in using Internet or accessing the news on their mobiles, feeling that the medium has become too pervasive, and wanting to keep their mobiles as a personal communication tool. It is clearly possible for users to exercise considerable “control” over this reachability, exploiting various functions like voicemail, caller ID or texting, as these asynchronous communications do not eliminate reachability per se (Baron 2008).

With this reachability conundrum, more and more people are being left in an “eternal states of preparation, arrangement and rearrangement, characterized by endless deferrals and reshufflings of meetings and events which might even never occur” (Plant

2000: 64). With the use of mobile communication systems, meetings have the ability to adjust the agreement “as the need arises” (Ling and Yttri 2002: 139). Such social settings are “real-time systems” (Townsend 2000: 9) where everything happening is conditioned by *current* situations. It can be said that, when fully used, the mobile phone effects a transformation of social systems from the “solid” state of rigid scheduling to a “liquid” state of permanently ongoing processes of dynamic coordination and renegotiations. S. D. Kim (2002: 70) finds that this kind of a more fluid, spontaneous arrangements made possible by mobile phoning is particularly akin to an aspect of Korean culture, where people often call each other for an “after-work party” on a very short notice, instead of organizing a neatly planned and prescheduled party as in the United States. Fortunati (2002: 55) also writes that in Italy the inherent sense of flexibility, which can appear to outsiders as disorganization and incoherence, leads the mobile to be seen as the ideal instrument for rapidly adjusting the fabric of daily living.

While expanding the possibilities for reaching out, mobile phones can also contribute to the strategy of defending a minimal private space for individuals. It is observed that women on their own in cafes and bars and on trains now use their mobiles as “barrier” signals, as a form of “protection” from the potentially threatening world around them. Moreover, the idea of one’s social network of friends and family members being somehow “in” the mobile phone means that even just touching or holding the phone gives a sense of comfort and sends a signal to others that she is not alone and vulnerable (Fox 2001: 2; 15). This function of the mobile as a “symbolic bodyguard” (Lasen 2002b: 27) has also been reported as supporting tendencies towards social closure rather than tendencies to open up to new acquaintances. Fortunati (2002: 56) concurs with this point noting that, in Italy, usage is highest among individuals who maintain close contacts with their kin. The possibility of a nomadic intimacy is achieved, she argues, but, as it is a form of itinerant “cellular” intimacy, there is very limited chance for the discovery and direct experience of social space in all its aspects.

In relation to the issue of “closure,” Plant (2000: 62) reports that some people are even unable to operate alone, leaving themselves dependent on the mobile as a source of assistance and advice. In her study a group of young intellectuals in Chicago expressed the concern that such potent mobile connectivity might undermine people’s self-reliance. Some people interviewed in Tokyo also felt that there was less chance for the time which would be spent standing and staring at, for example, cherry blossoms, and more chance to avoid being alone with one’s own thoughts or inner resource. To fill

in unoccupied stretches of time, the space-saving *keitai*, being so perfect for crowded platforms and trains, claims much of their time and attention, although books, comics and newspapers are still read by many of Tokyo's commuting millions. Plant argues that for some people the effortless contacts and fleeting noncommittal messages made possible by the mobile are ways of avoiding more immediate and forthcoming kinds of interaction. In her report, a Japanese student expresses concerns that younger *keitai* users are becoming "less capable" of direct, social communications. Even more striking finding is that a Japanese mobile service company allows users to court "virtual girlfriends" by their mobile phones, and many teenagers have dozens, sometimes hundreds of *meru tomo*, "email friends," who may never meet and only ever know each other through their *keitai*. For some teenagers, such virtual friends can act as substitutes for actual friends, just as video games can replace their real lives (ibid 57).

2.1.3. Cross-cultural examinations

It is obvious that the mobile phone is a particularly global technology. It is manufactured and managed by international crosscurrents: handset might have been assembled in China from materials that come from around the globe; it uses a network protocol developed by an international consortium and runs on a network funded by a joint venture between a domestic firm and an international telecommunications carrier based abroad. And, for the users, their mobiles connect them with people around the globe. Hundreds of millions of people living away from the countries of their birth can speak to their family. It is a multiplicity itself, which liquidizes and blends locality, distance, and technological possibilities.

Still, human practices with the technology are not always universal. Notable similarities and dissimilarities between different cultures have been observed. Schroeder (2010: 75-90), for instance, focuses on two countries (Sweden and the United States), and finds that the convergences between the two cultures outweigh the divergences. He looks at aspects of leisure and sociability and notices increasingly common patterns of multi-modally communicative relationships across the two cultures (ibid 75). Baron and Hard af Segerstad (2010: 13-34) also report that Swedish and American university students like to be able to reach others on their mobiles, but do not like to be always reachable themselves. But for the problem of the blurring of the differences between public and private spheres, it is not accepted alike in all cultural settings. Even within Western Europe, there are reported differences in the public use of mobile phones: the

French being more reluctant about making private calls in public than people in England or Spain (Lasen 2002b: 7). On the other hand, lengthy mobile phone talks seem fit well into the lifestyle of Southern countries like France and Spain, where much of daily living always proceeds under the open sky. In Paris and Madrid where streets are typically used for idle strolling, it is quite common to see people talking on their mobiles for a quite long stretches of time, while it is rare in London where pedestrians typically use public spaces for efficient locomotion (ibid 15).

Where mobile phones come in contact with specific cultural traditions, researchers find particular types of the human practice in relation to the technology. Among others, Kriem (2009: 617-32) investigates mobile phone practice in Morocco where he finds three unique types of mobile phone communication practices becoming popular and meaningful. There are commonly adopted practices of “beeping,” which allow people to communicate with each other without having to pay for the call, as they disconnect calls after one or two rings. By doing this, the caller leaves his or her number and it can indicate “a meeting in 15 minutes” or whatever, according to the pre-arrangement or the context of their communication at the time (ibid 624-25). Kriem also notes that traditional socialization practices, such as *Silatu rahim*, which means “maintaining the bonds of kinship,” are now becoming mediated through the use of mobile telephony (620). He observes that, especially for young Moroccans, it is now common to send their relatives an SMS with greetings for Ramadan, instead of visiting them. Another interesting finding is that, there are cases of “random networking,” that is, calls and messages made by chance having evolved from temporary to more permanent connections, such as long-lasting friendships and romantic relations, including marriages (ibid 623). The new practices of mobile telephony, Kriem concludes, are gradually replacing traditional face-to-face communication, bringing about changes in identity construction processes in Morocco, where people used to define themselves and be defined by the “networks of dependents and obligations” (625).

In Asia, people are far more centered on mobile phones than on computer-based communication, compared with Western countries (Shristava 2008: 19-22). The intensive use of mobiles in Japan has been described as creating an “ambient virtual co-presence” (Ito and Okabe 2005: 264-66), especially with frequent text messagings. “Always on” connectedness can also appear on social networking sites (SNSs), which are extremely popular in Korea. The dominant Korean SNS, Cyworld, has been available for mobiles since 2004 (Haddon and Kim 2007: 5). Y. Kang (2008: 420)

estimates that perhaps ninety percent of South Koreans in their twenties are registered Cyworld users. Its most popular service, mini-homeP (mini homepages) allows users to exchange photos and gift tokens, and leave messages on each other's pages. Users complain that they feel "low" if there have not been left any messages, and they confess that they can communicate feelings which would be more difficult face to face through their mini-homePs (ibid 426). While constructing and engaging with this kind of connectedness requires effort (it is sometimes perceived as burdensome), it provides a means of including friends in your everyday life, generating an ongoing mobile community (ibid 428-29).

Literatures on mobile phoning show that the mobile phone is a highly versatile medium which entails a variety of interpretations and applications in relation to the everyday life of humans. The medium is seen more likely to amplify, than reduce, psychological, social and cultural divergences, because of its ability to adapt to different purposes in any sphere of life. Mere possession of the device is thus not a very informative indicator, as it does not tell much about the extent and the ways the medium is used in reality. The indeterminacy and unpredictability of the technology is growing even bigger, as it assimilates more and more different functions, for example, the capacity of sending alphanumeric messages, mobile banking and trading, internet searches, pay on the go, and various location-based services, to name just a few. Accordingly, individuals have a broader range of options at hand: while in low-tech environments human experiences have been shaped largely by "hard" physical factors, in high-tech settings they are constituted by "soft" factors like personal preferences and motivations, informal or formalized needs and role expectations, and by cultural choices. Much extensive and sophisticated research is necessary in order to address this complex sphere of communication.

2.1.4. Korean context and literature review

It is from the first decade of the new millennium that academic researches on the mobile phone began to emerge in Korea and the majority of these studies have had, and still have, the aim of providing the business sector and government with background information and knowledge, rather than that of serious theoretical engagement. Currently available books on mobile phone technology are very few and the scope of their interest is rather limited. For instance, J. S. Kang and S. H. Park (2005) focus on educational issues, treating the problems of mobile phone addiction and

mobile digital divide (43; 151). They show concern about the so-called “M-generation”—the young, mobile-literate population—and their “media competence” (211). They argue that, even though the generation is very good at exploiting various functions on the mobile, it does not mean that they are using the technology in a “right” way (150). In this rather normative approach, no detailed explanation is given of what is the “right” way of using a mobile phone. It can be assumed that they are pointing to the problems of the excessive and intrusive uses of the technology, and its socio-cultural implications.

To serve the industry rather than the government, M. K. Lee (2010) devotes the whole of his book to the study of news contents for smartphones, aiming to meet the newly-emerged need from mobile service providers. With a similar purpose, W. S. Kim (2008) writes about how Korean mobile phone manufacturers (especially Samsung) have developed high-end mobile phone technologies to expand their business around the globe. On the other hand, S. H. Lee and S. J. Kim (2011) aim to serve general public, rather than the industry or the government, with their exploration of current digital media—tablet PCs, wired and wireless communication technologies, internet protocol television (IPTV), digital multimedia broadcasting (DMB), smart TV, and smartphones. They give introductions to each technology, explaining its technical concepts and logics of operation, and reporting the most recent state of development and the prospects for each media. What they advocate with all those endeavor is “digital literacy” (511-13)—the knowledge to understand and the capability to make use of the possibilities of digital media. Their point is thus different from the notion of “media competence.” While Kang and Park (2005) emphasize the need for the control of the possibilities of mobile phones, Lee and Kim encourage us to embrace and make the greatest use of the possibilities of digital media.

Only in recent years Korea began to see serious theoretical engagement with mobile communication technology taking place. In 2004 the first international conference on mobile communication was held in Seoul, the capital city, under the sponsorship of SK Telecom., the leading mobile service provider in Korea. As its title “Mobile Communication and Social Change” demonstrates, the main focus of the conference centered on social, economic and regulatory issues—the adoption of the technology and the topics of design, software or applications of mobile technology. Secondly, though not directly focused on mobile phones, there was a convention devoted to the issue of digital media and its contents in 2006. Entitled “The Future of

Digital Media and Contents,” it was organized by the Korean Association for Broadcasting and Telecommunication Studies. Among the papers presented, mobile communication-related ones were mainly concerned with business and were interested in the likely demand for mobile television, the relationships of mutual dependency or competition among different mobile media, and the possibilities of mobile advertising. As they included very few papers addressing the cultural implications of the technology, the two events did not raise serious theoretical issues enough to produce meaningful socio-cultural theories about the mobile phone. Nevertheless, these conventions can be seen as an indication of how important the technology has become for the everyday life of Korean people, and as an expression of an urgent need for more diverse and rigorous study about the technology.

Even though they are not as rich, in volumes as well as in scope, as those conducted in Western countries and Japan, studies of the mobile phone in Korea deal with similar topics and show concerns on similar problems to those in other countries. Notably there has been a strong trend of the uses and gratifications approach. Based on the basic assumption of the perspective which argues that people choose and use a specific medium in order to satisfy their needs (S. W. Lee 2004: 535), researches in this tradition examine the issues of motives (I. H. Lee 2001; J. H. Lee et al. 2004; Bae 2001; Seong & Cho 2002; S. Y. Lee 2003; Ahn 2006), usage in socio-cultural context (Nha 2002; Bae 2003; K. S. Kim et al. 2006), and the problems of addiction (Nha 2005; W. K. Park 2003; S. O. Yoon and W. J. Park 2006; Han and Huh 2004). J. H. Lee et al. (2004: 247-328) have located the basic motives for the adoption of the mobile phone as being mainly those of convenience, portability, and immediacy. However, this has been challenged by a very different report which finds that, for younger generations, the mobile phone is not only about convenience, but is also important as a way of complying with the culture of their peer group (W. K. Park 2003: 250-81). This is similar to the findings of some Western researches (Ling and Yttri 2002; Palen et al. 2001), while being dissimilar to those of Fortunati (2002), as the motive for a fashion statement is relatively weaker than other ones. It has also been found that motives and satisfactions are different according to the types of users. For example, for those who use it for a social-oriented purpose, the mobile phone tends to be used to show off their social status and wealth (I. H. Lee 2001: 261-93).

To examine the differences in ideas and feelings, and the degree of satisfaction according to individual differences, Seong and Cho (2002: 153-90) classify users as

traditional, innovative, and introvert, to find out how they feel satisfied at the levels of instrumental and social purposes. Ahn (2006: 273-74), in comparison, rather focuses on different types of lifestyle, assuming that they would influence the selection of the mobile phone. In his classification of three types of lifestyle—active and success-oriented, affirmative and self-achieving, and, passive and not-oriented—the first group showed the strongest tendency to choose the most popular brand and had the highest brand loyalty, being sensitive to design as they wanted to be ahead with trends. The first group also preferred hot item handsets with high-performance, choosing expensive service providers with a high social reputation, but the price of handset showed no significant difference among the three groups.

The conception of the mobile phone itself and the pattern of its use also vary according to age group, as the purpose, utility, and familiarity with the technology are all different (S. D. Kim 2002; Bae 2003). The young generation is more individualistic and more mobile, and, as they feel familiar with the technology, they are more active in using it (Nha 2002), showing the greatest difference in mobile messaging (E. M. Kim 2006). Also using the uses and gratifications approach, J. K. Kim (2004) enquires into relationships among psychological variables, contents serviced, and the satisfaction with the use of the mobile phone, to find differences in age groups. He reports that adolescent users are more conscious of contents, while adults are mainly satisfied with psychological variables rather than contents variables (313).

Differences in the characteristics of mobile users can also affect the privatization of public space, that is, people's uncontrolled use of mobile phones in public space (Joo 2004). He categorizes users into three groups according to their way of using mobile phones. Among three groups—expressive users, habitual users, and instrumental users—the results show that users belonging to the first and the second group go farther in their privatization of public space, using their mobile phones more than instrumental users. It has also been revealed that the less concern the users had for public issues, the more they tend to privatize public space (ibid 473). From the perspective of society, such findings can mean that as individual-oriented uses of mobile media grow further, more negative effects will be observed, such as much less attention to public issues by members of society and more interest in personal matters.

S. W. Lee (2004) examines the motives of mobile phone users to find out competitive relationships among the mobile phone, email, and landline telephone. He reports that motives for choosing a medium are different and that, for that reason,

mobile phone use has not replaced landline telephone use, contrary to the view that the landline telephone as a primary medium for interpersonal communication is becoming obsolete (541). K. Yoon (2003) too argues for the maintenance of traditional communication practice from a different angle. He notices that in Korea young people maintain traditional forms of sociality by re-articulating them through their own way of mobile phone use—an “immobiling” of mobile media,. That is, in order to maintain the integrity of relationships in space like school or at home, they use the strategy of “immobiling,” which means “minimizing the mobility of their mobile communications” (335). This may involve switching off their mobile phones during face-to-face interactions with friends, or switching off the caller ID option at their parents’ request so that they are unable to avoid their parents’ calls. The practice of sharing mobile phone use among family members and friends also serves to reinforce traditional intimacy, representing a way of traditional sociality being maintained and reinforced through the use of mobile phones (340).

Concurring with the view that the mobile phone would not wipe out traditional media, Ban (2004) emphasizes that digital mobile communication has not replaced traditional media use—television, newspaper, and the Internet—and suggests that digital media can “co-evolve” and “co-exist” with the traditional media (96). Also considering this topic, J. H. Kim and Jin (2004) examine the relationship between the perception of social presence and the perceived appropriateness of four interpersonal media—mobile voice calls, mobile messages (SMS), instant messages (IMS), and emails. They define “social presence” as “the feeling that other actors are jointly involved in communicative interaction,” and assume that people would prefer a medium which provides a higher degree of social presence (513). The findings are that the highest social presence has been perceived from mobile voice calls, followed by IMS, SMS and email. It has also been found that there is a positive relationship between perceived social presence and the perceived appropriateness of the media for the maintenance of relationships (515).

Compared to the strong trends of the uses and gratifications approach, there has been far less research into the mobile’s implications on, for example, the human body, the perception of space, emotional attachments (and addition), gender difference, or the generation gap. K. O. Kim (2006: 262-70) is one of those who has tried to extend McLuhan’s theorem of “Media—the Extension of Man” through his exploration of the mobile body and space. He questions how the human body, combined with mobile media, produces communication in space. Based on the notion of “the tetrad of media”

(McLuhan and McLuhan 1992: 98-99), he assumes that media, as well as other artefacts, influence human culture, society, and consciousness in four ways—through extension or amplification, obsolescence or closure, retrieval, and reversal. He examines how the mobile phone enhanced or facilitated human abilities for communication in terms of what has become obsolete or been marginalized, what has been retrieved, and what kinds of new forms emerge as a result of the new possibilities. His finding is that, for men, the mobile phone has taken up the functions of the watch, the camera, the music player, the diary, the phonebook, the memo-pad, the calculator, the album, the dictionary, and games. For women, it is more a medium to express emotions and to make connections with friends or relatives. He also notes that mobile messages are more often about self-expression, than about exchanges of information. This McLuhan's theorem has been applied to other mobile phone studies, notably Song (2004: 183-212), who sees the mobile phone as an extension of the ego, being a medium fulfilling needs of mobility and the desire for self-expression.

In addition to the pervasive use of the mobile phone, the extensiveness of the plan to make Seoul one of the most digitized cities of the world has provoked concern for its city space (S. C. Kim 2004: 467-72). Though it has already become a space where mobilities and flows provide a powerful way of looking at the circuits of people, goods, data, and services constantly constituting and restructuring the city, recent constructions of urban infrastructures are more particularly characterized by the expanded use of information and telecommunication technologies. As the most illustrious example of this government-initiated drive towards an advanced information society, S. C. Kim studies "The Digital Media City" (DMC) project, which was launched in 2002 and is scheduled for completion in 2012. It is being built on a 560,000 square meter area called the *Sang-Am* district, within the city of Seoul. It is literally a city within the city, with a fabric of wired as well as wireless digital media technologies. Its streets, parks, plazas, offices, and, residential and entertainment blocs would have the most optimized capabilities for digital communication (469).

In parallel with this movement, S. C. Kim studies a film titled *Take Care of My Cat* in order to investigate how young Korean women manage their friendships in this space of mobilities and flows. He regards the movie as a cinematic description of the contemporary space of Seoul. Citing Castells (1996), Harvey (2006), and Urry (2000a), he calls the urban space of Seoul a "placeless" "non-place," which is in opposition to the sociological notion of place with a localized culture (468). The movie is, he writes,

about five young women, who are former high school classmates. They take a labyrinthine path, making unexpected turns in their journey from their hometown to Seoul. In the movie the prime and indispensable tool for their uninterrupted bond is their mobile phones. Their mobiles are ringing throughout the movie from the beginning to the end, while their messages are incessantly being printed on the screen. The movie demonstrates incessant pieces of frantic, fragmented communications among those five women, which S. C. Kim regards as their desperate attempt to re-appropriate and re-negotiate with the city space of Seoul (471).

Aside from concerns about the human body and the city space, a growing volume of studies has shown an interest in gender differences in relation to mobile phone uses. D. H. Lee and Son (2004) argue that, though it cannot be generalized, women are more active than men in their adaptability and willingness to adopt the multi-media functions of the mobile phone. They find women to be continuously expanding their social and cultural experiences and their capability of using other new digital media through using their mobile phones (243). They also write that women use their mobiles more frequently to maintain close bonds with friends and family members, showing a strong interest in traditional family relations and self-expression. They see that this is the way by which women retain feelings of security, self-confidence, stability, happiness, and belonging (ibid). This characteristic of women's mobile phone use has also been a topic for Bae (2003), who reads the difference from the perspective of the Korean value system. He finds that, in contrast to D. H. Lee and Son (2004), one of the reasons for the women feeling closer to their mobiles is that they want to escape from solidarity and the stresses of the traditional family system and oppressive sex-roles (110-12).

Gender differences in mobile phone use have also been observed among youngsters. It is reported that, among the late-teens group, boys are more interested in the technological and entertainment part, thus regarding the mobile phone as a "machine," while girls are more interested in emotional interactions maintained through messages (Nah 2005: 198-232). And, as the younger generation is more inclined to leave their mobile phones turned on at all times, making and accepting calls in public places, there have been worrying concerns that they have a lower receptivity to social norms. This phenomenon, Bae (2004) argues, suggests that more and more youths are inclined to satisfy their own desires for utter privacy in communication. He worries that, while making the most of the merits of mobile phones, they pay little heed to social

etiquette and invade public space with incessant calls and answerings being poured from their mobiles. Once defined as a “universally accessible neutral territory that is collective, social, pluralistic, and inclusive,” public space is now under attack. Moreover, he emphasizes, their reckless use of the technology could aggravate complications between generations, as older people are disapproving, or even pessimistic, of such behavior (431-32).

Adolescents are found to be carrying their mobiles all the time, using them almost habitually more than any other age groups, and they tend to use them for time-killing or for changing their mood (Joo 2004: 130). This tendency is especially manifest among teens, and the younger they are, the more likely they use them to the degree of addiction (I. H. Lee 2001: 290). Even college students feel unsettled when they are without their mobile; they incessantly check whether something has come in. According to W. K. Park (2003: 280), seventy-three percent of his respondents experience so-called “withdrawal symptom” when they are without their mobile. In relation to this phenomenon, S. D. Kim (2004: 88-94) questions how such a deep gap among different age groups has come to be created around new information and communication technologies. According to his investigation, there is a certain break in the use of media between the generation who adopted the Internet and the mobile phone in their late teens or early twenties, which means, at the apex of their learning capacity, and those who did so in their later ages (91). When the users learn how to use a certain technology is crucial to how they are using it now. Users in their teens and twenties find major channels of information and entertainment from the Internet and the mobile phone, while their parents do so from television and newspapers. Though it is a matter of relativity, this leads to a description that *technology constructs a generation of its own* (92), especially in the case of mobile communication technology, because the pace and the complexity in its changes are much faster and deeper than those of the Internet. Different levels of skills in using new technologies bring about differences in amounts of available information, ways of seeing the world, and the scope of sensibility. The new, complex mobile communication technology, S. D. Kim argues, is becoming a source of a digital divide between generations, leaving aged population to find their place only on the margin of the society (93).

On the other hand, S. O. Yoon and W. J. Park (2006) approach the problem of people’s dependence on the mobile phone from a psychological perspective, using the conception of “attachment.” They define the notion as a “feeling of close and intimate

relationship with something or someone that gives comfort and stability” (293-94), and see more of it from women, frequent users of multimedia functions and messages rather than voice calls, and those who like to fashionize their mobiles (304). S. O. Yoon and W. J. Park also report that, if disconnected, those who show a higher attachment to their mobiles tend to feel stressed and apprehensive, being seen as avoiding social relationships (ibid). But this feeling of attachment to the mobile phone is not necessarily to be seen negatively (Nah 2005: 198), as people feel safe, convenient, and stable with it. Nah maintains that, in relation to the mobile phone, the notion of attachment should be understood as “an everyday reliance” (230) upon the technology, considering the fact that the feeling of self-efficacy on communication is being constituted through the experience of mobile phoning.

Despite the fact that the country produces the most advanced types of mobile devices whose worldwide market share has been growing larger and larger, and the fact that the Korean government reported the number of subscribers as having reached 48.6 million, which amounts to ninety-four percent of the whole population, as of 2008, it seems in Korea theoretical interests about the technology are still focused on a rather narrow scope of social issues, being short of dealing with the complexity of its implications. As a possible reason for this, it should be noted that in Korea there was hardly any theoretical infrastructure for mobile communication technology and the meaning it has for human life until the mobile phone has been introduced to the market and quickly reached a state of almost full saturation among the population, compared with the USA and European countries where interactions and debates among related conceptions and technological experiments have paved the way for the present state of the technology. As in recent years there began to emerge more serious theoretical interests and studies on the mobile phone in Korea, it seems timely to introduce another theoretical dimension with this work to the current Korean context of the studies on mobile phoning.

2.2. Method for empirical research

2.2.1. Overall design

For an appropriate method to look into mobile phoning, it is very important to recognize the dynamics and multiplicities arising in the course of the interactions

between the mobile phone and its users. As mobile phoning is not a matter of representation, signification, or containment, theoretical attention to it should be focused on the relational and processual happenings, rather than the instrumentality of the device or the autonomy of the user. The aim of this research is to understand communicative human practice with the mobile phone, an evolutive onto-genesis of a subject and an object in real situations, providing rich descriptions on the emergent and processual practice of mobile phoning. To serve this purpose, the empirical data should be “raw”; it should be the original language of the respondents which “tells a story.” This means an engagement with raw phenomena, rather than with idealizations, so as to encompass the concreteness of the experience of mobile phoning in its everyday ins and outs.

This study thus primarily focuses on the analysis of individual cases. Rather than a cross-examination or a categorization, this study aims to provide vivid illustrations for each of the specific cases. It follows an ethno-methodological perspective, in the sense of prioritizing the people’s ordinary, routine, and detailed pieces of everyday life, to understand their “methods of making sense of their social world” (Wallace and Wolf 1991: 295). Furthermore, in appreciating the complexities and unexpected bifurcations of the experience, this study considers the experience to be like “walking through a maze whose walls rearrange themselves with every step you take” (Gleick 1988: 24). The purpose is therefore to describe the specificities of mobile phone users’ experience in those steps that constitute the real world they are living in. It is also a strategy of pragmatics (James 1978), towards a proper recognition of emergence that precedes any evaluation or judgment, and towards an achievement of incisiveness and a delicacy of actuality in everyday human practice.

The spirit of “re-envisioned ethnography” (Schlecker and Hirsch 2001: 69-87) has provided an important methodological background for this study. The adoption of ethnographic methods in the fields of Media and Cultural Studies and Science and Technology Studies has been especially extensive, engendering more fundamental changes than in most other fields of the human sciences. The turn towards ethnographic methods in the two fields can be seen as a response to the increasing difficulties in coping with a seemingly boundless unfolding of complexity. In Media and Cultural Studies, the move towards ethnography occurred when researchers began to contextualize the media experience in everyday settings; in Science and Technology Studies, on the other hand, ethnography was utilized when scholars began to engage

with detailed investigations of laboratory practices.

In both fields, the increasing use of ethnography was thus in response to the recognition of ever more contexts. The theoretical background of this turn were assumptions that more contexts could procure more knowledge, and that meaning is accomplished through the merographic exercise of making things part of a context, a whole. In both fields, the merographic relating of, for example, television viewing or laboratory research, to various contexts, for example, advertising industry or human rights activism, was thus always bound to be insufficient to constitute the wholeness of these actions. With “re-envisioned ethnography,” however, each description is understood to contain within itself that which it describes. Part and whole collapse into one; another context does not yield more knowledge, but it is an alternative description or described unity.

Appreciating the spirit of this perspective, the empirical method of this study has been designed to investigate open-ended responses from mobile phone users. Findings from such an approach will be longer, more detailed, and variable in content. Analysis will be complicated because the responses will be neither systematic nor standardized. Yet the open-ended responses allow us to understand the world as it is seen by the respondents. The purpose of gathering responses to open-ended questions is to understand and capture the points of view of respondents without predetermining those points of view through prior selection of categories. Indeed, the first principle of the design of the method for gathering empirical data in this study is to capture the respondents’ experience “in their own terms,” and to learn *their* categories for rendering explicable and coherent “the flux of raw reality” (Patton 1990: 24; 31). There will not be involved in any part of this study pre-categorizations or judgments about whether what occurred was good or bad, appropriate or inappropriate; the data will simply describe what occurred.

Open-ended responses generate more information that is more detailed and varied. There are surely quantitative studies that also have a large volume of information in that they involve collecting lots of numeric data. In those quantitative researches, however, the data themselves tend to both shape and limit the analysis, because the ultimate goal for them is a fairly straightforward endeavor towards a generalization. No matter how large their sample size is and how vast the volume of their information is, all they need to do in the end is to apply some aggregate and analytic statistics and to generalize the result towards an explanation of the whole. In

contrast, open-ended responses contain “raw” data, allowing an almost infinite number of ways to be organized. They describe the phenomenon of interest in great detail in the original languages, telling a story of their own which provides rich description of the phenomenon.

To achieve this openness, the design of the empirical method used in this study turns to four important points as Woods (2006: 2-6) has advised: a focus on natural settings; an interest in meanings, perspectives and understandings; an emphasis on process; a concern with inductive analysis and grounded theory. It is above all interested in “life as it is” lived in real situations, making as few assumptions as possible in advance of the study. “Natural experiments” (ibid), which are events that occur naturally but interrupt ordinary courses of life, are of prime importance for this method. There are things to be found out, without giving a clue beforehand. It also pays great attention to how respondents think about their situations, and what meanings they attach to their behavior. It seeks to be sensitive to the perspectives of all respondents and the interaction that is occurring between their perspectives and situations in order to see how they bear on each other. In other words, it focuses on process—on how things happen and how they develop, on the becoming of the technology and its user. As the basic assumption of this study is that everyday life is an ever-changing picture, a continuous process, which is always emerging in a state of flux, and subject to change, it is very important to reveal it in a fine detail to see how changes are occurring in day-to-day activities, negotiations and decisions. This approach requires theory to be “grounded” in the data, in “thick descriptions,” which go beyond mere fact and surface appearances. Such data presents detail as well as context, and the webs of relationships that connect the technology and the people. In thick descriptions, the voices, feelings, actions and meanings of interacting individuals are heard (Denzin 1989: 83).

Being a “discovery-oriented” approach (Patton: 1990: 39), the method based on these points is thus naturalistic; it contrasts with experimental research in which, ideally, the investigator attempts to control the conditions of the study or to manipulate external influences as completely as possible. By exploring genuinely open questions rather than testing theoretically derived (deductive) hypotheses, it immerses in the details and specifics of the data to discover the important dimensions and interrelationships; it is thus inductive. It also has a “unique case orientation,” which is being maintained alongside “context sensitivity” (ibid 60): it assumes that each case is special and unique and thus the first level of inquiry is to capture the details of the individual cases being

studied. Cross-case analysis follows from and depends on the quality of individual case studies. Though the findings are to be considered in a broader socio-cultural context, the possibility or meaningfulness of generalizations across cases or time and space will not be a concern of this study. Instead, it is based on what Patton (1990: 60) calls “empathic neutrality”; the aim is to understand the world in all of its complexity.

2.2.2. Sampling

Respondents were chosen by purposive sampling because proportionality or representativeness is not the primary concern of this study and it makes easier to reach a targeted sample effectively and quickly. It is typical for qualitative studies to focus in depth on relatively small samples, even a single case, selected *purposefully*. On the contrary, quantitative methods typically depend on larger samples, selected randomly, because of their very purpose of generalization. The logic and power of purposeful sampling is in selecting *information-rich cases* for the study in depth. Information-rich cases are those from which one can learn a great deal about issues of central importance to the purpose of the research (Patton 1990: 174). As the strategy for selecting purposeful samples, this study firstly looked for critical cases, which are those that can make a point quite conspicuously or are, for some reason, regarded as particularly important for the topic of mobile phoning.

To locate critical cases, or, in other words, information-rich respondents, the method of chain or snowball sampling has been utilized. The process begins by asking well-situated people: “Who knows a lot about this?” or “To whom should I talk on this?” (ibid 176) With the repetition of this process, the snowball gets bigger and information-rich cases are accumulated. This study has found five service providers and three software developers to be key informants as they were willing to give support while sitting for preliminary interviews. According to their information, the age group of the most avid users of the mobile phone in Korea is currently between the late-teens and the thirties. From five mobile phone service retail shops, five critical cases have been chosen, being recommended by each of the shops as the most information-rich person in mobile phoning. Then the five has been extended to thirty people, by a process of snowballing, that is, by enlisting further respondents by the initial five people. Ten people in their twenties and twenty people in their thirties have participated as respondents in this study. Teenagers are excluded because in Korea it is at the age of twenty that people graduate from high school and the everyday life of a high school

student in the country has a lot of particular characteristics due to the fierce competition for college entrance examinations. To address teenagers' practice of mobile phoning properly, a full separate study would have to be undertaken.

The sample size may seem small in comparison with the sample size needed for representativeness. But it should be emphasized again that the purpose is not a generalization from a sample to the whole of which it is a part. The logic of purposeful sampling is different from that of probability sampling; and therefore purposeful samples are to be judged in context, on the basis of the rationale and strategy of each study (Patton 1990: 185). The validity, meaningfulness, and insights generated from this study have more to do with the information-richness of the cases selected, rather than with the sample size.

2.2.3. Diaries

Having been chosen, thirty people, divided into two groups, were asked to keep a record of their daily use of the mobile phone over a period of one week during September 2006, and later they were invited to in-depth interviews. The younger group consisted of ten people in their twenties; they were eight college students and two who were preparing for college entrance exams. The elder group consisted of twenty people in their thirties. Among them twelve people have full-time jobs, and three are self-employed, and the other five are full-time housewives.

The "diary-interview" method where self-completed diaries are followed by interviews asking detailed questions about the diary entries was chosen because it is considered to be one of the most effective and reliable methods for obtaining information in qualitative research (Corti 1993: 1) as it has a number of advantages over other data collection methods. Self-completion diaries are particularly strong when used in conjunction with other methods, as in the "diary-interview," where the diary is made the basis for an interview to check for clarity, completeness, and validity (Woods 2006: 16). In particular, self-completion diaries have the following advantages to serve the purpose of this study: firstly, they can provide a reliable alternative to the traditional interview method for events that are difficult to recall accurately or that are easily forgotten; secondly, like other self-completion methods, diaries can help to overcome problems associated with collecting sensitive information by personal interview; and finally, they can be used to supplement interview data as they provide a rich source of information about respondents' behavior and experience on a daily basis.

Self-completion diaries are “natural” and “processual,” as they contain personal accounts, meanings and understandings. Therefore, the format of the diary has been designed to be as open as possible, keeping pre-fixed questions to a minimum, so that the respondents could write about their activities and events in their own words. There were basic questions they could answer by simply checking over their call logs and message boxes—when, to whom, and for how long they made/received calls and sent/received texts on that day. And in the open space they were encouraged to write down other activities they have done with their mobiles—alarm call, picture taking and sharing, mobile Internet surfing, or whatever. An A4-sized booklet of twenty-five pages has been given to each of the thirty respondents. It contains an inside cover page with a clear set of instructions about how to complete the diary followed by the second page featuring a model example of a completed diary. Long lists were avoided since they could be off-putting and confusing to the respondents. At the end of the diary pages, a simple set of questions has been included to ask the respondents whether the diary keeping period was atypical in any way compared with their usual daily life. The respondents were also encouraged to add their own comments or clarifications of any peculiarities relating to their entries.

The period over which a diary is to be kept needs to be long enough to capture the behavior or events of interest without jeopardizing successful completion by imposing an overly burdensome task (Corti 1993: 3). The diary keeping period has thus been established as one week for two reasons. Firstly, considering that it is common for the average person to organize their activities on a weekly basis, one-week period would be long enough to capture the ordinariness of the respondents’ mobile phone use without imposing an overly burdensome feeling. Secondly, it would help to minimize the so-called “reporting errors”: it has routinely been found that the first day and the first week of diary keeping shows a higher participation in reporting than during the following days (ibid 3-4). The respondents have been invited to a placing interview firstly; the aim was not only to explain the diary keeping procedures but also to emphasize that they could contribute to making their mobile phones more serviceable and fun by participating in this research. To maximize the effectiveness of the data, it has also been brought into consideration that not all respondents would be diligent enough to keep diaries every day. Thus an intermediate call has been made to all respondents in the middle of the diary keeping period to prevent “recall errors.” Moreover, to appeal to the respondents’ altruistic nature and to ensure their co-operation,

incentives have been offered—a coupon with which they can purchase various cultural products (books or tickets for movies, plays, exhibitions, and other events) roughly equivalent to the cost of five new books.

2.2.4. Interviews

The interviews started with the most general question possible in the hope that it would be sufficient to enable the respondents to talk about their experience with their mobiles. When the talk did not flow smoothly the interviewer moved either to a more general topic or to a more specific point, depending on the situation. This was enough to get the respondents talking. It has always been kept in interviewer's mind that a successful interview includes questions and answers at both general and specific levels and moves between the two fairly seamlessly (Smith 1995: 15). Smith's advice on the "prompt," "pointers," and "tips" (Smith 1995: 13; 15; 17) has been applied to these (semi-)open-ended interviews. It was very important too for the interviewer to orchestrate an interaction so as it moves easily and painlessly between topics and questions (Mason 1996: 45).

The combination of questions for "topic-initiating" and "following-up" was the central way of these (semi-)open-ended interviews: basically topic-initiating questions introduced topics of talk on which the interviewer would like the respondents to focus; the follow-up questions provided the possibility of gaining *very detailed and comprehensive talk* on those specific topics. The following questions constantly aimed to "unpack" the earlier talk, and to allow for a multiple number of "mentionables" (Rapley 2001: 315) to be followed up or explored further. Knowledge about mobile phoning could be *locally* produced in and through this process, in which large numbers of mentionables became resources. To prevent the respondents from being led too much by the interviewer, prompting or initiating has been kept to as little as possible, so that it could be no more than a gentle encouragement.

As this study aims to address multiplicities and specificities of each respondent's experience, no set of standardized questions was given, nor were any rules about the wording or sequence of questions given. The interviews relied, as far as possible, on the spontaneous generation of questions in the natural flow of the interactive conversation, so that the respondents may not even have realized they were being interviewed for the collection of data. Obviously, this open-ended, unstructured, informal, and conversational interview required a greater amount of time and the data

collected as a result was difficult to pull together. But it is exactly what this study wants to achieve; a deeper understanding of the multiplicities of experience.

In order to tap into the depths of the respondents' everyday experience, it has also been regarded as essential to develop empathy with them (Woods 2006: 11). The interviewer tried to appear as someone engaging with the respondents on a personal basis rather than having a special role. The purpose was to form an engagement of "active listening" (ibid 13), which conveys the idea that, while appearing natural, the interviewer is focused and interested enough in what the interviewee is saying. Rather than a "structured" interview with predetermined structure and questions, this method can be seen as a "semi-structured" interview which has some of pre-set questions but, more importantly, allows a big space for open-ended answers.

Rather than a sample-based logic, the aim was to achieve a "case-based" logic that works for "saturation," rather than representativeness (Small 2009: 28). The case-based logic also works for what Burawoy calls "societal significance": he argues that the importance of the single case lies in what it tells us about society as a whole rather than about the population of similar cases, in other words, "statistical significance" (Burawoy et al. 1991: 281). As Mitchell (1983: 190-200) writes, the question of "how do you know that the case you have chosen is typical" betrays confusion between the procedures appropriate in making inferences from statistical data and those appropriate to the study of an idiosyncratic combination of elements or events which constitute a "case." Believing that "extrapolation is in fact based on the validity of the analysis rather than the representativeness of the events," Mitchell contrasts "statistical" inference from what he variously calls "logical" or "scientific" inference: the former, the process by which the analyst draws conclusions about the existence of two or more characteristics in some wider population from some sample of that population; the latter, the process by which the analyst draws conclusions about the essential linkage between two or more characteristics in terms of some explanatory schema.

This case-based methodology can also be seen as in line with the new, *expanded* empiricism (Clough 2009: 43-61), as it is non-reductive and concerned with the forces always starting up again in the midst of encounters and interrelationships of subject and matter. Rather than searching for the substance behind the play of the forces, this empiricism offers "performative" dynamics of affective "modulations" which necessitates the recognition of the significance of Deleuze's transcendental empiricism—an empiricism of potential immanent to matter (Clough 2009: 60). It is

because this study of mobile phoning is an engagement with performative dynamics, which is uncertain and *inventive*, that the new empiricism has been appreciated and employed. Expanded empiricism or “a posterior” empiricism looks not at “ideal” conditions of society but at real existing stuff and real existing social processes; it deals with uncertainty, chaos, complexity and multiplicity so as to be able to investigate social processes in their very factuality, their open-endedness, and their irreducible path-dependency (Lash 2009: 180).

Chapter 3

Parasitology and the Return of the *Other*

3.1. A new mode of relationality

Serres' notion of parasiting, as a mode of relationality among humans and between human and the world, is based on his unique understanding of reality and knowledge (Girard 2005: 13). For Serres the real is not cut up into regular patterns; it is sporadic spaces and times with straits and passes. He assumes that there are fluctuating tatters and looks for the "passage" among those complicated cuttings. He sees that the state of things is like islands sown in archipelagoes on the noisy, poorly-understood disorder of the sea. Rationalities emerge from that sporadic space and they are neither evidently nor easily linked. Passages do exist, but cannot be generalized, because obstructions are manifest and counter-examples abound, and for this reason the global does not necessarily produce a local equivalent, and the local itself contains a law that does not always and everywhere reproduce the global.

For this understanding of reality, Serres proposes an alternative model of science. Firstly, science for him is not a linear process; it is neither a gradual accumulation of knowledge nor constant epistemological revolution. Instead, the history of science runs backwards and forwards over a complex network of paths which overlap and cross, forming nodes, peaks, crossroads, and interchanges which bifurcate into two or several routes. What represents the complex history of science is a shifting fabric formed by a multiplicity of different times, diverse disciplines, conceptions of science, groups, institutions, capitals, people in agreement or in conflict, machines and objects, predictions and unforeseen dangers (Serres 1995b:6). Serres understands historical developments in science as a topological and changing distribution of points in complex spatial arrangements and transformations in the relationships between those arrangements.

The second point about Serres' alternative understanding of science is that science is not the sole custodian of reason. Contrary to the Bachelardian tradition (Bachelard 2001), Serres thinks that we cannot be instructed by science alone. Furthermore, he does not adhere to another important point of the tradition which asserts that science advances through psychological moments or "epistemological breaks" with the past. The Bachelardian approach opposes "scientific knowledge" to "ordinary knowledge," seeing that scientific concepts pervade technical and pedagogical

activity. Serres rejects such an approach. In his conversations with Latour (1995:112), he maintains that reason is to be found across the entire fabric of the modern world: “In a certain way reason is, of all things in the world, the most equally distributed. No domain can have a monopoly of reason, except via abuse.” It is thus important for Serres to look to local practices, because every “language,” by which he means “locality” or “particularity,” has its own stockpile of wisdom. To find reason we need to learn how to “speak all languages” so that we can develop a “tolerant ethics, of third-instruction, a harmonious middle/milieu” (1997: 164-65).

In his study of Lucretius, Serres (1982b: 98-124) demonstrates this alternative model of science in detail. The major work by Lucretius, *De rerum natura*, written in the first century BC, is widely seen as primarily a work of poetry and secondarily an example of classical atomism. But Serres claims that the work should be marked as the origin of modern physics, as the poem itself describes the emergence of the world from a vortex that is produced when an originary disturbance occurs in laminar flows of atoms falling endlessly in a void. Serres sees the work as giving an account of the passage between three forms of order: the “zero state” of dead repetition in which atoms fall without deviation; the sudden turbulent state (“*turba*”) arising by accident when a small change in direction of a given atom—the “*clinamen*” or minimal deviation—sets up a catastrophic chain of collisions; and the subsequent stabilization of the movement of atoms into a vortex pattern (“*turbo*”). Serres then emphasizes how this delineation has been made on the basis of the theory of tangents, spirals and hydraulics; interpreted from Archimedes, it is a non-Platonic and non-Aristotelian study of the beginnings of the universe. Serres considers that it is a story in which physics neither represses nor manipulates nature—for example, through experimentation. Lucretian physics is a science of caresses whose logic is fluid and multiple rather than binary, and its models are taken from nature—rain, cloud, vortices, and cyclones. Lucretian science thus teaches us “naively,” without separating itself from things. As Serres believes that the best model to understand the world is the thing itself, or the object as it exists, Lucretian science exhibits a crucial character for Serres’ alternative model of science and the relationality of humans as well as things.

Serres (1982b: 98) proceeds to emphasize how the work by Lucretius is a “hymn of praise” to Venus, goddess of love and voluptuousness, who is opposed to Mars, god of warfare and death. For Serres the two figures symbolize two different relationalities of humans to the world, two different “contracts” (*foedera*) between

human and nature: Mars presides over the falling atoms in the void, the invariant, geometric, predetermined world of the relationship of *foedera fati*—a blood contract, while Venus ushers in a different kind of world, that of *foedera naturae*—a natural contract (1995c). The world of natural contract is fluid and turbulent, and in it the relationship between causes and effects is not readily apparent. It can only be ascertained in a probabilistic or stochastic fashion: “The angle [*clinamen*] ... breaks the chain of violence, interrupts the reign of the same, invents the new reason and the new law, *foedera naturae*, and engenders nature, as it really is. The minimal angle of turbulence produces, here and there, the first spirals. It is literally the revolution. Or the first evolution towards something other than the same. Turbulence disturbs the chain. It troubles the flow of the identical, just as Venus disturbs Mars.” (Serres 2000: 110) Serres’ point is that within a natural contract the relationship is fluid and open to possibilities of the emergence of the new. There is nothing pre-determined; nature—the real—is there to be experienced directly. We communicate with it and participate in it. For Serres science—from geometry to Newtonian mechanics—has consistently chosen the path of Mars, seeking control and determinism. It is only recently, with the “rediscovery” of fluid mechanics and the new understanding of turbulence and emergence provided by the complexity sciences, that Venus has returned along with the possibility of a different kind of contract.

Serres (2003) considers Leibniz to be an exemplary figure for who has taken the path of Mars. Against the Lucretian science of discovery, multiplicity, and fluidity, Leibniz constructs his own system of the world, bringing together all the modalities of the encyclopedic knowledge that characterized the seventeenth century. He replaces the world of disorder with that of exact knowledge. Using the most rigorous and coherent elements of his mathematical knowledge, Leibniz aims to express the ideal of order in the classical age. But for Serres the legislation of order, of exact law equates to closure, because it serves the interests of whoever pursues power in economics, politics, or philosophy by closing off genesis—hence, the law is a “theft.” Serres claims that all of the institutions created by the seventeenth century were there ready to govern nature and the world; and science itself has become nothing more than a martial art, a calling for executions. Furthermore, he argues that metaphysics is nothing but an operatory, strategic set if it subordinates science to the status of only partial and dispersed tactics, which would mean that the classical ideal of order—through metaphysics and its subordinate sciences—is not an epistemology of knowledge but one of power

relationships. While emphasizing the foundational role of science for the understanding of relationships between humans and the world, Serres as such undermines the main positivist axiom which describes scientific knowledge as progress toward a greater truth. For him, the notion of progress itself can only be conceived as a series of indefinitely differentiable local cycles: “For any given process there are regional evolutions, partial accelerations, temporary regressions, alterances, equilibriums, finite transformations. The notion [of progress] is plural or pluralistic” (2003: 284).

As he does not believe that science is the sole custodian of reason, Serres’ alternative model of science, or more generally, of knowledge, finds instruction not only in various domains of science, but also in another sources—the sacred, myth, ancient religion, literature, and so on. For him these spaces make up an inventory of the adventures of knowledge, omitting nothing. Knowledge should trace a cartography of known lands, and the emergence and re-emergence of this spatial language of paths, routes, movements, and planes it marks the moment of passage toward a new writing of the world (“geo”-“graphy”). For Serres geography overtakes knowledge in finding the world and in forming a subject. Within a subject’s passage, to read and to journey are one and the same act to forge new relations between humans and the world—space and knowledge are conceived and recounted in the same way. Serres likes to contrast sporadic space of ancient Greece to the global village; with the notions of “journey” and “traveler” he emphasizes the commitment to the local, rather than the global.

For Serres to seek knowledge is to embark on the task of journeying between fluctuating tatters in the real, weaving connections between them. It establishes a communication between forms of knowledge, but such communication is noisy; it is a mixture of messages subject to transformation. In the real, there are harmony and noise, their amalgam, their alliance, their watered fusion, their crossing or cross-breeding and, in Serres’ word, their “musical temperament.” In this reality, equivocation *is* information. It is positive: it causes a system to re-organize itself at a higher level of complexity (Atlan 1974). Serres’ alternative model of knowledge anthropomorphizes noise, calling it a third man, a parasite, or a general operator. Serres finds that there is a far older usage of the word *noise* which denotes clamor and dispute (*chercher noise*—look for a fight), and he adopts this archaic term to name the “pure multiplicity” or founding disorder. Such a multiplicity is difficult to think for those who rely on visual and clear forms as pre-requisites for any analysis. For them there is “no vision without division”: hence noise is “black multiplicity.”

In Serres' thought, absolute order is not different from absolute noise in the sense that both lack "information." Serres draws this notion of information from Shannon and Weaver's (1963) classic information theory. In their bell shape formulation, with information on the vertical axis and equivocation on the horizontal axis, information is measured in a curvilinear function against the degree of equivocation present in a message or the extent to which a message is ambiguous. At one extreme, which is zero equivocation, there is absolute clarity between sender and receiver—perfect transparency, a perfect correspondence, which can be thought of rather like the complete reversibility of cause and effect as in Newtonian mechanics. Such a situation can only occur when there is an absolute identity between sender and receiver; communication is not necessary, and thus no information. At the other extreme, maximum possible equivocation, no message can be detected either, because of interferences. There is also no information, since it cannot be distinguished from background noise. Considered from an informational point of view, the two circumstances are therefore the same—zero equivocation and maximum equivocation are equally lacking information; they are equally "noisy."

In a state of "pure multiplicity," or founding disorder, a tiny differentiation, like the *clinamen* which initiates turbulence, turns noise into putative order. Serres (1995a: 111; Assad 1999: 37) names this state "white multiplicity." In order to arise from noise, it requires a minimal differentiation, like turbulence. It is an order in its "virtual" state, where all the possibilities for the emergence of order from all sorts of perturbations are present. It is a virtual order because it does not yet approach a clearly ordered form. It is a kind of in-between state; neither pure noise nor pure order—a "third" position between the two. This position is of primal importance for Serres, as it enables him to reconsider the relations between order and disorder, and to think over how everything begins, ends, and begins again. Serres repeatedly emphasizes that it is important to rethink the world not in terms of its regularities, but rather in terms of perturbations and turbulences, so that its multiple forms, uneven structures, and fluctuating organizations can be brought out. To rethink the physical universe of the *clinamen*, the transformational universe of thermodynamics, and the informational universe of noise means to re-appreciate founding disorder and its power, which change the world, rendering it in all of its complexity. On the contrary, the unitary space of representation reduces the multiplicity of reality to rational sequences and controllable consequences: it is thus a geometry of violence; it is for an operation, rather than for knowledge.

What Serres describes as an alternative model of knowledge is connection and communication. He seeks it by occupying the middle position, the “third space,” right in the midst of confluences, mediations, and transformations. Serres (1997) gives the name of “third-instructed” to anyone who is able to give up the comforts of disciplinary specialism and who risks putting oneself into perpetual “translation.” Serres conceives translation as an invention: it is not a “better” systemization of knowledge; nor is it a matter of shuffling the stuff of the world into different or ever finer epistemological categories. Translation, as an act of the forging of the new, is the very condition of culture for Serres. It is what affords relations between humans, perhaps even the very conditions for human existence itself. To understand the emergence of something new in the world, Serres suggests us to begin with tracing the chain of translations that underpins that emergence. For Serres to seek knowledge is to journey along pluralized spaces, constituted in a complex way and related to one another according to a multiple set of relations (Assad 1999: 121-25; 137). As a result, there is a multiplicity of paths: to know is thus to navigate between local fragments of space; it has nothing to do with techniques of separation and classification. The new space of knowledge calls for a philosophy of communication that expresses the totality of the world as it is. In this philosophy, the transport of concepts and their complexity and the intersection and overlapping of domains represent, express, and reproduce the very tissue in which objects, things themselves, are immersed. In order to constitute the network of communication among these multiple beginnings and domains of knowledge, one must establish corridors of communication across spaces and times, cultural formations and texts.

To relate this argument to the point of human relations, Serres (1982a) puts forward his original parasitology. He begins with the three meanings which ordinary French confers upon *le parasite*. The first is that of static or noise, which means an interference or interruption. The second is that of a biological organism which preys upon a host, one of the most basic survival strategies adopted across the living world. But what Serres’ sees in this common practice of the biological world is the possibility for “the emergence of the new from multiplicities, or disorder.” In Serres’ story, the two parties, a host and a parasite, make a new kind of whole as a result of mutual parasiting. He takes the example of a blind man and a paralyzed man who parasite on each other in order to be able to move. Forming a unity, the blind man provides force, while the paralyzed man provides information. They have become a new “one.” But their

relationship is not as simple as it seems. For example, the positions of the two parties are not definite ones, because the meanings of information and force always collapse into each other at every moment of their movements. When they move as a new “one,” information given by the paralyzed becomes force and, at the same time, the force provided by the blind gives new spatial information for further instructions from the paralyzed. As such, they constantly exchange places and the sum of the two is totally different from each one of them. The exchange of places also happens in the case of the third meaning of the parasite, which is the “uninvited guest.” This parasite is who charms his or her way to a host’s dinner table, eats for free or pays for the roast beef with tall stories, and eventually dominates the table, rewriting the relationship between the host and the guest. This seems an unequal exchange, but, for Serres, human relations always depend upon such an unequal exchange. His point is that the parasite opens up a channel where a new kind of exchange is possible; where sight is transformed into force, and food into stories. In terms of complexity theory, the parasite gives rise to a new form of complexity; it engineers a kind of difference by intercepting relations. Even a very small initial cause may multiply its effects and communication enables random acts of parasitism to amplify beyond all imagination.

It is notable that Serres writes Hermes, the Greek god of communication, as a central figure in his theory of relationships. In Greek myth Hermes is a messenger, an exchanger; but for Serres he is most of all a parasite. He pays for Apollo’s cows with music, his lyre; and later he also exchanges a little more noise, his flute, for Apollo’s golden staff and information as Apollo teaches him the art of divination. Serres points out that Hermes—the father of eloquence, patron of orators and musicians, and the master of words—is *noise*. This unique reading (or traveling, in Serres’ word) of the myth is itself his own methodology that works for a model of his alternative understanding of knowledge. For Serres, the birth of rationality and science signals the end of myth in its original form, because myth is an attempt to transform a chaos of separate spatial varieties into a space of communication, to re-link ecological clefts, or to link humans for the first time from the mute animal to the proto-speaker. He argues that all the unitary discourse through distinctions and partitions—the Platonic classifications, Euclidean divisions, logos and analogy—flows back toward its Pythagorean origin where the speakable, namely, the rational, splits the whole into what we call fractions, the set of numbers. However, Serres thinks that the problem of pluralized spaces does not vanish purely and simply, it is merely displaced. It creates a

new field, namely, *literature*, in which the work of connecting and disconnecting continues. Great texts of literature are saturated with mythical elements: “once the scientific contents are filtered out, a residue remains in which a circulatory game organizes reformulations of mythical material” (1982b: 42). Serres seems to think that the separation of knowledge into regions, formations, or disciplines is no longer applicable to our current situation. He maintains that we do have the irrational or the unspeakable—the incommunicable, and we have to return to the state of things before the establishment of rational discourse. It is the time when spaces were poorly joined and transport and itinerary were only myth. Knowledge must be reformulated on new bases; new practical and theoretical operators must be discovered, and new operations must be defined. Serres calls these operations interference, translation, and distribution, and they all converge toward the idea of communication. The figure of Hermes bears the very idea of communication: he has a multiple character; he is a happy parasite who travels through sporadic spaces. His journey is a *randonnée*, an expedition filled with random discoveries that exploits the varieties of spaces and times.

If the term “traveler” denotes the character who is fully engaged with the understanding of the world, the term “randonnée” illustrates what the travel is like. To explain the meaning of the word *randonnée*, Serres (1982b: 15-28) makes a comparison between the writings of Descartes and those of Rousseau. Descartes’ method stands for the straight line, which voids the real; he traces a rectilinear path “inspired by the long, simple, and facile chains of reason used in geometry.” But Rousseau, in his later time, writes the opposite; he refuses geometry, choosing botany as his science. He contemplates while walking, he *proceeds*—that is, he ambles in “circuits and exclusions.” Rousseau the herbalist adapts himself to the site, espouses complicated wanderings, the aleatory but happy destination. He passes throughout the whole site and calmly allows all the plants and flowers to bear fruit. It is in this kind of Rousseau’s walks that Serres finds his concept of random circuit, a broken and hazardous trip which can be attuned to the real. The original meaning of the term *randonnée* is shared by French and English alike in the usual lexicon of the hunt, where running randomly means pursuing the quarry, in other words, chasing the animal according to its unpredictable movements. It thus retains the memory of the erratic hunt, or “chance.” Serres gives a full definition for the term in *Eloge*: “...an old hunting term in which the quarry at bay tries to lose its pursuers unleashed at random, that is to say following impetuously behind it; capriciously it bifurcates its course, thereby completing, through

apparent irregularities, a circuit of stable design, in order to return to the starting point ... la randonnée: long, strenuous, determined by the circumstances, it does not overlook any particular feature, any law of return. It recognizes the rule through chaos and chaos through the rule...hence it is exodus and method at the same time” (1982b: 163). The randonnée, a contingent thing, is as such radically opposed to Descartes’ straight line—the necessary, pre-determined path; it is a heuristic lineage, which recognizes the unpredictability and immediacy of events, the detailed hodgepodge of the world, and things as they are, while acknowledging the rule as well.

Another seminal concept in Serres’ original theory of relationship is that of the “soup” (1982b: 29-38). While his notion of the randonnée stands for an attitude to be taken by travelers, his elaborate discussion of the “soup” is rather like a description of the land where travelers are ambling. Serres borrows Michelet’s hylozoism to develop his notion the soup, and then incorporates it into his theory of relationships among things, knowledge, humans, and culture in this world. Belonging to a very old tradition, hylozoism, the doctrine according to which matter was thought to be animated, was brought back into the scientific universe of Michelet’s time and developed into a philosophy through the combination of two schools: Neptunism and Heterogeny. Neptunism, which arose in Germany in the nineteenth century, is a theory which holds that the sea is the *Ur-Suppe*, the fundamental soup, that is to say the matter from which all other material things originated. On the other hand, Heterogeny, championed at the time of Michelet by Pouchet, supports the theory of spontaneous generation. It maintains that all living beings are derived from matter. As a hylozoist, Michelet applies the two doctrines to each other, to write *The Sea*, in which he constructs a chain of beings. This construction, according to Serres, represents both an ontogeny and phylogeny, because the Neptunian *Ur-Suppe* becomes what we would call today the “prebiotic” soup. This marine mixture, the primal liquid state, is the original state of life and a whole series of animate forms will emerge from this soup. In it the chain of beings is not linear: it is circular; it is a series of genotypic invariants; it is full of displacement.

The soup is essentially a mixture, and there can be no mixture without a movement to disperse the solute through the solvent. The centre of the pot in which the soup will get mixed is on the rim of the pot, and the centre of the world is on the edge of the circle. This movement can not be analyzed as linear or formulaic and it is very important point for an understanding of Serres’ theory of knowledge and relationships. To mix the solvent, to make it move, there must first be a *horizontal* movement, which

is ensured by the currents, tides, and streams of the sea, usually produced by astronomical forces. But this would produce only a surface effect were it not associated with a *vertical* movement, ensured by the surge of the sea, by storms or cyclones. Yet this is still not enough to mix the pre-biotic soup; there must also be major hurricanes of *circular* motion.

Serres notices how Michelet applies his scientific might to deal with the production of movement of this type. Michelet puts to use the most recent results of the physics of his time. First is what Comte calls *barology*, which is the science of weight pressures. It describes the high- and low-pressure areas all along the equator. The winds in each hemisphere circulate in cycles, circles of circles, in connection with the trade-winds. In addition, the theory of the cyclone delineates a system of cycles, a circle of cycles. In the computations of this kind of barological investigation, the world and the sea are represented by a mechanical model. The world is a static and a dynamic machine. The second branch of physics which ensures the production of these movements is what Comte called *electrology*, the theory of electrical phenomena, which deals with the circulation of electrical flux between terminals that begins at centers with a fixed difference in potential. The world is now an electrical engine. Hence the following theorem: the points we determine geometrically as *extrema* are *the poles of the two systems of circulation*, that of pressure and that of electricity. But this is just a conclusion based on the sciences known to Comte, positivistic sciences that were not particularly new. Serres thinks that Michelet's most original treatment of this movement lies in his involvement in thermodynamic circulation. He notes that Michelet's vocabulary is extremely precise from this point of view: he speaks of a boiler, a source, and a steam engine—finally, it is the sea, functioning as a steam engine, which performs the stirring of the soup.

What should be noted here is that these geometrical, mechanical, and electrical schemata become “naturalistic” in character with the involvement of thermodynamics. Therefore, Serres adds chemistry and biology on top of the combination of those schemata to sum up the basic philosophy of hylozoism: “What is hylozoism if not mechanism coupled with vitalism in a synthesis with no gaps?” One might assume a gap between the so-called physical sciences and the sciences of living beings. But Serres finds no such gap in *The Sea*. The soup—the world—a chemical machine because there are also points of condensation and cycles of displacement in those movements. Furthermore, the soup is not just a solution of multiple elements; it is

something like the blood of the organism called the Earth. Now the soup is a static machine, a compression engine, an electrical engine, a chemical machine, a steam engine, and an organism—all without contradiction. On this ground, Serres expresses the sum total of the areas of the encyclopedia as follows: *reservoirs exist for the circulation of the soup*. Michelet uses the word “reservoir” in *The Sea* to define the *maxima maximorum* poles; but, for Serres, it means “a set of elements” present in a given place. Accordingly, the term “circulation” indicates for Serres the “operations” by which these elements are distributed throughout a given space. In his list of examples, the reservoir is capital, the quantity of energy, the constancy of force, the libidinal reservoir, and so forth; and, what can be applied to the pattern of general circulation or the circle of circles is language, speech, words, vocabulary, values, money, or desire.

Having dealt with the problematic of multiplicity and movement of the world and knowledge, Serres (1982b: 44-47) proceeds to that of the human body, or any substance. For him, the body or any substance we are working on is not a crystalline structure, but a “filter” itself. The body is not plunged into a single space, but into the difficult intersection of the numerous families, into the set of connections and junctions to be established between these varieties. It is not simply given or is not *always already* there. The intersections and junctions are always to be constructed and the body lives in as many spaces as the society, the group, or the collectivity have formed: the Euclidean house, the street and its network, the open and closed garden, the church or the enclosed spaces of the sacred, the school and its spatial varieties containing fixed points, and the complex ensemble of flow-charts, those of language, of the factory, of the family, of the political party, and so on. The body is immersed into the intersections or junctions of this multiplicity; whoever remains in one of these spaces or, on the contrary, refuses all of them, is treated as ill-adapted, delinquent, or disoriented. Serres sees that a culture constructs an original intersection, a node, between such spatial varieties, in and by its history. Cultures are differentiated by the form of the set of junctions, their appearances, their places, as well as by their changes of state, and their fluctuations. What they have in common and what constitutes them as such is the very operation of joining, connecting, and *weaving*. The category of *between* and *bifurcation* is fundamental in this topological space to interdict in the rupture and cracks between varieties completely enclosed upon themselves. The essential thing is indeed to make another connection upon the disconnected. The randonnee, the global wandering, the mythical adventure, is, in the end, only the joining of these spaces, where the objects or target of discourse are

there only to make connections, and where the junctions—the relations—constitute the route by which the traveler passes.

Taking the idea of the *randonnée* as its central topos, Serres' writing is itself a dazzling connection of myth, fables, literature, history, and science. He begins with the smallest turbulence, that is, the most local of problems, and proceeds to make multiple junctions successively. His aim may appear to be towards the global, towards a description which may hold for the entire system, and this may be a reason why Hayles (1988) thinks that he seems to keep driving toward the universal. Her criticism is that Serres seemingly cannot help feeling what virtually all scientists, and almost no deconstructionists, do: the power of scientific explanations, the passion for economical expression, and the characteristic of the scientific aesthetic. However, it is difficult to agree with Hayles' argument because Serres is always resolutely committed to the local. Even though he tries to conceive a model with explanatory power, he always makes it clear that the model itself is to be considered as local. Moreover, Serres' writing is rather opposed to "scientific"—economic—expression. It is like a bifurcating passage; when he speaks of global problems, he finds the origin and the state of the problem from complicated crossings of wider and deeper contexts. For example, unlike Manuel Castell's analysis (2000) of the networked forms of sociality that accompany the "new economy," Serres emphasizes that economic or cultural changes need to be understood in terms of deeper problematics—such as that of scapegoating, sacrifice or "evil"—which have their roots in the sacred as much as in the economic (Abbas 2005: 42-43). Serres is often dismissive of the rhetoric of "the global," seeing it as born of a tendency to begin with a "monstrously inflated" conception of the local.

Serres' work is itself "noisy." For instance, his *Genesis* (1995a) deals with the founding role of noise and disorder in the production of order. It is itself a disorderly and noisy text made up of interleaving examples and discussions which resist any systematic summary. For this reason, Hayles (1988) criticizes that the "passage" between Serres' rash theorizing and brilliant insight in his writing is so narrow, and that the distinct voices of literature and science which mingle within Serres' "equivocal" channel are conflated with each other to form a cacography of confused claims, signaling a failure. However, Brown (2002: 2) argues that this is based on a profound misinterpretation of what Serres is actually seeking to achieve. As Serres puts it in a discussion with Latour (1995: 68), the utility of his method is that it enables a way of conceiving provisional connections between otherwise disparate phenomena. Brown

reminds us that Serres calls his methodological approach “structural,” and that it is the kind of structuralism inspired principally by the algebraic work of the Bourbaki group. Being completely different from the more conventional sense of structuralism in linguistics or anthropology, this mathematically grounded understanding of structure derives models by proposing functions which relate a set of elements whose precise composition is not determined in advance. For Serres, the notion of structure therefore designates a set of elements whose number and nature are not specified; it refers to a set of elements provided with only one or more operations—that is, one or more relations. If one specifies the number and nature of the elements of the structure and the nature of the operations, then its model becomes evident (1982b: 16). In other words, if one can posit the relation, it becomes possible to extract a model which can be extended beyond the present given elements.

It is exactly this sort of “structure” which Serres displays in his work, *The Parasite*. Borrowing from a fable by La Fontaine, *The Town Rat and the Country Rat*, Serres details the nature of the relation specific to two rats in order to extract his model of parasitism. He then continues to demonstrate the model through a series of other fables by La Fontaine, through the biblical story of Joseph, Moliere’s *Tartuffe*, Rousseau’s *Confessions*, Plato’s *Symposium* and so on. With each of the demonstrations, Serres puts the model to work in a different way, while creating yet further links with information theory, anthropology, economics and politics. In the end, his model of parasitism is finally “loosely structured.” Thus Serres’ model can be seen as “ready-mades” rather than concepts for generalization, since they are invented afresh with each of new elements and their operations (Serres with Latour 1995: 43-76). Rather than simply generalizing the relationships, Serres demonstrates his model through a unique way of gradual addition and the substitution of new elements. He “partakes” rather than deconstructs, and “savors” rather than criticizes the materials he works with. His works are full of introductions, demonstrations, comparisons, and inventive connections among a vast array of unconventional sources. But there is very little critique, which is not to say that he is comfortable with the problems of the contemporary world. It is just that his project is an “enlightenment without the critique,” as Latour (1989) describes it. Rather than to pin down the matter to the narrowest point, Serres lets it go “snowballing,” precisely because that is the way it is in reality.

The process of making connections, of forging a passage between two previously disparate domains, is of tremendous importance for Serres. For example, he

(1982b: 54-62) illustrates how the painter Turner's use of light and color reproduces the transition that occurred during the Industrial Revolution. Serres claims that Turner "translates" the scientific logic of handling matter and the shift from classical mechanics to thermodynamics into his artistic practice. The very way Turner constructs his famous paintings around two light sources—the so-called "hot" and "cold" sources—surrounded by undulating clouds of "color-matter" is a way of the statement connected to the new model of work that thermodynamics brings in. For Serres, Turner, with his paintings, directly confronts the changes in how matter and force are understood. His point is that Turner has not simply been informed by the science of that time; rather, through his artistic practice, Turner contributes to the development of a "model" that makes a previously improbable or unlikely connection—cultural *and* scientific, practical *and* theoretical. In other words, Turner acts as a relay point around the cultural shift towards industrialism and the scientific shift from "cold" mechanics to "hot" thermodynamics. Turner anticipates the coming culture/science and theory/practice by "entering the boiler" where "the perception of the stochastic replaces the art of drawing the form." Serres sees Turner's translation as an "invention"—the mixture of issues of technical composition in art with the emerging model of work and matter accompanying the industrial revolution.

Translation is seen by Serres as an act of "invention" brought about through combining and mixing varied elements, and this notion of translation also plays a seminal role for actor-network theorists. For instance, Callon (1987b) summarizes his version of the term as "creating convergences and homologies by relating things that were preciously different." What Callon emphasizes with this description is that translation takes place on a site where varied "significations, concerns and interests" commingle. He points to a loose structure or "network" of associations between ideas, things, people and resources around which and through which translation processes are enacted. On the other hand, Latour (1987) emphasizes that the act of making "something new" occurs through the forging of novel associations, almost a kind of bricolage, in this process of translation, whether it be a discovery of an object or the formulation of a theory. This point of invention or the emergence of the new has been pushed further by Benjamin (1969) and Law (1987) who regard that translation is also a kind of betrayal, a treason. Law argues that, if to translate is to transform, then in the act of transforming, a breaking of fidelity towards the original source is necessarily involved.

To think translation as an invention or a betrayal leads to the reconsideration of the role of noise in communication. If a translated message turns out to be different from the original, or even to be a totally new one, it signals a failure in classical information theory. But Serres and the above-mentioned actor-network-theorists see the matter differently. Serres regards a message in any communication as an equal mixture of signal and noise, or interference produced in the course of transmission. Thus the many and varied contents and patterns of communication between art, science, and engineering which took place during Turner's time can be characterized as much by noise or misunderstanding as by understanding. Serres argues that interferences play a formative role in the development of a given set of ideas or theories and this argument is based on a perverse aspect of information theory first identified by Atlan (1974). Atlan does not agree with classical information theory, which places noise or interference in a completely external position, outside the relationship. For him, noise is in fact the backdrop against which communication happens, and it does play a role, since it is the necessary ground against which the signal stands out as something different. Noise is really a part of the relationship between sender and receiver; it is an accompaniment to the signal. However, Atlan does not see that any noise can have its own informational value, since the accompaniment looks very different depending on its position in the communicative relationship.

Serres concurs with Atlan in seeing that noise can be a productive component of all information transmission but he goes one step further: not only can there be no straightforward exchange of messages from one point to another, but, without noise, interference, there could be no communication. In other words, he believes that, in order for there to be any kind of relationship between sender and receiver, some form of noise or interference, that is, an injection of difference, is required. For Serres this occurs through the very opening up of a passage, which exposes the signal to noise, and thus to potential transformations. It sounds like an interesting paradox that successful communication necessarily involves the risk of failure. But the point is that, for Serres, opening a new path for communication is itself a noise; it is a disturbance for the two previously disparate parties, because they inevitably experience transformations as a result of the connection. Hence it does not make sense at all to think of communication in terms of success or failure: the two value-laden notions are to be discarded. A message which has been transformed on the way by translation may be a failure if seen from the position of a sender. But if seen from that of a receiver, this is not necessarily

the case. Moreover, if seen from a “third” position, the apparent failure is indeed an invention. This is precisely Serres’ main point. At stake is not the linear, pre-determined space of “from a sender to a receiver”; it is rather the *in-between* space and the dynamics and multiplicities, as well as the possibilities in it.

For Serres (1982b: 125-33), the space of *in-between*, which supposes the junction between two sciences or two concepts, can be compared to the North-West Passage, with convoluted shores, islands, and fractal ice floes. It is less a juncture under control than an adventure to be had. He suggests that this space, where messages become transformed in the course of translation, is indeed of greater interest because the great inventive power of science is born in these confluences, where heterogeneous projects, social practices and ideas get mixed together. He takes as an example the rise to power of the science in Paris at the turn of the eighteenth century, arguing that it is inseparable from the revolutionary socio-cultural-political thoughts of the age, which resulted in a “total social phenomenon” that manifested itself through a series of projects: the *Encyclopedie*, the academies, exploratory voyages, and museums (1995e). As such, Serres’ approach to the history of science is based on the recognition of the significance and influence of events outside the scientific domain. And, conversely, he puts a great emphasis on the power accorded to the concepts and methods generated by particular scientific practices, which, as seen in the case of Turner, radiates throughout the entire social and cultural field (Saint-Amand 1977). What Serres finds, illustrates, and advocates throughout his works is, in a word, an original kind of relationality—among domains of knowledge, humans, things, or any parties of communication. His “traveler” fears nothing to be open to immediate connections, while appreciating localities of things-in-itself as well as the possibilities of the emergence of the new.

3.2. The return of the Other

Serres’ notion of parasiting as a modality of relationships among humans or between humans and the world is a radical reconsideration of the Other. His parasitology recovers the *guest* and the space *in-between* the host and the guest from backstage. Since Enlightenment the *guest* has been neglected, oppressed, repressed, denounced, or, at best, neutralized by tyrannical reign of the *host*. The list of the supreme and governing host/the inferior and subordinate guest could be, for example, as follows: subject/object, identity/ multiplicity, logos/sense (emotion), essence/mixture,

head (speech)/hand (gesture) (Leroi-Gourhan 1993), and structure/emergence. But it should be noted that Serres' parasitology is a project neither to destroy the host, nor to replace it with the guest or the space in-between; its aim is to parasite, to supplement one-sided story, so as to write a new story of relationality, by *entering the relations*.

Serres is not the only or the first thinker who digs out the problematic of the Other. There have been continuous efforts in critical questioning and redefining of a human subject in relation to the Other for the past three or four decades. In fact, there has been an obsession with the notion of subjectivity since the Enlightenment. Once it has been released from the creation of God, the prime and fundamental concern for great thinkers has come to be, inevitably, "Then, who are we?" The consequence is that the Christian subject, together with the earlier ones, the Pagan and the Classical, has given way to the Reasoning, Cartesian subject. But after all of its triumph and discontent, the Cartesian subject has been placed under rigorous interrogation from the late nineteenth century, notably by Husserl, and, coming through the twentieth century, it has eventually been superseded by the Psychoanalytic, the Semiotic, the Policed, the Postmodern, the Ontological, the Becoming, and, more recently, to the Posthuman subject.

It is worth noting that these examples of re-routings of the notion of a subject are not in a chronological order in any sense: they are *homeorrhetic*, to borrow Serres' (1982b: 74-75) word. It is an expression to characterize an organism, which he sees as a hyper-complex system. For Serres an organism is not in equilibrium but in a temporary state of imbalance; in other words, it is *relatively* stable *in* and *by* this imbalance, which is neither static nor homeostatic but *homeorrhetic*. In order to emphasize the idea of continual movement and exchange, Serres replaces the term "homeostasis" with *homeorrhesis*, exploiting four Greek words, "homos" (same), "rhyxis" (flow), "syrrhein" (to flow together), and "diarrhein" (to flow through). Thoughts on subjectivity have been flowing together and through, and to choose one conception of subjectivity from this river somehow gives an answer to the problematic of relationship between a subject and the world at that time.

While most of the influential arguments in the critical reconfigurations of a human subject and its relationship with the Other begin with a tacit or explicit denial of the Cartesian self, some thinkers insist that the problems in western subjectivity began much earlier with the Christian self, which dominated western world from over a thousand years earlier than the Cartesian one. For example, Paglia (1999: 289-97) rather

starts with St. John than with Descartes, arguing that John got it all wrong in the Bible: “*Thou shalt not make unto thee any graven image*” (Exodus 20:4) and “*In the beginning was the Word, and the Word was with God, and the Word was God*” (John 1:1). For her in the beginning was nature, violent, chaotic, unpredictable and uncontrollable, which predates and stands in opposition to the ordered and structured world created by the word, law, and the book-centered culture of Judeo-Christianity. According to Paglia, the image, which is pagan and expressive of nature’s complexity and violence, was outlawed by Moses in favor of the word, and that’s where our troubles began.

Freeman (2003; 2008) also attacks the same kind of Christian closure, but he rather focuses on the scientific and philosophical mind of classical Greece. He points out that it was in 475 BC when the Athenian philosopher Proclus made the last recorded astronomical observation in classical Greece, and regrets that it was not until the sixteenth century that Copernicus set in hand the renewal of the tradition, inspired by the surviving works of Ptolemy. According to Freeman (2003: 313-28), a combination of three factors operated behind the closing of the Western mind: the attack on Greek philosophy by Paul who denounced it as “empty logic”; the adoption of Platonism by Christian theologians who assumed that Christian dogma could be found through the same process Plato had advocated and the dogma would have the same certainty as the Ideas; and finally the enforcement of orthodoxy by Roman emperors who were desperate to keep good order with their theological legitimacy. Freeman (2008: 27-39) argues that, up to the Nicean Trinity in 381 AD, perspectives were wider: the leading theologians had read deeply the classics of pagan philosophy and were able to use their insights and terminology to extend the range of their thought. He takes an example of Basil of Caesarea, who insisted that Christians must first “be conversant with poets, historians, and orators” before they progressed to Christian texts. But the ease with which these Christian intellectuals related to “pagan” learning came to an end with the Creed; only those who subscribed to the formula could have churches and imperial patronage, and all other interpretations were declared heretical. Freeman sees that there had not been such a wide sweeping program of religious coercion since the attempt of the pharaoh Akhenaten who imposed his god Aten on his Egyptian subjects in the fourteenth century BC.

This Christian closure dominated Western mind for over a thousand years, only to meet two consequences: one from inside the religion, the Reformation; and the other from the wider circle of intellectual mind, the Enlightenment. It is widely agreed that

the Enlightenment spans the period from the sixteenth century with Francis Bacon, and then Descartes, to the eighteenth century of the French Revolution. The period covers developments as various as the origins of modern empirical science, the elaboration of universal ideals of political organization, the advent of industrial capitalism, and the birth of Protestantism. The Enlightenment ideals still underpin the present-day social and political institutions and their operations, as a justification of the way how a “modern” subject makes a relationship with others and with the world. Yet the Enlightenment is not a single, unitary move; it is *homeorrhetic*, with full of contradictions. For example, both the rationale for the modern democratic state and the ideology of its socialist opponent can be traced to decisively Enlightenment thinkers. The situation with the human subjectivity is similar: not only that key developments in Enlightenment thought first posed the question of the subject as a free, autonomous and rational being, but there were also the seeds of radical attacks on this model, which have aimed either to replace it with a different model, or to abandon the whole idea of subjectivity altogether. But one thing is clear: with the Enlightenment the question of a human subject and its relationship with the world has been untethered from the will of God, opening up a field of rigorous and persistent contention.

Inaugurating the modern narrative of a unitary, rational, and self-sufficient subject, Descartes splits up the older notion of “conscience” into an emotional and a cognitive component, privileging the latter, and founding it in the *cogito*. Though the Latin word *Cogitare*, from which the term he uses is derived, includes as well the general idea of awareness or “experience” as it is sometimes translated, it is obvious that Descartes prefers the conscious processes of thought over every other impulse or sensation as he writes his famous formula, *Cogito ergo sum*. Instead of the idea of the redemptive journey of the pilgrim in the course of which the Christian becomes worthy of salvation, Descartes’ formula transforms the idea of journey into the progress of reason. But he does not completely abolish his Christian belief in his theory of rational subject, believing that human faculty of reason is guaranteed by God for the subject’s own search for truth and emancipation. Still, his argument, which sees the “I” as the origin of all knowledge, as the autonomous and self-sufficient being marks the beginning of a new understanding of human subjectivity.

On the other hand, Rousseau, a later Enlightenment thinker, straddles the strong rationalism of Enlightenment thought and the emphasis on feeling and sensibility that would arise in its wake in the Romanticism of the late eighteenth and early nineteenth

centuries. His political thought, especially expressed in *The Social Contract* (1998; c1762), argues for a rationalized, if not regimented, society under the authority of a despotic figure who embodies the popular will. It has even been seen as a justification for modern totalitarianism. But his *Confessions* (2008; c1781) emphasizes the uniqueness and autonomy, and the absolute governing freedom of individual experience. The sense of originality and sufficiency of individuality is the key to this work, as he writes: “I have resolved on an enterprise which has no precedent, and which, once complete, will have no imitator. My purpose is to display to my kind a portrait in every way true to nature, and the man I shall portray will be myself. Simply myself. ... I am made unlike any one I have ever met: I will even venture to say that I am like no one in the world. I may be no better, but at least I am different” (2008:17). He seems to think of the individual as a total and inclusive phenomenon, a sort of dynamic unity. It seems that, in his later life, he does not derive his judgments from reading or from dialogue with other intellectuals, and nor from his own rationale; he contemplates, walking in the forest at Saint-Germain, withdrawing into nature and solitude, and his insight is produced by his immersion in the very natural, intuitive self he is praising—Rousseau the herbalist (Serres 1982b: 22).

While Descartes has committed himself to recover the Classical subjectivity which had been suppressed by the Christian closure, Rousseau seems to have devoted himself as well to the resumption of the Pagan subjectivity which had been under the same circumstance. But it is Rousseau the rationalist which has been acknowledged; while another Rousseau, the herbalist, has been marginalized and survived in literature to be rediscovered only recently. The Cartesian relationality dominated Western philosophy; knowledge, morality, and society had to be formulated in terms of *the* subject—a consistent, self-identical and coherent entity, who should be always at the center. Kant further distanced the subject from divine intervention or design, and redefined the purpose of the journey in terms of the coming to maturity of humanity as a whole, to make modernity a universal and universalizing project and the subject the agent of this project. This shift has been made even clearer with Hegel; the Hegelian phenomenology historicized the process by way of the working of the dialectic in which mind or consciousness becomes the object and subject of History, propelled by its own, immanent, *telos*. Western subject with Kant and Hegel underwent a path of triumph, marking the accomplishments of an imperialist modernity in alliance with capitalism, and transforming the whole world materially and culturally in the nineteenth century.

The project of modernity and of Enlightenment imagined that it could accomplish a civilizing mission, the goal of which was supposed to bring the law to all other peoples (Derrida 1997: 27).

But there has been the awareness of discontent or sadness at the heart of the *Zeitgeist* alongside this exorbitant ambition. This is evidenced in some of the reservations of radical Enlightenment thinkers like Diderot, the questioning of subjectivity by German Romantic thinkers like Schelling and Schleiermacher, or in the meditations of Baudelaire and the critique of the foundations of modernity by Nietzsche. From the second half of the nineteenth century, an interrogation is inaugurated of the foundations of the subject of modernity, with the critique of Cartesianism by Husserl, and developed later on by Heidegger, and by those who have been influenced by readings of their works. Heidegger (1978)'s contribution to the present-day crisis of subjectivity, as it has been called, is to propose that the model of Cartesian subject is a superficial illusion perpetrated on us and its understanding of the subject chooses, more or less arbitrarily, one or other attribute of subjectivity as the transcendental truth of human life. The result is, therefore, that more fundamental issues, like the question of Being, had never been properly addressed. Heidegger sees subjectivity as an historical phase, a development in the unfolding of philosophy that must inevitably be suspended. For him subjectivity is an "event" in one's culture, not a natural or inevitable "state."

The two schools of thought, psychoanalysis and Nietzsche (and Foucault), also have in common their separation from what considered to be the commonsense model of the subject inherited from the Enlightenment: the idea that a subject is possessed of a free and autonomous individuality that is unique to oneself, and that develops as part of one's spontaneous encounter with the world. Psychoanalysis sees that the subject is not born with an intact subjectivity; instead, our subjectivity is instilled in us as a result of our encounter with the bodies—specifically the gender—of those in our immediate family environment, usually our parents. For Freud the family politics of the Oedipal drama produce a subject, who is governed by the paternal phallus, the sign of authority and guarantee of meaning. Though psychoanalysis differentiates itself from Cartesianism, arguing that the subjectivity is not pre-given and rational, it still attempts to explain the Truth of the subject, assuming that the world, as well as a subject, is a real thing with a fixed structure which operates in predictable patterns and therefore quantifiable and knowable. On this premise, Lacan (1978: 55) translates Freud's model of subjectivity into the domain of structuralist linguistics, understanding that a human

being enters into subjectivity and language through a subjugation to the symbolic law of the father—the oedipal law, which demands the infant-child to submit to symbolic castration, to a loss of wholeness—the imaginary wholeness of the mirror stage. Instead of the Freudian split into the conscious and the unconscious, the subject is now shaped around a lack in being; the real is always already lost and only leaves traces of its loss as traumatic effects, and this lack constitutes the very condition of possibility of the symbolic, what will surface seemingly accidentally as an origin of subjectivity, identity, and meaning.

While psychoanalysis regards subjectivity as having a knowable structure, Nietzschean conception of it denies any real existence of itself. Nietzsche (2004) understands each human being as the embodiment of a quantum of force called “will.” His ground-breaking idea is that subjectivity is not susceptible to final explanation in any sense because it is not a consistent and quantifiable entity or a stable thing whose limits we can know and whose structure we can map. Moreover, he insists that subjectivity is not an ineffable one either, because it produces intensities, emotions, and values, which are so beautiful and unique that they bear witness to an ultimate, irreplaceable and inexplicable individuality, which is dazzling yet self-contained. Greatly influenced by this idea, Foucault (1995) sees that subjectivity has been invented by dominant systems of social organization; subjectivity is thus not the free and spontaneous expression of our interior truth but the way we are led to think about ourselves so that we will police and present ourselves in the correct way—as not insane, criminal, undisciplined, unkempt, perverse or unpredictable. For Foucault the subject is the primary workroom of power, and his conception of policing process signifies the production of linguistic and institutional forms through which human beings define themselves and their relationships (1995: 88-92). Whereas Freud provides a method for investigating the *internal* workings of the psyche, Foucault seeks to show how the method itself is an ancient technique of self-fashioning or “policing” that has over the centuries shaped the subject *externally*. Therefore, for Foucault (2001: 368-69) our human nature is not a hidden reality to be discovered through self-analysis as in Freud, but the aggregate of the forms we have chosen to provide public definitions of who we are.

In his late project on the “technologies of the self” Foucault (1988) focuses on the way in which the individual participates in the policing process by monitoring his own behavior. In his study of the history of sexuality, Foucault (1998) emphasizes that

the policing of sexuality depends far more on techniques of self-control than did the policing of madness and criminality. He notices that it is not “knowledge” of our sexuality that gives us power over ourselves as in Freud, but our will to establish power over our sexuality that incites our search for self-knowledge, as the people of Ancient Greece and Rome managed their subjectivity according to the “ethics of pleasure” (1998: 239). In the self-policing process the self constantly problematizes its place in the world in relation to others and to inherited codes of behavior so as to produce itself endlessly as a response to this cultural and historical context. By monitoring his own behavior, the subject participates in the policing process, and it is what Foucault (1988) names “the technologies of the self.” This ethical preoccupation with the responsible management of the self touches on politics on the one hand, and aesthetics on the other: with its willingness to embrace the fictional and the fantastic, his idea of subjectivity as self-creation has provided a statement for a new, radical methodology of human existence, and inspired not only those in academic fields, but also performance artists, radical fashion designers, and major cultural events like Gay and Lesbian festivals.

Foucault finds in his project of an experimental selfhood the way of forging a connection between aesthetics, ethics, and politics. Since there is no authentic or natural self that should be recovered or liberated, subjects are to undertake an aesthetic renewal of themselves by experimenting with the infinite possibilities of feeling and the artifices of identity. Interestingly, Foucault seems to rediscover some sympathy for the Enlightenment project of critical self-consciousness, particularly as he finds it in Kant. In his essay “What is Enlightenment?” (1984) Foucault suggests that if subjects are really to deal with their situation in the modern world, they need to make themselves aware of the sorts of selfhood that are being constructed for them, all with the aim of contriving some alternative, albeit fanciful or ephemeral. Though he argues for a dynamic self-creation, his conception of subjectivity does not give up the notion of “structure.” After the dissolution of the Christian and the Cartesian subjectivity, he may have felt the need to re-anchor drifting notion of subjectivity to reinvigorate it or at least to provide people with some way of dealing with the changing world, as in the mid-twentieth century Adorno, Horkheimer, and other members of the Frankfurt School have made a concerted effort to renew the spirit of the Enlightenment, leaving the legacy of critical theory.

Jameson’s writing (1991: 72) on postmodern life as the lack of what he calls “cognitive maps” can also be seen as dealing with adrift subjects without the

reference points that nineteenth-century and modernist humanism provided. But, with all his brilliance, which observes and diagnoses postmodern subjects and the cultural logic of late capitalism in his own unique way, Jameson does not proceed any further for the new possibilities of subjectivity. He seems rather attached to older, modernist versions of cultural politics, especially those of the Frankfurt School, in his effort to start to redraw the cognitive maps that will allow the postmodern condition to be known, authentically felt and perhaps transformed. It is undeniable that Jameson longs for the cognitive maps to revive the sense of what could be achieved by action, both to improve the world and to recover the potency of humanity. And, in this regard, he seems unexpectedly close to the Enlightenment thinkers, standing out as a contrasting figure to Lyotard, who does not regret the passing of the grand narratives.

For Lyotard (1984: 81), the grand narratives are nothing but a massive top-down political planning of the absolute states that has given the twentieth century “about as much terror as we can take.” Lyotard’s critique of the Enlightenment directs itself in particular toward universalism and the narrative of emancipation. He pays special attention to what Habermas calls “communicative reason,” a rehabilitation of the spirit of the Enlightenment, to renounce the idea of a consensus and to posit the principle of heteromorphous arguments and dissent. He also invalidates the great narrative of progress on the grounds of science, which he sees as evolving discontinuously and unforeseeably: “postmodern science theorizes its own evolution as discontinuous, catastrophic, non-rectifiable, and paradoxical” (1984: 90, 97). He refutes the Newtonian systematic paradigm in favor of a heterogeneous, differentiated, and multiple model. For Lyotard Laplace’s physics and his deterministic system is a fiction supported by the principle that physical systems, including the system of systems, and the universe obey regularities and as a consequence their evolution traces a foreseeable trajectory, giving rise to continuous “normal” functions.

Lyotard proposes instead to imagine another universe under the aegis of Jean Perin’s micro-physics, Rene Thom’s mathematics, and Benoit Mandelbrot’s geometry. He thereby makes a room for undecidables, discontinuities, and “*fracta*, catastrophes,” concurring with Baudrillard (2001: 224), who speaks similar language to reverse the universalism of the Enlightenment and its progressist ideology along with rationalist scientific ideology of homeomorphism. Baudrillard (2001: 23; 35) collapses the Euclidean model associating it with the Enlightenment and proposes in its stead a curved, distorted, chaotic time. In the Euclidean space of history, the shortest distance

between two points is a straight line, which is only the case for the linear space of the Enlightenment: on the contrary, he argues, in the non-Euclidean space of our time, a baleful curvature invincibly deflects all trajectories. He thus espouses the catastrophic model that favors the unforeseen: “meteoric events, of the same chaotic inconsequence as that of the formation of clouds.”

In spite of his resolutely posthumanist conception of subjectivity, Lyotard has been criticized as suffering from the Kantian blockage, which has also been called a complex, newly differentiated Cartesianism, a dissimulated humanism, or an anthropocentrism. Especially the thinkers who can largely be called “vitalists” challenge that the dead-end of the Cartesian subjectivity cannot be ultimately overcome unless the very boundary between human and machine (and animal) has been crossed. They see the problem as that the “addressee” of the call to ethics for Lyotard continues to be a human, the being of “reason,” which excludes everything else. This Kantian blockage is brought into even sharper focus in the work of Levinas (1999), whose theorization of the ethical relation Lyotard references in detail. Perhaps the most original and challenging points in the ethics of Levinas is, as Bauman (1993: 85, 220) characterizes it, that it is not based on a model of “fair exchange and reciprocity of benefits,” as in John Rawls’s influential social-contract model, but rather on what Levinas names a “total responsibility” to the Other “without waiting for reciprocity.” For Levinas, the subject of ethics, as in Lyotard, is by definition human, because only the human, to use Levinas’s figure, has a *face*. It is for this reason that Levinas’s ethics has been characterized as a “humanisme de l’Autre homme,” a humanism of the Other *man*.

In this regard, Derrida (2003: 121) maintains that Lacan, Heidegger, and Levinas are to be superseded. He argues that it would not be sufficient, as Levinas maintains, to remind the subject of its being-subject, -guest, -host or -hostage, that is to say its being-subjected-to-the-other, to break with the Cartesian tradition, because the tradition conceives of the machine or the animal as existing without language and thus without the ability to respond. And it also takes more than a logic or an ethics of the unconscious, which, without renouncing the concept of the subject, somehow claims to “subvert” that subject. For Derrida, Lacanian “subversion of the subject” is a move from one ethical disavowal to another, tracing that movement by following the paths that have just been opened, those of the other, of witnessing, and of the “signifiers without signifieds” that Levinas associates with the “simian.”

A certain passage in Lacan (1977: 305) names “the Other” as previous site of

the pure subject of the signifier that holds the master position even before coming into existence, to use Hegel's term against him, as absolute Master. It gives an impression that a step beyond Freud with respect to the relations among the human, the unconscious, and the *animot*, would follow. But no further detail is given in respect to this Other. Derrida thus sees that a decisive displacement of the traditional subjectivity is an impossible job for Lacan, who insists that man is an animal but a speaking one, and that he is less a beast of prey than a beast that is prey to language. In Lacan the animal has neither unconscious nor language, nor the other, except as an effect of the human order, that is, by contagion, appropriation, or domestication; and the gregarious form of the animal is different from the social form of the human. Lacan (1977: 84-85) expressively contrasts "reaction" with "response" in conformity with his opposition between human and animal kingdom. According to him, for example, even though bees appear to "respond" to a "message," they in fact do not respond but "react"; they merely obey a fixed program, whereas the human subject responds to the other. Derrida sees that this discourse is literally in the Cartesian fixity. Lacan distinguishes bees' code from language precisely by the fixed correlation of its signs to the reality that they signify; in a language, signs take on their value from their relations to each other in the lexical distribution of semantemes as much as in the positional, or even flectional, use of morphemes, in sharp contrast to the fixity of the coding used by bees. But, Derrida argues, what Lacan attributes to signs can and must be accorded to any code, animal or human.

Derrida's point is not to erase every difference between what we call reaction and response but to develop another "logic" of decision, a matter of re-inscribing the difference between reaction and response, within another thinking of life. The problem is the purity and the rigor of the frontier that separate reaction from response; it is the desire of identity and unity, of transcendence, which is "always to take a *both/and* and to make it an *either/or*, to reduce the complexity or pragmatic ethical choice to the black or white of Good or Bad" (Massumi 1992: 112). Derrida (2003) finds in Lacan the appeal to the Cartesian, being constant, determinant, complex, and differentiated, sharing praise and criticism. He maintains that Lacan's theory in the end underwrites an anthropocentric reinstitution of the superiority of the human order over the animal order, of the law over the living. For him such a subtle form of phallogocentrism seems in its way everywhere to testify to the wounded reaction to humanity's *second* trauma, the Darwinian, rather than the *first* trauma, the Copernican (the Earth revolves around the

sun), or its *third* trauma, the Freudian (the de-centering of consciousness under the gaze of the unconscious). With this argument Derrida also attacks Heidegger because for him, as for Lacan and many others, it is above all a matter of relying on a new *fundamental* anthropology, which is rigorously responding to and answering for the question of “What is *the* human?” Though under the grand claim of to transcend every *positive* anthropology, it is, for Derrida, in every aspect a dissimulated motivation to a new dogmatism, a new legitimate way to the humanist anthropocentrism. To make a move towards a new horizon of subjectivity beyond anthropocentrism, Derrida takes part in zoontology (Wolfe 2003) in his late writings, opening the human to the heterogeneity and multiplicity within which it has always been embedded.

It requires a different theoretical practice to destabilize identity and unity, and to recognize and generate different modes of becoming rather than being. It is less about making arguments and articulating propositions to be met with *the* definite answer; it is more about generating multiple connections and proliferating heterogeneous lines of inquiry. An example of this new mode of engaging with the problematic of the human is what Deleuze and Guattari (1987) have called a “rhizomatic” thinking, which is opposed to the “arboreal” practice of traditional philosophy. The contrast between the arborescent or root system and the rhizome is the key which they use to explicate the comparison between the understanding of a subject built out of stable identity and that of one involving dynamic interconnections. They see psychoanalysis as a key example of root system because it understands the truth of the subject to be traceable to its fundamental and fixed structures as they were set in place during the Oedipal phase (1987: 17). Its rigidity is thus dictatorial—the unconscious is not projected forward into its possibilities. As an alternative to this rigid dictatorship, Deleuze and Guattari propose schizoanalysis, their parody of psychoanalysis, which sees the hidden and obscure dimension of subjectivity as a reservoir for the production of endlessly new and different desires. And, as for the proper image of the unconscious, they provide their unique conception of the *rhizome*, as an alternative to the *tree*. A rhizome expands endlessly from any of its points, and develops haphazardly without a center, linking apparently disconnected impulses and forces, ones that are not only distinct but that come from completely different orders. As such, rhizomatics sees the life of things in terms of an ever-changing and ever-renewed movement out of fixed forms into new possibilities, operating by variation, expansion, conquest, capture, and offshoots (1987: 21).

This dynamic expansion of the possibilities of becoming is one of recent products of the continuous re-configuration of the idea of subjectivity, things, and their relationality in the world. Though Deleuze and Guattari declare that rhizomatic “machinic assemblages of desire” means “no subjectification” (1987: 22), what they propose is a new notion of a subject’s relationality, totally different from the paranoid and introverted Foucauldian self-policing, as well as from Enlightenment humanism or Freudian psychoanalysis. They re-conceive of a being-in-the-world as an endless becoming new and otherwise, understanding it in terms of the many and mobile relationships, interconnections and assemblages which orient its surface outwards, towards the world and the instabilities and contingencies that constitute it. This also means an inevitable extroversion of things and human beings, and it is captured most effectively in the phrase which Deleuze and Guattari borrow from Artaud—the body without organs. Instead of self-sustaining internal structures, the image of the body without organs emphasizes the random and endless play of connections and impulses on the surface of the skin, and this image applies to all rhizomatic systems—humans, things, and the world itself. It challenges not only the assumptions of reductionism that things are to be understood as autonomous collocation or structure consisted of traceable units, but, more significantly, autopoiesis, which appreciates a system’s dynamics and complexities, only as far as it is working for self-reference, that is, self-preservation.

The conceptions of the rhizome, schizoanalysis, and body without organs, against root system, psychoanalysis, and self-sustaining structure, seem to recover the Pagan subjectivity, on top of the productive results from other theorists to overcome the Cartesian and the Kantian blockage. The Pagan subjectivity, which is based more on the image than on the word, and, more on the intuition than on the ratiocination (Postman and Paglia 1999: 294), has been denounced and suppressed by the Christian doctrine. In respect of the repression of the Other, this Christian closure is a much older mechanism than the Cartesian and the Kantian closure, and the very origin of the word “pagan” itself speaks of the history of its exclusion and suppression. The term *pagan* is from Latin *paganus*, an adjective of which original meaning is “rural,” “rustic,” or “of the country.” It has also been used as a noun to mean “country dweller” or “villager.” Arguably, it seems because Christianity spread much more quickly in major urban areas than the countryside (in fact, the early church was almost entirely urban) from its earliest beginnings, that the word for “country dweller” soon became synonymous with

someone who was “not a Christian,” giving rise to the modern meaning of “pagan” (York 2005: 12). After the official approval of Christianity by Roman Emperor Constantine, the word “pagan” had been used as a pejorative by the followers of monotheistic religions—not only Christianity, but also Judaism and Islam—to indicate a disbeliever in their religions. But in modern times, especially after the time of Romanticism and the wide acceptance of freedom of religion in Western mind, “paganism” has come to refer to the religions of classical antiquity, most notably Greek mythology or Roman religion, and is frequently used with neutral or even admiring implications.

Somehow the word “pagan” has also been equated with a Christianized sense of “Epicurian,” which designates a person who is sensual, materialistic, and self-indulgent, rather than spiritual and sophisticated. The teachings of Epicurean materialism that the gods were physical beings composed of atoms and they had not created the universe, and that one’s own pleasure, rather than the service to God, was the greatest good, were not only irreconcilable with Christian doctrine, but an outrage against it. For instance, Dante’s *Divine Comedy* depicted the Epicureans as heretics suffering in the sixth circle of Hell, and Cicero too denounced them as unbridled hedonists, who do not possess a sense of virtue and duty, and are guilty of withdrawing from public life (Bakalis 2005: 191-218). Based on the teachings of Epicurus, who lived in 341-270 BC and founded atomic materialism, Epicureanism follows in the steps of Democritus. Epicurus did not believe in superstition and divine intervention; he argued that the greatest good was to seek modest pleasures in order to attain a state of tranquility and freedom from fear as well as absence of bodily pain. The combination of two states—knowledge of the workings of the world and the limits of our desires—was supposed to constitute happiness in its highest form. Although it declared pleasure as the sole intrinsic good, Epicurianism is different from “hedonism” as it is commonly understood; it conceives of absence of pain as the greatest pleasure and advocates simple life. Moreover, for Epicurus, the highest pleasure (tranquility and freedom from fear) can be obtained by knowledge, friendship, and living a virtuous and temperate life, verging on asceticism (Jones 1989). But his philosophy was still a challenge to Platonism, and later, the main opponent of Stoicism, because of his emphasis on sensations.

After the death of Epicurus, many Epicurean societies flourished in the Late Hellenistic era and during the Roman era, and the poet Lucretius is the most prominent

figure in Epicurean philosophy of nature, with his work *On the Nature of Things*. It was only in the sixteenth century that the works of Lucretius and other philosophers in Greek and early Roman period began to be printed in Europe, but attacks by Christians continued, most forcefully by the Cambridge Platonists. However, there was a resurgence of Epicurean philosophy in the modern age; scientists adopted atomist theories, while materialist philosophers embraced and restated Epicurus' ethics. The Epicureans depend upon the atomist philosophy of Democritus to assert that man has free will; they consider that all thoughts are merely atoms swerving randomly—in other words, the forces binding human atoms together do not hold the soul forever. Hence they emphasize the neutrality of the gods: gods, matter and souls are all comprised of atoms; souls are made from atoms as they adhere to their bodies without escaping, gods possess souls and humans have the same kind of souls, and therefore gods, as well as humans, are comprised of atoms.

Epicurianism is a very important element in the continuous reconsiderings of the subjectivity and its relationality to the world after Kant and Hegel. With their philosophy of “sensory experience” and their acknowledgement of human’s “free will,” they anticipate Hume, Nietzsche, Foucault, and other vitalist thinkers like Deleuze. Serres (1982b: 109-10) thinks that this “Epicurean wisdom” started with, most of all, the cessation of God: “Epicurus is a god outside of all the gods, the new god of another history who has examined all the archaic traditions and turned against them.” Epicurean philosophy of senses supposes that there are three criteria of truth; sensations (*aesthêsis*), conceptions (*prolepsis*), and feelings (*pathê*) (Bakalis 2005: 204-12). The *senses* are the first criterion of truth, since they create the first impressions and testify the existence of the external world. For the Epicurians, sensory input is neither subjective nor deceitful; only the concepts and opinions that come from our *interpretations* of our sensory input can lead us to inaccuracy; therefore, our sensory data is the only truly accurate thing which we have to rely on for our understanding of the world around us. The *conceptions* are the second category which forms mentally according to our sensory input, and are directly related to memory so as to be recalled at any time. Epicurus calls them “the meanings that underlie the words” in his letter to Herodotus. While sensation or sense perception gives a knowledge received from the senses alone, conception is a “basic grasp” or “universal idea” that is understood by all, and these two criteria work in relation to the third one, the *feelings*, for the perception of objects. The *feelings* are related to the senses and the conceptions as inner impulses that make us feel like or

dislike about certain external objects, which we perceive through the senses, and associate with the preconceptions that are recalled. The three criteria—sensations, conceptions and feelings—create a dimension of *assumptions* (*hypolepsis*), which is either the hypotheses or the opinions about a matter or an action. They can be correct or incorrect because they are produced automatically without any rational analysis and verification. They need to be confirmed through the process which follows each of them. The point is that this process of verification or confirmation (*epimarteresis*) can only be done by means of the “evident reason” (*henargeia*), which is self-evident and obvious through our “sensory” input. For the Epicurians, the foundation of understanding everything is the obvious and self-evident “facts”; it is not in the words from gods or in philosophy books. Epicurians are the forerunners of modern day materialistic empiricists.

Epicurean tradition has played a great part towards the so-called “materialist turn.” Since the late 1960s, there have been explosive concerns with materiality—not of capitalist product any more, but of language, text, history, and human perception and conscious. For instance, in 1967 Derrida’s *Of Grammatology* argued the materialism of the sign; in 1970 Foucault’s “The Discourse on Language” held the materialism of history; in 1972 Deleuze and Guattari’s *Anti-Oedipus* attested the materialism of the unconscious; in 1973 Lacan’s *The Four Fundamental Concepts of Psycho-Analysis* appealed for the materialism of the language of the unconscious; and, Serres famously declared that “the id is material” (2000: 105). What seems interesting is that, in parallel to this move, the materiality of capitalist product began to be seen as “metaphysical” (Lash 2007); for example, Baudrillard’s *Symbolic Exchange and Death* (1976) argued for the *immaterialism* of a culture of simulation in which “the real has become the rational,” an assertion against which Serres launched into a fierce polemic. From 1977, Serres rolled out his own version of materialistic argument on the relationality of the world with his works, notably, *The Birth of Physics* and *Hermes* series. What makes Serres unique is that, rather than just importing materialist ideas to make his own philosophical arguments, he continuously endeavours to open a path between scientific and philosophical discourses. He always writes on a line of flight, traveling “northwest passages,” as if he is writing “the hymn to Venus singing in praise of voluptuous pleasure” (2000: 107).

The notion of the Lucretian clinamen also helped philosophers as well as modern physicist proceed towards the idea of complexity, nonlinearity and emergence.

In the work of Lucretius, the clinamen indicates the “smallest possible angle” by which an atom deviates from the straight line of the fall of the atoms through a laminar void; it is an “infinitely small deviation” that marks the beginning of the world as atomic turbulence (Serres 2000: 91). Though it has been Serres who has put through a fundamental rereading of the clinamen, the rediscovery of atomist materialism can not be seen as his sole contribution. Lucretius had been discovered as an intellectual forefather before Serres’ intensive study on him. Bergson is known to have been interested in the notion of the clinamen in his lectures, and Marx wrote his dissertation on the “Difference between the Democritean and the Epicurean Philosophy of Nature,” and Deleuze talks of the clinamen and of its relation to multiplicity a lot in his writings, especially in “Lucretius and the Simulacrum” in *The Logic of Sense*, originally published in 1961. It seems that probably through this essay the notion of the clinamen had swerved into Lacan’s work (1978) in which he uses it to theorize his notion of trauma, and paved the way for Serres’ Lucretian exploration.

In the “homeorrhesis” of discourses on human subjectivity, what makes Serres outstanding is that he not only recovers the Other but elucidates why human subjectivity is itself a set of relations and how the quality of the relations—relationality—is multiple, intersubjective and emergent. On top of the productive results from previous reconfigurations of a subject and its relationality, Serres brings in new elements from scientific discourses, as well as from myth, fables, and literature—probably the most uncommon sources for a “scientific” discourse. His commitment to “the local” also speaks of the importance of materialistic concreteness of practice. His parasite thereby not only deconstructs idealism and dualism but opens up a channel, inaugurating a new kind of relationship, which is itself a new possibility for “becoming.” The parasite is a clinamen, a deviation which intercepts pre-existing relations, giving rise to a new form of complexity; it is a noise, a founding disorder, as it injects difference (information) into pre-existing order so as to produce a new order.

Serres shares his fascination with modern science, from Thom’s catastrophe theory to nonlinear dynamics, with Deleuze and they are greatly interested in unpredictable relationality of things in this world and the spontaneous emergence of the new elements or order from a complex system. But Serres focuses his writings more on the making connections, communications, and relationships between previously disparate elements than Deleuze. In other words, Serres’ notion of parasiting for instance is very close to Deleuze and Guattari’s machinic assemblage in redeeming the

repressed Other, more than anything else, but while the former emphasizes the complexity and dynamics of in-between space for the creation of the new to write a new relationship, the latter's focus is more on the psychological and ontological dynamics of self-creation as a new mode of existence. Their difference is however supplementary rather than contradictory, to be incorporated into a vitalist thought, which has already been braided and tangled through the time of many decades.

In the next part, it will be discussed in further detail how complexity and vitalist theories have contributed to the new conception of the subject, matter, and their relationality to the world. The argument will then be extended to the theory of symbiogenesis (Margulis 1981; 1998), which leads us to another horizon for the theory of the emergence of a new subjectivity, for both a subject (user) and an object (digital media).

Chapter 4

Nonlinear Symbiogenesis

During the second half of the twentieth century, relentless re-definitions of a human subject and its relationality to the Other have had a close, inseparable relationships with the new transdisciplinary theoretical paradigms originated from various scientific fields. Those paradigms—cybernetics, system theory, and complexity theory, for instance—had had little use for the figuration of the human subject. But once the concepts from those previously distant fields began to permeate into humanities, there have been revolutionary rediscoveries of the Other, constituting the so-called “materialist turn” which undermines the “linguistic turn,” the earlier revolutionary move which has been inaugurated by (post-) structuralists. Moreover, the steady conversations between the so-called “soft” and “hard” sciences have brought about a great change in contemporary theory on human subjectivity—for example, Foucault’s interest in Canguilhem and Jacob, Lacan’s in cybernetics, Lyotard’s in chaos theory, and Serres’ in biochemistry. Throughout the latter half of the last century, the persistent penetration of the concepts from the “hard” science and the eager efforts from philosophers to embrace them interacted and compounded to enable seminal re-routings of philosophical standpoint towards a human subject and its relationality to the world, providing new sets of theoretical coordinates.

With digital technologies permeating into every corners of people’s mundane life, there emerged a serious theoretical necessity for a new conceptual tool different from those which in the end presuppose subject/object dualism. For a proper understanding of digital media and humans’ experience with them, the growing volume of discourses from the new way of thinking started to enrich the realm of media theory to achieve something other than positivistic explanations, structuralist interpretations, or phenomenological accounts. As a result, there have been produced notable works focused on the new, remarkable materialities of digital media and their genealogy (Bolter & Grusin 1999; Kittler 1999; Manovich 2001); theoretical explorations on the interchangeability of the subject and media (Thacker 2004; Hayles 1999, 2002, 2005); and, most interestingly, there emerged cross-fertilizing works concerning the dimension of ontogenetic becomings of media and their effects on humans (Hansen 2004; Mackenzie 2002; Fuller 2005; Stiegler 2007). But productive problematizations of the relationality of digital media on the ontogenetic level have never been tried in mobile

phone studies, despite the fact that the mobile phone is arguably the most parasitic (and parasitible) medium which is making the most of current digital technology. It is of critical importance for the ontogenetic study of mobile phoning to open a path, make a connection, and weave a relation, as in Serres' parasitology, with complexity theory and vitalist thinking because they have played a main role in creating new discourses on the subject, object, and their interrelationships, enabling a new theoretical viewpoint for the study of mobile phoning.

4.1. *Astringent science*

Complexity theory has been a tremendously resourceful reference point, not only for scientists but also for socio-cultural theorists and vitalist thinkers, since the last decades of the twentieth century. It can be said that complexity theory is about, precisely, the spatial ordering which arises from injections of energy: while other previous scientific theories were mainly concerned with temporal progression, complexity theory is equally concerned with space and its emergent properties arising out of excitable spatial orders over time. The chief impulse behind complexity theory is an anti-reductionist one, representing a shift towards understanding the properties of interaction of systems as more than the sum of their parts. It is a science of *emergent*—or, *relational*—order (Thrift 1999: 31); a science of qualities as much as of quantities, a science of “the potential for emergent order in complex and unpredictable phenomena” (Goodwin 1997: 112); a more open science which asserts “the primary of processes over events, of relationships over entities and of development over structure” (Ingold 1990: 209); and it is a science that “From the interaction of the individual components [of a system] ... emerges some kind of property ... something you couldn't have predicted from what you know of the component parts. ... And this emergent behavior, feeds back to influence the behavior ... of the individuals that produced it” (Lewin 1993: 12-13).

In science the concepts of complexity theory have a complex genealogy (Thrift 1999; Urry 2006). Though its proponents claim a set of ancestors in mathematics, physics, computer science, and biology, complexity theory might be seen as in a line of thinking through Einsteinian relativity theory and quantum theory which has become a part of a progressive recasting of the western beliefs about time and space. With complexity turn (Capra 1996), the buttoned-down Newtonian/Darwinian “time of the Victors” has given way to a new disclosive sense of time and space in which “order is

not the law of things but their exception” (Serres 1982b: 99-100). Einstein showed that there is no fixed or absolute time independent of the system to which it refers; time is a local, internal feature of any system of observation and measurement; it varies as to where and now it is measured; it can be stretched or shrunk. Furthermore, Einstein demonstrated that time and space are not separate from each other but are fused into a four-dimensional time-space curved under the influence of mass. Time and space are thus “internal” to the processes by which the physical and social worlds themselves operate, helping to constitute their powers. Seen from this view, space and time are dynamic qualities; when a body moves, or a force acts, it affects the curvature of space and time, and in turn the structure of space-time affects the way in which bodies move and forces act. Space and time are created spontaneously, as part of the systemic nature of the universe. On the basis of this model, quantum theory describes a virtual state in which electrons try out instantaneously all possible futures before settling into particular patterns. Quantum behavior is therefore instantaneous, simultaneous, and unpredictable, and the interactions between the parts are far more crucial than the parts themselves. Bohm (1995: 350-63) refers to this as the “occurrence of a dance without dancers.”

In parallel to this relativity of time, thermodynamics showed that there is an irreversible flow of time (Prigogine 1997). The argument is that there is no reversibility of time as postulated in classical physics; an arrow of time results in loss of organization and an increase in randomness or disorder over time within open systems (the Second Law of Thermodynamics). But there is not just a growth of disorder; Prigogine shows how new order arises and how it is “far-from-equilibrium.” There are what he terms dissipative structures, islands of new order within a sea of disorder, maintaining or even increasing their order at the expense of greater overall entropy. He describes how such localized order as “floating in disorder.” The arrow of the flow of time is as a result unstable, relatively unpredictable and characterized by various possibilities. Time is now not only multiple, but also unpredictable. Prigogine (1997) talks of the “end of certainty” as the complexity sciences overcome what he calls the alienating images of a deterministic world and an arbitrary world of pure chance. Complexity theory thereby repudiates the dichotomies of determinism and chance, as well as nature and society, being and becoming, and, stasis and change. Systems are seen as being “on the edge of chaos” in which order and chaos are in a kind of balance where the components are not fully locked into place but yet do not fully dissolve into anarchy. Chaos is thus not complete anarchic randomness; there is a kind of “orderly disorder” present within all

such systems. Small events are not “forgotten”; they produce on occasions large effects and vice versa as in the “Butterfly effect,” the classic example describing chaos. Having been accidentally discovered by Lorenz in 1961, it was revealed that minuscule changes at one location can produce very large weather effects in a very distant place from the original site (Lorenz 1998).

It is another main concern of complexity theory that how components of a system “spontaneously” develop collective properties or patterns through their interaction. For example, the flavor of sugar is not present in the carbon, hydrogen and oxygen atoms that comprise it. It is a non-linear consequence that is not present within, or reducible to, the very individual components that comprise sugar. In question is the micro-dynamics of interactions and emergence. It is not that the sum is greater than the accumulated size of its parts but that there are consequences which have different qualities from its parts. Unlike early cybernetic research, which emphasized the importance of negative feedback loops to restore the homeostatic functioning of a system (Hayles 1999) and thereby influenced theorists like Talcott Parsons, complexity science investigates systems that can adapt and evolve as they self-organize through time. Such complex interactions have been likened to walking through a maze, the walls of which rearrange as one walks. New steps are to be taken in order to adjust to the walls of the maze that are also adapting to one’s movement through the maze. Complexity theory thus deals with emergent, dynamic and self-organizing systems which co-evolve and co-adapt in ways that heavily influence the probabilities of later events. This suggests interdependencies, parallels, overlaps, and convergences between elements and their activities in physical and social worlds. Indeed, the very division has been dissolved: there is no dichotomy between the physical and the social; complexity itself has to be understood as a global system.

The concepts of complexity theory have been hugely influential, being *performed* in and to many different situations. The key notions of complexity theory—chaos, attractions, non-linearity, emergent orders, self-organization, implicate order, and life at the edge of chaos—have traveled rapidly into other parts of academic fields than science; for example, into economics, town planning, regional science, architecture, literary theory, history, sociology, and anthropology. And they have become the stuff of art, film, drama, and fiction, and have been inscribed in commercial film and goods, and even become a theme of garden design. Most of all, complexity theory has provided an invaluable theoretical background for reconsiderations of postmodern subjectivity; for

instance, arguments on the nomad (Pels 1999; Deleuze and Guattari 1987), the stranger (Bauman 1991; 1995), global fluids (Urry 2000b), and actor-network theory built upon foundational works by Law (1987; 2002) and Latour (1987; 1988a).

Pels' comprehensive study on the discourses about nomads tells that nomadism is an expression of postmodern sensibility, which lives in a world of flux, where mobility, experimentation and transgression have turned into core signifiers of the daily management of life-styles. With this subjectivity, to seek adventure, to live an experimental life, to probe the limits of one's identity have become powerful motifs in pop and elite culture alike, and there are also "work nomads" who prefer flexi-work. This image of the nomad corresponds to that of a figure which Sartre (2002: 600-05) observes in Giacometti's sculpture. Sartre writes that Giacometti perpetually starts afresh, to mould his figure without petrifying. He is not interested in statues at all, but only in sketches. What bothers him is the moving outline, always half-way between nothingness and being. Similarly, the nomad's way of life is sketchy and moving, having two important aspects: first, its fundamental idea is that all life, experience and existence, is without frontiers or boundaries; second, it does not glorify any fulfillment in terms of territory or resources. In nomadic thought, all human settlement, related to the availability of resources, is only temporary. Nomads reject the formation of the State because it curtails their freedom of movement. Intrinsic to the nomadic mode of living is an ever-constant shifting of form and content and the relationship among them and others (Gabriel 1990: 396-97, 406). But, according to Pels' lament (1999: 70), these vocabularies and practices of nomadism have recently been turned into a cognitive plaything for some people, the newest fad in their aestheticization of life, self-stylization and self-celebration. They like to think of themselves as "on the move" "in transit" "moving across frontiers" "in a state of diaspora" or "living between worlds." They like to adopt the pose of the dislocated "traveler" "tourist" or "ethnographer," who Levi-Strauss already described as a "professional stranger." The state of ambivalence, contingency, hybridity, or even monstrosity, which means a combining of ill-fitting, disparate elements, has become something desirable.

"Strangerhood" has also been theorized in sociology and philosophy as one of the core emblems of (post) modern times. Modern subjects have been pictured as suffering from a deepened condition of homelessness, from a "metaphysical loss of home," which is the correlate of the "migratory" character of modern experiences of society and self (Berger et al. 1974: 77). According to Bauman (1991: 90, 97), this

stranger is universal because of rootlessness. Being rootless relativizes everything that is concrete and thus begets universality. And, once rootlessness becomes universal, particularity is effaced and strangerhood has in effect dissolved: "If everyone is stranger, no one is." Bauman (1995: 91, 126) stings together some of the most salient metaphors in his discussion of pilgrimage and strangerhood. He proposes that, in the same way as the pilgrim was the most fitting allegory of modern life strategy preoccupied with the daunting task of identity-building, the stroller, the vagabond, the tourist, and the player offer jointly the metaphor for the postmodern strategy moved by the horror of being bound and fixed. For Bauman the stranger is the most representative emblem of (post) modern times, the true embodiment of the ambivalence and indeterminacy, which constitutes modern life in the metropolis, which is typically "carried on by strangers among strangers."

On the other hand, Kristeva (1994) displays the full set of oscillations between the condition of modern man as a "stranger unto himself" and the more particular condition of exiled intellectuals who suffer from and celebrate a hybrid identity, which feeds a romantic dream of autonomy and transcendence, as well as a fair amount of narcissistic self-fascination. Her stranger is, first of all, the distanced person who is capable of wider contemplation than other members of his group. This cognitive profit of marginality has in fact haunted the sociology of modern subject from its earlier beginnings, in Marx, Simmel, Lukacs and Mannheim (Pels 1999: 68-71). The stranger has often been envisioned as both the historical and normative prototype of the true intellectual who possesses a unique set of epistemic advantages; "better vision," a deeper reflexivity, increased objectivity, cognitive innovation, and access to larger truths. According to Kristeva, it is important, however, not to lose the sense of true "marginality," in opposition to the "elite" marginality of the hybrid intellectuals who reflexively acknowledge their dependence on the centre even while struggling against it. Apart from the problems with this "elite" marginality, there are also problems with an "aesthetic" marginality, which easily induces affectations of estrangement, supporting an exaggerated and self-complimentary rhetoric of creativity and innovation. In this respect, the self-stylization of nomadism is just a fanciful "character mask," only to flirt with uncertainty, mobility and radical individuality. Far from the real meaning of "border-crossing," the movements of "aesthetic" strangers are comfortably bracketed in the boundary of a "nomadic narcissism" (Pels 1999: 71); for example, more adventurous holidays or speeding across the electronic highway.

Instead of a nomad or a stranger, which at times have been painted with eliticism or romanticism, Urry (2000b) conceives of the notion of “global fluids.” Based on the notions of complexity theory, he focuses on “mobilities” of humans and things. By mobilities he does not only mean “physical” movements; he also means what Beck (1999: 75-76) terms the growth of “inner mobility” for which coming and going, being both here and there at the same time, has become much more globally normal. For Urry, such mobilities criss-cross societal borders in new temporal-spatial patterns, and those flows relate to many different desires, for work, housing, leisure, religion, family relationships, criminal gain, asylum seeking and so on. Moreover, not only people are mobile, but so too are many “objects,” “images,” “informations” and “wastes.” Thus, notions of complexity can analyze intensely mobile hybrids that roam across the globe and help to create a self-reproducing global order. Urry pays a very close attention to technologies, which carry people, information, money, images, and risks, flowing within and across national societies in increasingly brief moments of time. His point is that these technologies do not derive directly and uniquely from human intentions and actions. They are intrinsically interconnected with machines, texts, objects and other technologies. The appropriate word to capture these intersections of peoples and objects is thus not that of a vertical structure, which typically involves a centre, concentration of power, hierarchy, and a formal or informal constitution.

Urry’s mobile sociology enriches sociological discourses of globalization by his exploitation of scientific concepts from chaos theory and complexity theory. For Urry “global fluid” is an apt expression for these heterogeneous, uneven and unpredictable mobilities of people, objects, and technology. Such global fluids demonstrate no clear point of departure or arrival; they just show de-territorialized movement or mobility (rhizomatic rather than arboreal). They move in particular directions at certain speeds but with no necessary end-state or purpose. They possess different properties of viscosity and, as with blood, can be thicker or thinner and hence move in different shapes at different speeds. They move according to certain temporalities, and more importantly, they do not always keep themselves within the scape—they may escape, moving outside like white blood corpuscles through the “wall” of the blood vessel into tinier and tinier capillaries. Hence their power is diffused through these various fluids into very many, often minute capillary-like relations of domination/subordination. Urry sees that different fluids spatially intersect in the “empty meeting grounds” of the non-places of modernity, such as motels, airports,

service stations, the Internet, international hotels, cable television, and expense account restaurants.

This situation is not “complicated”; it is “complex.” To clarify the point of complexity thinking, Stengers (1997: 5-13) makes a comparison between notions of complexity and complication. A phenomenon is complicated when the task of predicting its behavior presents a difficulty due to incomplete information or to insufficient precision in the formulation of questions, but when in principle it is possible to explain and understand it by *extending* a simple, fundamental model. For example, molecular biology treats the reality of living beings as a tremendously complicated reality, but nevertheless regards it to be understandable in principle, in terms of the model of a chain of physico-chemical determinations. Hence it can not be said to be dealing with complexity. The situation of complexity is where the difficulty of an operation of passage from the simple to the complex may not be due to a lack of knowledge, an incomplete formulation of a problem, or the enormous complication of the phenomenon, but may reside in intrinsic reasons that no foreseeable progress could gainsay. As such, the notion of complexity signals a break in the presumed continuity of different aspects of reality and of the laws that explain them. It signals that no single or simple set of questions may be treated as a generalizable norm, in terms of yielding relevant answers for all phenomena. The theme of complexity allows us to address living beings as original and singular; not in the sense that their originality stems from an essential difference with respect to the physico-chemical world, but that any complex system *is* a singularity, on account of its distinctive temporality. The most important point in Stengers’ argument is that what is interesting about complexity is not the particularity of what may be described as complex, but what the notion signifies at the level of conceptual effects. In this sense, she argues that complexity theory should not be treated as a “paradigm” that comes in to replace another; it is to be understood as the “ethos” of scientific knowledge and its relationship to the world, which acknowledges and values sensitivity and interdependence of the world. Stengers insists that, for this reason, the theme of complexity should be understood as the hallmark of a “new science” or the latest scientific descriptions of the world, because it rekindles and highlights the most genuinely original aspect of what is called “modern science.” Her belief in the function of scientific thought has less to do with its revealing of the Truth than with its *astrigent effects*, the way it *stops* thought from just turning in self-satisfying circles.

The ethos of this “new science” has brought about a new, performative

understanding of science. With complexity thinking, there can be no pre-established order, in scientific knowledge as well as in reality, and this idea had led to the open-endedness of knowledge and practice. Human knowledge and practice, which is essentially a process of modeling, is understood as having a real-time structure, which constantly accommodates emergence, resistance, success, and failure. Law (1993: 8-9) therefore writes: “Perhaps there is nothing except practices. Perhaps there is nothing other than stories performing themselves and seeking to make connections, practical and local connections, specific links. We are no longer in the business of epistemology. Of trying to find ways of telling about the links that exist between bits and pieces of complex objects. Instead, we are in the business of creating links, of making them, of bring them more or less successfully into being. We are in the business of ontology. Of making realities, and the connections between these realities of making the realities. Of trying to find good ways of interacting with our objects, ways that are sustainable, ways that are making it possible to link with them.” It is a foundational statement for the actor-network theory, which has shown the way toward a fully performative understanding of science since the early 1980s. With the appreciation of real-time practice and an acknowledgement of the importance of complex objects in it, actor-network theory thinks of science, technology, and society as fields of human and nonhuman (material) agency. Human and nonhuman agents are associated with one another in networks, and evolve together within those networks. The actor-network picture is thus *symmetrical* with respect to human and nonhuman agency: neither is reduced to the other; each is constitutive of its practice; therefore, we need to think about both at once.

Since Latour and Woolgar’s (1986) emphasis on scientific instruments as “inscription devices,” semiotics has been a central theme of the actor-network understanding of nonhuman agency, but it cannot be regarded as a whole story. It should be noted that, even when Latour claims to be doing semiotics, he speaks directly about laboratory practices, rather than through textual accounts of it. Though early actor-network theorists had a residue of influence from semiotics, trying to impose an exact symmetry which could amount to an equivalence and *interchangeability* between the human and material realms, they successfully exhibited important *parallels* between human and material agency, concerning both their repetitive quality and their temporal emergence. It is in their later works that appears a constitutive *intertwining* between material and human agency, moving the focus towards real-time performance rather

than semiotics. Without any detours through semiotics, Law (1987) invokes natural forces as part of an actor-network account of Portuguese maritime expansion, while Latour (1988a) examines the role of technical mediation—the reframing of the site of experiment as a laboratory—as an “actant” in Pasteur’s germ experiments. Latour (1991) also explains how large, heavy room keys commonly found in European hotels have outperformed all other means of reminding the customers of leaving them at the front desk upon departure. Where the sign, the inscription, the imperative, discipline, or moral obligation all failed, the metal weight succeeded. In other words, the hotel manager, the innovator, and a tiny innovation—attaching large cumbersome weights to room keys—succeeded. The non-human actant—the weight—deters customers from carrying the key with them, before any value-judgment. Latour argues that we have to turn away from an exclusive concern with “social relations,” to weave them into a fabric which includes non-human actants that offer the possibility of holding society together as a durable whole.

Law and Latour emphasize that material agency is *temporally emergent* in practice; the contours of material agency are never decisively known in advance and scientists hence have to explore them continually in their work. This sounds very close to William James’s well-known expression that “experience, as we know, has ways of *boiling over*, and making us correct our present formulas” (1978: 106). But actor-network theory, as well as James’, is not telling us that human intentionality disappears altogether. Just as material agency is temporally emergent in practice, so is human agency. They are intimately connected with one another, reciprocally and emergently defining and sustaining each other. Human and material agencies are constitutively intertwined; they are *interactively stabilized* and this is what Pickering (1995) calls the “mangle” of practice. This understanding leads us to think that to understand scientific practice within such a performative idiom does not mean that we have to forget about the representational dimensions of science and practice. The performative idiom includes the concerns of the representational idiom; it is a *rebalancing* of our understanding of science and practice away from a pure obsession with “human” and toward a recognition of material powers.

If human practices are to be understood in terms of real-time performance, the proper units of knowledge are primarily “concrete,” being neither a “noise,” nor a step towards something else. This is the point for Varela (1992: 320-39), in his “re-enchantment” of the concrete. He argues that the proper scale of knowledge is the

cognitive activity that occurs in a very special space, the “hinges” of the immediate present, and it is in the “immediate present” that the concrete actually lives. He brings the dimension of human cognition into arguments about the present-centeredness of practice. He points out that mind is not a unified, homogeneous unity, nor even a collection of entities, but a dis-unified, heterogeneous collection of “processes.” Brains are not logical machines, but highly cooperative, non-homogeneous and distributed networks; the entire system resembles a “patchwork” of sub-networks, assembled by a complicated history of tinkering, rather than an optimized system resulting from some clean unified design. The “present-centeredness of the concrete” can therefore be understood in relationship to our “readiness-for-action” in the present, the moment of negotiation and emergence, when one of the contending sub-processes takes the lead and constitutes a definite behavior. According to Varela, this happens in every cognitive act; it constitutes “micro-identity” and its corresponding situation can be called “micro-world.” Despite the possibly misleading name of “micro-,” these are historically constituted, in the sense that they are intimately close to “ordinary experience.” In other words, being capable of appropriate action is a way in which we embody a stream of recurrent micro-world transitions.

With the notion of a “historically constituted micro-world,” Varela echoes other thinkers; Serres talks of “enduring grids” and Deleuze and Guattari remind us of “glaciers” and “molar aggregates.” As for the emergence, what corresponds to Serres’ “third-place” can be for Varela a “hinge.” In his articulation, during (micro-) breakdowns, which mean moments of behavioral transitions for every specific lived situation we experience constantly, the “hinges” articulate micro-worlds, as sources of the creative side of living cognition. The manner in which the next micro-world will be constituted is neither externally decided nor simply planned; it is a matter of the “common-sensical emergence” of the autonomous configuration of an appropriate stance. In this autonomous configuration, breakdown or common sense has corporeal specificity—sensory and motor processes, perception and action are not contingent, they are “inseparable.” And, in the middle of this inseparable perception and action, there operates knowledge, as inaction, which can be understood in two senses: firstly, in that cognition depends on the kinds of experience coming from the body, which has various sensorimotor capacities; and secondly, in that these individual sensorimotor capacities are themselves embedded in a more encompassing biological and cultural “context.” Therefore, in Varela’s enactive approach to cognition, perception consists of

perpetually guided action. Perception is not fundamentally a registering of existing environmental information in order to reconstruct a bit of the physical world truthfully. Reality is rather perceiver-dependent, not because the perceiver “constructs” at whim, but in the sense that what counts as a relevant world is inseparable from the structure of the perceiver.

In the gap during a breakdown there is a rich “dynamic” involving concurrent sub-identities and agents. Varela reveals how this rapid dialogue, invisible to introspection, has recently been captured in brain studies. For example, in Walter Freeman’s experiment on rabbits’ olfactory bulbs, smell has been seen as a creative form of enacting, being significant on the basis of the animal’s embodied history, rather than the kind of mapping of external features. Smelling has been observed to trigger fast oscillations until the cortex settles into a global electrical pattern, to provide “selective binding” of neurons in transient aggregate. It is a mechanism for the enaction of sensorimotor couplings. It is a resonance appearing and disappearing quite spontaneously in various places of the brain, concerning all the sub-networks that give rise to the entire readiness-at-hand in the next moment. The oscillations are the symptoms of very rapid reciprocal cooperation and competition between distinct agents activated by the current situation. One neuronal ensemble finally becomes more prevalent, and becomes “the behavioral mode for the next cognitive moment.” This process is not an optimization, but rather resembles a bifurcation or symmetry-breaking form of chaotic dynamics. We can only inhabit a micro-identity when it is already present, losing it forever to lived experience.

It is this fast resonance that provides the playground for the emergence of a micro-world. In other words, embodied (sensorimotor) structures are the substance of experience, and experiential structures “motivate” conceptual understanding and rational thought. Varela notes that experience do not “determine” conceptual structures and modes of thought; experiences both make possible and constrain conceptual understanding across the multitude of cognitive domains. His point is that cognition consists not of representations but of embodied action. The world is not pre-given, but rather enacted through our history of structural coupling. The temporal hinges, which articulate enaction, are rooted in the fast non-cognitive dynamics wherein a number of alternative micro-worlds are activated and these hinges are the source of both common sense and creativity in cognition. Varela shares two important points with the direction of post-Cartesian cognitive science: firstly, he sees that knowledge is being built more

and more from small domains, and always constituted on the basis of “the concrete”; secondly, such micro-worlds are not coherent, nor integrated into some enormous totality—it is more like an unruly conversational interaction, and the very presence of this unruliness allows a cognitive moment to come into being. Therefore, what traditionally being called the “irrational” and the “non-conscious” does not contradict what appears as rational and purposeful: it is its very underpinning.

Varela’s approach concurs with the phenomenological analysis undertaken by Merleau-Ponty (1962: 13), who asserts that perception contributes to the “enactment” of the surrounding world. Merleau-Ponty makes a strong argument against the Cartesian tradition that the organism both initiates and is shaped by the environment and that the two are bound together in reciprocal specification and selection. Still, even though this enactive approach to cognition and knowledge “shows” the fine structure of the present and cognitive action, the “pheno”-menological discourse has been a target for vitalism along with positivism and mechanism (Lash 2006). Deleuze (1989) writes that for phenomenology consciousness is *of* a thing, while for vitalism consciousness *is* a thing. In the Cartesian tradition, consciousness is not even of a thing; it is detached from the thing for an objective, abstract, instrumental, and utilitarian knowledge. In phenomenology consciousness is of a thing as it concretely perceives of the thing-itself. But vitalism is much less concerned with the “ontological difference” of the thing-itself, because it is an “ontology of difference” (Lash 2006: 349). For a clearer distinction, it would be helpful to contrast the meanings of two notions, phenomenon and noumenon (Lash 2007). As their etymological difference—“pheno-” originated from the Greek *phainein* (to show), while “nou-” from *noein* (to conceive, apprehend)—indicates, phenomenon designates a thing, fact, or situation appearing to be viewed or observed to exist or happen; while noumenon means a thing as it is, as distinct from a thing that is observable and knowable by the senses through phenomenal attributes. In other words, phenomenologists explore “whatness,” either it is the epistemological knowledge of appearances or the ontological knowledge of the thing-in-itself; while vitalists explore “thatness,” the very dynamics of the different processes in which the thing-in-itself comes into being. It seems for this difference that the two thoughts are incongruous; vitalist thinkers are interested less in phenomenon than in noumenon.

Serres’ parasitology is a good example of the “astringent” science. It stops us from continuing reproduction of different versions of “whatness,” urging us to turn to the very dynamics underpinning it. The parasite is a quantum “actant,” which makes an

instant contact and this spontaneous behavior brings about unexpected consequences. By intercepting pre-established order it causes disturbance but this apparent disorder is pregnant with possibilities for a new order. As seen in Serres' parasitology, to think of the emergence of a new form (vitalist thinking) inevitably involves complexity thought. Had complexity theory not showed the relativity and irreversibility of time and space, only an endless recycling of finite forms and ideas would be populating theoretical domains. Conversing and overlapping, complexity theory and vitalist thinking enable us to see this world as full of dynamics and emergence.

4.2. Vital relationality

Vitalism originally emerged in the eighteenth to nineteenth century in the field of science with the transition from a matter-based to an energy-based model of physics, that is, from Newtonian dynamics to thermodynamics (Hayles 1984); but nowadays it rather designates a school of the theories which focus on the "ontology of difference" (Lash 2006), counterposed to the (post-) Cartesian ontology of presence and identity. It prioritizes the process of a subject's becoming rather than its state of being, while focusing on the subject's connection with the world of flux. Vitalism absorbs new discourses from sciences, while finds its philosophical roots far and wide, from Spinoza, Leibniz, Hume, Nietzsche, Bergson, Simondon, to Deleuze and Guattari. Vitalism is a theoretical practice which recovers the neglected and repressed Other in the most radical way: it not only undoes the nagging binaries, for instance, that of mind/body or sense/reason; but also blurs the very distinction between human and machine (and animal). Vitalism concerns a materialistic way of becoming, of connecting with, of being in the *presence* of the world of flux, multiplicity. Multiplicity is not the sum of those diversities, but is contained in the "and," the line of flight that things come to pass, becomings evolve, and revolutions take shape. For an expression of his appreciation of becomings, Deleuze prefers verbs to nouns, particularly in the infinitive form: "Infinitives express becomings or events that transcend mood and tense" (1995: 35).

Although Freud is well known to have undermined the notion of consciousness by theorizing the unconscious, Hume (2008: 18-29) had suggested, more than a century earlier, that the mind is a complex "society" rather than an organizing consciousness. He believes that an identity is always a work of fiction. He reckons reason must be considered in the context of custom, convention, and habit. For him reason always holds

the potential for being unreasonable, therefore, it is not possible to separate madness from delirium within the mind. He has paved the way for vitalist thinkers. But Hume is not the first thinker who conceived of human mind otherwise than the Cartesians. A hundred years earlier than this Hume's conception, Spinoza proposed a philosophy of the body. It is very interesting to see Spinoza, who is almost contemporaneous with Descartes, has advanced furthest the theory of the body and affect.

Spinoza (2005: 70; 113) sees that neither the body nor the mind holds primacy one over the other, nor is there a real relation of causality between the two. The underlying premise of such a philosophy of the body is that we do not know what a body can do, and, in the same way, we do not know what a mind can do. It is a matter of showing that the body surpasses the knowledge that we have of it, and thought likewise surpasses the consciousness that we have of it. Spinoza believes that there are forces of thought which may not be immediately apparent to consciousness and consciousness is a sort of waking dream, since our mind and body are simply the effects of encounters with other bodies. For him consciousness can register the effect of an encounter between bodies, but knows nothing of the cause. He maintains that mind and body are autonomous but they nonetheless proceed or develop in parallel. Any one of the two can determine the other, and therefore, does not in any way resolve the question of the relation between body and mind. The question of the mind's power to think, the body's power to act, and the notion of the correspondence between them is always open and indefinite, because an *affect* straddles this relationship insofar as it indicates at once the current state of the mind and the body.

Spinoza, like his contemporary Leibniz, views the world as a set of innumerable instances of a single prime matter, which he variously calls "substance," "nature," or "God." The substance, or prime matter, is manifested in "attributes," which have at any given time "modes" or states of transformation or non-transformation. The quality of the modes, that is, possible transformation of a given state of an attribute, is what Spinoza calls "affects," which include, but are not limited to, human emotion. It is in this particular mode of affects that Spinoza finds the roots of an ethical understanding that works with human modalities and relations, rather than autonomous human subject. Affect in this sense is more than mere feeling or emotion; affect is a differential in force accommodated by the mode of a body at a given moment—what a body is capable of. The important thing is not feeling or being able to feel; nor is it sympathy or empathy. What matters is the indistinguishability between feeling and self, and the way that both

feeling and self are constituted through and by modes of individuation. Therefore, a body can never be universal; it is highly contingent. The question of what a body can do thus opens onto the question of the ways in which the body is articulated and materialized, and at the same time, articulating and materializing.

Spinoza defines a body by two sets of concepts that express its dynamic capacity of affect: one, kinetic and dynamic; the other, longitude and latitude (Deleuze 1992b: 625-26). The kinetic proposition tells us that a body is defined by relations of motion and rest, of speed and slowness between particles. A body is not defined by a form or functions but by a complex relation between differential velocities; therefore, one slips in among things and connects with something else by movements and speed. The dynamic proposition concerning bodies refers to the capacity for affecting and being affected. For Spinoza bodies and minds are not substances or subjects, but modes, which means a complex relation of speed and slowness in the body and in thought, and it is also a capacity for affecting and being affected, pertaining to the body or to thought. To develop further this notion of a body as a dynamic and complex relationality, Spinoza goes on to elaborate another set of concepts; longitude and latitude. He calls longitude of a body the “set of relations” of speed and slowness, of motion and rest, between particles, that is, “unformed elements.” Latitude means the “set of affects” that occupy a body at each moment, that is, the intensive states of an “anonymous force.” The longitudes and the latitudes together constitute the plane of immanence or consistency, which is always variable and is constantly being altered, composed and recomposed, by individuals and collectivities. For Spinoza the plane, which means, roughly, a conceptual-affective continuum, of immanence or consistency is a “plan,” not in the sense of a mental design, a project, or a program; it is an intersection, a diagram which implies a mode of living, a way of life.

Spinoza’s ethics therefore has nothing to do with a morality: he conceives it as an ethology, which is first of all the study of the relations of speed and slowness, of the capacities for affecting and being affected that characterize each thing (Deleuze 1988c: 17-29; 1992b: 627). Ethology is about knowing whether relations (and which ones) can compound directly to form a new, more “extensive” relation, or whether capacities can compound directly to constitute a more “intensive” capacity or power. Hence what matters for a body, which means a subject for Spinoza, is no longer an idea, capture, or utilization, but complex and dynamic affective relationalities. In this way Spinozist ethics replaces Kantian morality, which always refers existence to transcendent values

(Deleuze 1988c: 23). Contrast to Kantian morality (1983), Spinozist “ethics without morality,” as Deleuze calls it, is an immanent practice and in this practice bodies are “relations” of composition or decomposition. It is clear that bodies are connected to matter, but instead of discrete “things,” they are found to be articulated through the dynamics of affect and being affected. Bodies are modalities, that is, relations of states of change. No universal laws or overarching guidelines exist for action. Spinozist ethics, an ethology, is therefore a “typology of immanent modes of existence,” a practice of “non-subjective affects” (Deleuze 1988c: 27); it is a pragmatic, bottom-up perspective.

It is, more than anyone else, Deleuze who has been re-reading, citing, and appropriating Spinoza extensively to form his seminal works on machinic subjectivity. But Deleuze also finds Leibniz and Nietzsche important, as their foundational concepts—“fold” and “monad” from the former; “will to power” from the latter—can be seen as opening a path to the philosophy of becoming and vitalism, undermining traditional humanism as well as Cartesianism. The idea of the fold expresses a conception of matter which is multiple and continuous. It is the triumph of the wave over the particle. According to Leibniz, the fold is found everywhere as a feature of matter in the world: but, as no two things are ever folded in the same way, it is not “universal”; it is in continuous variation and unfolding only serves to open up another fold, as matter is not “granular” but is made up of ever-smaller folds (Deleuze 1993: 158). This concept of the fold enables Leibniz to introduce “perspectivism” into philosophy; by perspectivism he does not mean that truth is relative to a subject, as in relativism, but rather constitutes a “truth of the relative” (Deleuze 1993: 130). As for the substance of matter, Leibniz thinks that it is made up of an infinite number of “monads,” which is not a material element, and consequently has no parts. It means that a monad does not occupy a specific space but is rather a *modulation* in time. A monad is completely closed, with no doors or windows; hence each monad both contains the entire world within it and creates a unique perspective on the world by illuminating a small part of it. With his conception of the monad and fold, Leibniz can be seen as one of the forerunners of vitalist thinking. Being and matter are never stable; they are always caught in a process of variation, which means, becoming. His thought of matter as being continuous and endlessly folded expresses a concept of movement, on top of undermining distinctions between organic and inorganic matter, interior and exterior, and, body and soul.

It can be said that this conception of the substance of matter as a modulation,

not as an identity, has been threaded into Nietzsche's philosophy of "will to power" (2000; 2004) in which the ideas of flux, movement, and creation occupy critical positions. With Nietzsche the Cartesian principle of unitary identity and the notion of self has become a "grammatical fiction." He argues that truth is a mobile army of metaphors, metonymies, and anthropomorphisms, and thus things that we accept as self-evident truths are often simply "congealed" metaphors. For example, the use of language is always a matter of convention; language offers us a shifting sign system rather than a fixed system of transcendent meaning. He thus suggests what he calls the "decodifying process," which means continuous "drifting" or "deterritorialization" and experiment (Allison 1977). As a part of the intellectual move away from "three Hs"—Hegel, Husserl, and Heidegger, Deleuze, along with Derrida and Foucault, carries this Nietzsche's work forward: while Derrida questions hierarchical oppositions between speech and writing, and, presence and absence; both Foucault and Deleuze engage in projects that reformulate traditional binary oppositions between given alternatives in terms of a pluralistic continuum, in which choices are always local and relative rather than global and absolute (Schrift 1996: 326-39). In this way Deleuze elaborates upon Nietzsche's concept of the "will to power" as a qualitative difference between forces rather than a quantitative difference between powers, so that we can concentrate on relations and difference rather than on individuals, selves and substances.

While Nietzsche's "will to power" can be taken as qualitative difference between forces, Bergson provides an onto-genetical dimension for the forces with his seminal conception of *élan vital*. Bergson (1998) claims that a real theory of knowledge is inseparable from what he calls a *theory of life*, and rejects Darwinian idea of evolution arguing that life possesses an inherent creative impulse (*élan vital*), which creates new forms as life seeks to impose itself on matter. Bergson thereby elaborates a thoroughly materialist account of perception: for him the brain does not create representations of that which is perceived, but rather responds to the movement of matter; consciousness subtracts something from the world, rather than adding something. What he proposes is a new metaphysics, a world in which things provide their own "luminosity," just as the paintings of Cezanne and Van Gogh show a world in which the landscape itself "sees" (Deleuze 1994: 169). And, as for the way of capturing the "luminosity" of the world, Bergson presents the method of "intuition" which he defines as a "laborious and even painful effort to remount the natural slope of the work of thought" (1988: 55). According to Deleuze's interpretation (1988a: 13), intuition is, in

contrast to the ordinary use of the word, “neither a feeling or an inspiration, nor a disorderly sympathy, but a fully developed method, one of the most fully developed methods in philosophy.” In other words, the intuitive method is an approach which demonstrates sufficient flexibility to deal with a world of multiplicities which are in flux. It works against the tendency towards artificial closure which ignores the irreducible pluralism and heterogeneity. Bergson (1988: 25; 35) describes it as a method for inventing a “liquid” perception, for locating the eye which resides “within things,” a world of flux and mobility, accepting no final definition or meaning. It is precisely because there cannot be a difference in *kind*, but only a difference in *degree* between the faculty of the brain and the function of the core, between the perception of matter and matter itself.

While the conception of intuition offers “method,” the theses on movement and duration designate “process” in Bergson’s philosophy of becoming (1988: 2-29). Bergson writes that “the past coexists with the present that it has been; the past is preserved in itself, as past in general (non-chronological); at each moment time splits itself into present and past, present that passes and past which is preserved” (1988: 5). He illustrates precisely how our subjectivity is formed in this liquid, continuous and processual time. His notion of duration is a process of becoming itself; he sees that mental state, as it advances on the road of time, is continually swelling with the duration which it accumulates, rolling upon itself. Duration is the continuous progress of the past which gnaws into the future and which swells as it advances. Consciousness cannot go through the same state twice because our personality is built up each instant with its accumulated experience, which changes without ceasing. By changing, it prevents any state from ever repeating it in its very depth. That is why Bergson sees our duration—the process of becoming—as *irreversible*. Our personality shoots, grows and ripens without ceasing. Each of its moments is something new added to what was before. With regard to the moments of our life, each of them is a kind of creation. The elements for this creation have no real and separate existence; they are manifold mental views of an indivisible process. And for that reason there is a radical contingency in progress, an incommensurability between what goes before and what follows. It is clear that mechanism, which regards only the aspect of similarity or repetition, cannot deal with this process.

What is important in Bergson’s theory is not a solid nucleus, but an indistinct fringe that fades off onto darkness. He points out that mechanism and finalism forget

that the nucleus has been formed out of the rest by condensation, and that the whole must be used, in order to grasp the inner movement of life. Indeed, if the fringe exists, however delicate and indistinct, it should have more importance for philosophy than the bright nucleus it surrounds (1988: 45-48). In everyday life, Bergson (1998: 224-26) writes, the “vital principle” manages the fringe, ever repairing faults, correcting effects of neglect or absentmindedness, and putting things back in place, while causing experience to *repeat itself* and enabling our mind to *generalize*. It is different from the physical order, which simply makes the same combination of causes give the same combined effect. Though Bergson’s philosophy of becoming presupposes an organism as an open system, closure is not against this process of “creative evolution” but one of its conditions of possibility.

Bergson’s philosophy of process has paved the way for Canguilhem who adapts the “vital principle” to explain the on-going evolution of machinic constructions. The basic proposition of Canguilhem’s “organology” is that machines reveal their theories “in concreto” and should be understood by virtue of “biological” principles. Canguilhem (1992: 44-69) argues that technology is more than a secondary result of scientific activity; therefore he drops the vocabularies of classical mechanics, physics and chemistry, in favor of the vocabulary of biology. He also makes use of the concepts of linguistics and communication theory, such as code, information, instruction, message, meaning, and program, because those are the new language that biology has acquired. His organology reflects the revolutionary findings in the molecular biology of the 1950s and early 1960s, by which the definition of life as organization has given a way to a new conception—information. The traditional Cartesian relationship between the machine and the organism involves mechanical explanation of bodily movement—machines are for “goal-directed” activities, and, accordingly, human body is a moving machine, a set of axioms, a geometric system for rational reconstruction. Canguilhem reverses this relationship with his conception of “substitutability of function and polyvalence of organs.” It means to acknowledge machines as having a greater range of activity, less bound by purposiveness and more open to potentialities, that is, improvisation and *process*.

Having absorbed this idea, Simondon (1992: 296-319) rejects fixed entities, naming his own theory of subject formation “onto-genesis” because it is to designate the “development” of the being, or its becoming. For Simondon, becoming is not a framework in which the being exists, nor something that happens to it following a

succession of events; it is one of the dimensions of the being, a mode of resolving an initial incompatibility that was rife with potentials. Simondon's word for a being's becoming is "individuation," and, in order to grasp firmly the nature of individuation, he urges us to understand that the being is not a substance, matter, nor a form, but a tautly extended and supersaturated system, which exists at a higher level than the unit itself, as a "meta-stable equilibrium." Hence the full being, the preindividual being is a being that is more than a unit. Unity or identity is useless notion in helping us discover the actual progress of individuation. It is only one of the being's stages, which comes after the process of individuation. Individuation is always "amplified," which means that it cannot be reduced to a mere functionality. The process of individuation is thus not akin to a manufacturing process, in which case it would not be a process involving *creative* evolution.

Simondon clearly states that the being is not at all the machine to which it is assimilated functionally by the model of cybernetic mechanism. He maintains that the being resolves its problems not only by adapting itself but by modifying itself through the invention of new internal structures and its complete self-insertion into the axiomatic of organic problems. The internal resonance and the translation of its relation to itself into information are all contained in the living being's system. A relation is an aspect of the internal resonance of a system of individuation; it forms a part of a wider system, a dimension of the process of individuation. In a word, the living individual is a system of individuation, an individuating system and also a system that individuates itself. The living being is both the agent and the theatre of individuation, and, individuation is life itself, and a discovery. Both the "adaptive" and the "knowing" subject must be modified and the "realized" subject is not valid either.

The internal resonance of a being requires permanent communication and the maintenance of meta-stability as a precondition of becoming and this is why the notion of stable equilibrium excludes the idea of becoming. A being's becoming is a permanent individuation, or rather, a series of approaches to individuation progressing from one state of metastability to another. The concept of individuation is therefore *a praesenti*, not *a priori*, nor *a posteriori*, because it is an informative and interactive communication between that which is larger than the individual and that which is smaller. Here information is the tension between two disparate realities. Acting as an instigation to individuation, a necessity to individuate, it implies a change of phase in the system. With information a being can pass out of phase with itself, breaking its own bounds in

relation to its center—a being’s individuation in progress is a *transductive* process. Originated from Latin *transducere*, a combination of *trans-* (across) and *ducere* (lead) which means “lead across,” the word “transduction” is a technical term that refers to the process in which one kind of energy is transformed into another, for example, as in the case of microphone which converts voice into electric currents. It designates a process in which an activity gradually sets itself in motion, propagating within a given area, through a structuration of the different zones of the area over which it operates (Mackenzie 2002: 16).

Simondon appropriates this notion of transductive operation to denote the process of an individuation *in progress*. This operation re-inscribes the conserved pre-individuals into the flux of individuation. As the individual, for Simondon, is what maintains itself in the tension of the in-accomplishment in command of all individuation, which is a play of the difference of forces, the pre-individual is what is always already there for the individual as the potential of an in-adequation instantiated by the individual and constitutes itself from out of an over-saturation of being, while conserving itself through becoming. Therefore, the pre-individual is the bearer of tensions that transductively transform themselves into concrete forms. And this transductive operation of functional over-determination is what Simondon calls “concretization.” The individual is thus regarded as a “moment” in a process; a metastable equilibrium, a tensed system oversaturated, which accounts for individuation as the deferral of an individual that is never fully constituted. Contrary to deduction, transductive process does not seek elsewhere a principle to resolve the problem at hand: rather, it derives the resolving structure from the tensions themselves within the domain. And, contrary to induction which only retains that is positive, eliminating whatever discordant, transductive operation seeks for a discovery of dimensions that are made to communicate, so that the total reality can find a place in the newly discovered structures without loss, reduction, or impoverishment. Though it is a technical term in origin, transduction in this sense is a vital process, an intuitive journey of discovery.

Simondon’s idea of individuation as “a praesenti” undoes dualities without entirely abolishing them; Simondon radically revises and renews Kant, in terms of the philosophy of perception. In almost the same way that Kant makes an argument to cut across the opposition between empiricism and rationalism, Simondon offers a theory of the *synthesis* of perception. But the difference is that while Kant still adheres to a kind of form/content duality, Simondon moves more decisively to the idea of “process,”

invalidating all dualities. Kant's notion of *a priori* transcendental subject and *a posteriori* empirical subject have been resolved in the process of individuation, rather than abolished or destroyed. By doing this Simondon seems to emulate Bergson rather than Kant, because the Bergsonian term of duration embraces the notions of past, present, and future, without missing anything.

It is also very important in Simondon's theory that the being is not only the result of this process of individuation but is a veritable "theatre" of it. The being results from an initial individuation and amplifies this individuation, and, therefore, according to Simondon, we need to explore the affectivity and the emotivity that constitute this resonance of the being in relation to itself and that connect the individuated being to the preindividual reality. Moreover, this affective and emotive individuation does not take place at the level of the individuated being alone. It forms the basis of participation in a wider individuation, that of the collectivity. Psychic and collective individuations thus have a reciprocal effect on each other. Simondon uses this notion of transindividual individuation to talk about social formations. But what should be noted is that, by his notion of "collectives," Simondon does not mean a society as a whole; he rather refers to smaller groups which constitute themselves through interactions and resonances of affectivity and emotivity. His point is that a social group is in its own right just the same as an "individual," and it has a radical implication for the understanding of social collectives in current digital age. It provides a very useful lead to the understanding of the relationality of human groupings and media today, which is completely different from earlier times, being emergent, spontaneous, more or less passionate, and dependent not on the strict rules of organization but on affective communications.

Simondon's elaborate argument about pre-individual fields and the process of affective and emotive individuation has been hugely important for both Deleuze and Guattari who utilize it to develop their own theories of subject formation. Deleuze (2004: 86-89) thinks that Simondon's theory of individuation presents for the first time a proper vision of an impersonal and pre-individual field. Comparing it with Darwin's thinking on the origin of species, Weismann's thesis on the continuity of the germ-plasm, and the embryology of von Baer, Deleuze emphasizes that the importance of Simondon's reworking of ontogenesis lies in its presupposition of individuation as a prior intense field in a being's ontogenetical differentiation. The notion of individuation mediates the virtual and the process of actualization for Deleuze's biophilosophy as an intermediary, which creates a realm of difference between the virtual and its

actualization. What Simondon calls “the field of individuation populated by pre-individual singularities and intensities” becomes “the plane of immanence” in Deleuze. Deleuze (2002: 25-33) conceptualizes it as being populated by “anonymous” matter and developing through transversal communication across distinct phyletic lineages. This conception is truly radical because he is arguing that it is impossible to fix “fields” of individuation. While in Foucault there are only processes of subjectification and relations of self to self that involve relations of forces and foldings of forces, Deleuze argues that ethics should concern the production of new creative lines of life which produces not a new subject but a “work of art” (1995: 92). And what gets produced in this art of living is a field of forces, which speaks of an individuation that evolves and involves through weak and strong intensities and through active and passive affects. The subject in this model is an “event” of individuation; a self always exists as *a* mode of intensity, never as a simple (or great) *the* subject (1988b: 98-9).

For Deleuze and Guattari the production of a new way of existing is not the production of a personal subject, but of a “specific or collective individuation” which can be described as a mode of intensity (Deleuze 1995: 6, 91-99). Guattari (1995: 9) gives a good explanation for what is meant by a “collective” subjectivity. For him the term “collective” should be understood in the sense of a multiplicity that deploys itself as on the side of preverbal intensities, indicating a logic of affects rather than a logic of delimited sets.” Deleuze and Guattari abandon any idea of coordinated selfhood. For them the self is merely the collection point of infinite and random impulses and flows, or, to use their terms, *lines of flight* or *machinic assemblages*, which are overlap and intercut with one another. Their schizoanalysis challenges the fundamental logic of psychoanalysis, but on its own terms. It does not simply reject the main Freudian motifs but adjusts them to a completely different understanding of the concepts of structure, identity, meaning, and truth, to re-plot the horizons of cultural, aesthetic, and psychological possibility. As Massumi (1992: 92) points out, the “schizophrenia” that Deleuze and Guattari promote is not a pathological condition; it is rather a creative process of thinking differently of becoming, of continuing self-invention. Subjectivity in schizoanalysis is not in any sense a structure, but an unmapped “exterior” surface ever demanding new thrills of contact and relationship. Its most important locale is not the buried archive of dark and forbidden repressions, but the highly charged, hyper-stimulated, open, and excitable surface of the skin which is to be understood in terms of the many and mobile relationships, interconnections and assemblages.

Bergson's virtual, dynamic, and durational conception of "creative evolution" has been modeled along "machinic" lines with Deleuze and Guattari. "Machinic" becomings participate in a mode of "creative evolution" in the sense that they enjoy a capacity (*pouvoir*) for a potentially "unlimited number of connections, in every sense and in all directions" (Guattari 1995: 126). Machinic approach does not treat machines as projections of the human but rather as "monstrous couplings" involving heterogeneous components that "evolve" through recurrences and communications. Humans are both component parts of a machine and combined with other forms of organic and nonorganic life to constitute a machine, or machinic assemblage. Being fundamentally Bergsonian in inspiration, Deleuze and Guattari introduce novel aspects into evolution, with their preoccupation with machinic becomings. In Darwin's account, such monstrous couplings are always regarded as examples to illustrate the case of "natural selection." But for Deleuze and Guattari, the novel alliances—monstrous couplings and symbiotic complexes—are the creative players in evolution that involve non-cumulative new formations in which the "extraordinary composite" does not resemble each of the parts of forms of life from which it has been generated.

Compared to Deleuze and Guattari's ontogenetic machinic subjectivity, Haraway's radical vitalism proposes subjectivity in statistical terms, regarding it as probabilistic multiplicities. Her term cyborg is an eloquent figure; being part cybernetic machine, part living organism, it breaches the distinction between technology and human, technology and nature, human and nature, and, man and woman. She writes: "Integrity and sincerity of the Western self gives way to decision procedures and expert systems. No objects, spaces, or bodies are sacred in themselves; any component can be interfaced with any other if the proper standard, the proper code, can be constructed for processing signals in a common language" (1991: 163). Based on her biological background, Haraway brings the figure of the cyborg out of the realms of science fiction and military project, to present it as an amalgam of possibility and historical matter of course. Similar to Latour, who refuses to tie the social to an all-powerful notion of society or to social forces that underpin and explain all other phenomena, Haraway tries to displace the human from its exclusive location in human doings arguing that it is pretty much a human form which constitutes itself over and against that is not human (2006: 141-42). She thinks that humans, wherever being tracked, are products of situated relationalities with organism, tools, and much else. Humans are quite a crowd, at all of temporalities and materialities, which don't appear as containers for each other

but as co-constituting verbs, including that of earth history and evolution, to manifest what she calls “the ferocity and specificity of now” (2006: 146).

To be human is to be a congeries of relationalities, but Haraway does not think that they are always about machines, much less information technologies (2006: 147-48). She argues that Foucauldian biopolitics has now been reworked, mutated, trans-ed, technologized and instrumentalized differently. Her effort to produce the terms of technobiopower and material-semiotics is another way to get at these multiple partnerships that are the source of the transformation and appropriation of wealth and of the reconstitution of the world in commodity forms, everywhere and all the time and not always by enclosure. She warns of a Virilio-esque euphorics of speed aspect of cultural theory. Things are changing fast but for her there are lots of thick continuities as well as the profound re-shapings and the rapid flickering changes are not so much about choice. Haraway produces two seemingly discordant voices: one for cyborg Manifesto; and the other for ethical responsiveness. The former is a powerful and eloquent voice for boundarylessness, which undoes the difference between, more than anything else, human and machine, applying statistical terms to see the operation of human more radically than anybody else. It is a voice for possibilities towards a creation of the new. The latter is quite contrary; it is for continuities, responses to the callings, and a holding on heritages. Though she is resistant to system theory, her interests in autopoiesis and the rewording of Foucauldian biopolitics show that her project is rather historically and politically charged, than proceeding towards a deeper ontogenetical dimension.

Haraway’s cyborg makes a good comparison to Margulis’ theory of micro-organisms. While the boundary between human and animal or machine, and, the physical and the non-physical has been decisively exploded by Haraway on the operational level, it has been dissipated by Margulis (1981; 1998) on the ontogenetical level. Margulis’ famous statement that “I doubt new species form just from random mutation” shows clearly her fundamental difference to (neo-) Darwinist biologists. While Darwin theorized that we descended from ape-like ancestors, Margulis (1981) provides an awesome description of our more primordial development from microbes. She produces a complex chronicle of those four billion years, from Hadean and Archaeon aeons when matter became “animated” and what we now call DNA and RNA became the “language” of nature, to the first appearances of plant and animal life. Her elucidation of the developing microcosm spells out a dimension that Darwin had possibly never even imagined, and she claims that only from an understanding of the

microcosm can we get the real picture of the evolution of life. Margulis' theory on the role of symbiosis in cell evolution is considered as one of the most important contemporary evolutionary concepts, because it marks out a human's place in the present ecosystem in a new way—our continued dependence on micro-organisms and our debt to our humble microbial origins for our physiological functions. More importantly, she demonstrates how life forms are interwoven with each other, and how evolution, as a process, is based on the interdependency and interconnectedness of all life on this planet.

Margulis' idea is ground-breaking, as it presupposes interactions and interfacings among different genetic systems in the process of the evolution of organisms. Though the ideas of the “selfish gene” and the “meme”—the unit of cultural, not biological, inheritance—have extended Darwin's theory (Dawkins 2006a), and the ideas such as “exaptation”—a by-product adaptation—supplemented gene-centered evolution theory (Gould 1991), they still depend on the basic assumptions of classical Darwinism—“(natural) selection” and “adaptation.” Similarly, Goodwin's (1997) holistic view—evolution as a “dance” through morpho-space and the notion of homeodynamics instead of homeostasis—also focuses on the topic of “survival of the fittest.” Concentrating on the study of biological forms, rather than genes, Goodwin introduces to evolution theory the ideas of morphogenesis and the possibility of creative functioning. But his idea of evolution as a creative dance does not go any further than that a biological form explores a space of possibilities and finds a place to live on through creative functioning, with no further possibility of transforming into a new form. Though he prioritizes co-operation and harmony rather than competition, which is why his theory is seen as “holistic,” he is still within the boundaries of Darwinism.

Margulis' criticism of Darwinists and neo-Darwinists centers on two main points. One is their “codifying ignorance” which means that, because they come out of the zoological tradition, they miss four out of the five kingdoms of life, limiting the domain of interest to animals, which are not only one part of these kingdoms but are also very tardy on the scene of evolution. Ignoring the fact that life itself evolved from nearly four billion years ago, far earlier than animal life, whose history is just 500 million years old, they have, according to Margulis, missed out bacteria, protocista, fungi, and plants. The other point of her criticism of Darwinists and neo-Darwinists is that their theories use arithmetic and algebra, which is inappropriate for biology. For Margulis, the language of biology is chemistry. It is because they lack relevant

knowledge in, for example, micro-biology, cell biology, and bio-chemistry, Margulis argues, that Darwinists and neo-Darwinists cannot help but seeing variations in the evolution of organisms as “random” mutation, by which they mean that the variant characters appear randomly in offsprings with respect to “selection.” Margulis maintains that this is clearly not the case. In her detailed study of the role of symbiosis in the evolution of cells, Margulis leads us directly to the origin of mitotic cell division and meiotic sexuality. The case in point is the origin of nucleated cells—protoctist, animal, fungi, and plant—from bacteria: how different bacteria form consortia that, under ecological pressures, associate and undergo metabolic and genetic change such that their tightly integrated communities result in individuality at a more complex level of organization. She concludes that species do not simply diverge from one another; they form new composite entities by “fusion” and “merger.”

According to Margulis (1998: 2; 6), symbiosis is a physical association between organisms, the living together of organisms of different species in the same place at the same time, and symbiogenesis means the long-term symbiosis that leads to new forms of life. She maintains that this strategy is the major evolutionary innovator in all lineages of larger nonbacterial organisms. Her claim is that the most significant variation in the evolution of organisms comes from “mergers.” A merger, for example, the one between microbe and animal cell or microbe and plant cell, is a new genetic system, which is totally different from the ancestral cell that lacks the microbe. Hence merging results in fusion, which is itself the emergence of new and more complex beings, and these fusion and merger could be seen as a result of *parasiting*—the “interfacing” of pre-existing modules. Merging is not an ordered or patterned phenomenon in a given, more or less rigid structure, but is incorporated into the “incipience” and “emergence.” It has more to do with *connectibility* than purposiveness; therefore, it is not always for the extension or succession of the individual organism.

Margulis (1998) regrets that our cultural constraints, “trained incapacities,” “thought collectives,” and “social constructions of reality” are affecting all of us, including scientists. All are saddled with heavy linguistic, national, regional, and generational impediments to perception. One widely held unstated assumption is the great chain of being, which defines the venerable position of humans as the exact center of the universe in the middle of the chain of being, below God and above rock. This anthropocentric idea dominates religious thought, and it is not different even for those who claim to reject religion and to replace it with a scientific worldview. Margulis

argues that all beings alive today are equally evolved; all have survived for four billion years of evolution from common bacterial ancestors. There are no “higher” beings, no lower “animals,” no angels, and no gods. We *Homo sapiens sapiens* and our primate relatives are not special, just recent: we are newcomers on the evolutionary stage. Human similarities to other life-forms are far more striking than the differences. Humans have indeed evolved, but not just from apes or even from other mammals. Humans evolved from a long line of progenitors, ultimately from the first bacteria. Most evolution occurred in those beings we dismiss as “microbes” which have been touted as enemies and denigrated as germs. In fact, Margulis insists, microbes are present in any live beings and can be seen more accurately with a microscope than as smudges or scum with the naked eye. Like all other apes, she declares, humans are not the work of God but that of billions of years of *interaction* among highly responsive microbes. Physical contact is a nonnegotiable requisite for these omnipresent kinds of life.

Symbiogenesis, an evolutionary term, refers to the origin of new tissues, organs, and organisms—even species—by establishment of long-term or permanent symbiosis. Margulis depends on Ivan E. Wallin’s book (2011), in which he wrote arguments that new species originate through symbiosis. In the book, first published on demand in 1927, Wallin never used the word of symbiogenesis but he emphasized animal symbiosis with bacteria, a process he called “the establishment of micro-symbiotic complexes” or “symbionticism.” This is important because, although Darwin entitled his magnum opus *On the Origin of Species*, the appearance of new species is scarcely even discussed in the book. Margulis fully agrees with Wallin that symbiosis is crucial to an understanding of evolutionary novelty and the origin of species. Indeed, she believes the idea of species itself requires symbiosis. Bacteria do not have species. No species existed before bacteria merged to form larger cells including ancestors to both plants and animals. Long-standing symbiosis leads firstly to the evolution of complex cells with nuclei and from there to other organisms such as fungi, plants, and animals.

Molecular biology, including gene sequencing, has vindicated Margulis’ theory of cell symbiosis and endosymbiosis theory, that of the permanent incorporation of bacteria inside plant and animal cells as plastids and mitochondria. It is because the faith in DNA incites the illusion of mastery that all of the secrets of life has been located. This surreptitious mastery requires a fetish, and it suggests the immense scope of revived pro-human prejudice, anthropocentrism, which has dominated the work of Freud and his associates, followers, and even his critics. Or, at best, it nurtures gene-

centered prejudice against all other biological entities. Posited as a site of Truth, a “law-code and executive power” or an “architect’s plan and builder’s craft,” it appears to be a primal molecular structure that defines life. Relocating reproductive processes from the level of the cell to the level of the molecule, it seems to disclose the fundamental interconnection of living things; the repetition of portions of its structures from species to species suggests the same kind of evolutionary phylogeny. With the visibility of DNA, sought by James Watson and Francis Crick and others as the key to its operation, humans seem to have reached the minutest level possible, which will unravel all of the mysteries of life. Genetic research looks like replacing psychoanalysis: instead of Freud’s notion of drives, humans get a chain of amino acids. The psychological is reduced to the chemical, signaling a shift from deductive empiricism to disciplined inductive experimentation; whereas Freud worked by introspection, looking “from the outside inwards,” molecular biologists work “from the inside outwards.”

But how that chemistry works is still mysterious. All the obsessive thoroughness of the human genome project, which aims to map every gene in the twenty-three human chromosome pairs, only informs us of ways in which chemical information is transferred, and that such processes constitute a general rule about the relations between life and heredity. Those who see DNA as a master code with all the answers miss the point that in itself DNA does not provide insight into extended processes or dynamics. When molecular biologists proceed from the behavior to the gene to find the chemical coding point for that particular behavior they already observe, DNA, rather than being a key, may finally be more of a shadow lure whose chemical code is already divided according to functions and morphologies as appeared in that behavior. The “answer” is therefore somewhere else, probably in the “process” in which code becomes flesh—the less definable, much messier, more multifarious interchanges by which the information becomes life. Though mesmerizing to see, DNA’s graphic—the famous, coiled snake of information—is not a legend to the complexities of human existence. Reducible always to its component elements, DNA is nowadays being figured as working like language (or phonemes) where, to borrow linguistic terms, meaning is built from a grammar of phoneme-like constituent parts, but the exact nature of the necessary connection between signifier (gene) and signified (trait) is not quite known. Considering DNA as an object rather than a dynamic process cancels out the much more radical differences that always emerge in the being. In this way, DNA becomes an authentic key to the clear truth rather than phantasm, a site of production rather than that

of projection. Stripped of dynamics and possibilities of life process, DNA has become more of the chopped-up proprietary interests of biotechnology companies who patent specific genes and even knowledge about them. It is being treated like a computer chip, as an indispensable staple for object-centered, commodity-driven sciences.

Far from this fetishistic pursuit for the operation of the essence, the exploration of the process of symbiogenesis focuses on interaction, interfacing, merging, fusion, and the emergence of new life forms resulted from these activities. Margulis' works could be a good companion to vitalist philosophers, providing a biological scene of the "becoming," which has been missing. Margulis opens a path, making a *connection*, in Serres' sense, between bio-chemistry and the ontogenesis of relationality. She writes that, in symbiotic functions, *hunger* is likely a primordial factor which urges the desperate to merge (1998: 9; 89). This very notion of hunger can be transferred to Serres' parasitology as a motive creating the system's energy. The three main points of Serres' parasitology—interdependence, the importance of in-between space, and the emergence of the new—all converge on the points of Margulis' theory of symbiogenesis. Her conception of hunger can be translated into Bergsonian *élan vital*, and it can also be an enriching supplement for Deleuze and Guattari's rhizomatics. The notion of "machinic assemblage" can find a referential point for the drive underpinning its "concrete" operations. Hunger is a telling notion which can be transformed into many languages for the theories focusing on the dynamics of spontaneous emergence.

Margulis' argument is even more radical than Haraway's, in the sense that it plainly undoes the cherished boundary of animal kingdom. Questions of human ontology have been extended as far as four billion years with Margulis. Numerous thinkers have previously re-routed, de-centered, and fractured subjectivity, but the place of a human as an animal—though machinic—has not been changed. The radical rediscovery of the Other has traveled through the redemption of the Pagan and the Classical subject, deconstruction of logocentrism and phallo-centrism, invalidation of old notion of Humanism that excludes sensation, rejection of anthropo-centrism that excludes machines—and, finally, it has reached the demolition of animal kingdom.

The path of these changing notions of the human subject and its relationality to the world has been inseparable from that of discourses on communication media. There have been "passages" and "translations" between the two paths. Until recently communication media have been treated as independent entities created by human intention to serve human purpose, not unlike a human subject has been regarded as a

complete being with a fixed identity. The advent of digital media facilitated a definite move from this traditional view, inviting new arguments on the subjectivity of a human being and technologies. It is simply because old notions are not only insufficient but also inappropriate to address the new landscape. People's contemporary life with current communication media has become unprecedently complex and, to understand the phenomenon, it is necessary to parasite, interact, interface, and fuse possible theoretical points from different fields, just as biological entities merge beyond phyletic lineages.

Before turning to the study of media, the next chapter will treat the *other* relationality, by which this study means the way of understanding of the relationships between humans and things, and the world, based on traditional Chinese philosophy. Contrary to its Western counterpart, which has been reworked incessantly throughout time, in China the idea of subjectivity and its relationality to the world has not changed much over thousands of years. It is still very Confucian (and Daoist, in part) and its basic assumptions are fundamentally different from those of western thought. A more comprehensive understanding of relationality among humans, objects, and the world can be aided by this investigation of the *other* and it may also be helpful to make sense of the following part, the empirical research on the mobile phoning in Korea where people continue to keep the elements of this *other* relationality. The purpose of the next chapter is, however, to suggest a contiguity, rather than to make any theoretical claims for correspondence. It is rather to show a path for a possibility of connection and merger (beyond phyletic lineages).

Chapter 5

The *Other* Relationality

Early Chinese and Indo-European philosophical traditions developed on opposite divides of a great physical barrier—the Himalaya Mountains and Xinjiang barrens. Chinese civilization is one of the oldest and was recorded in texts very early on. Sinologists have noted that early Chinese philosophers show startlingly little interest in the familiar staples of early Western thought. They were not enchanted with the creation myths and cosmology that pervaded ancient Indo-European culture. It developed without any borrowings or influences from the European West for a long time. China presents a good case study through which Westerners can contemplate their own thought from the outside. It is not claiming that China is totally foreign, but, in many significant ways, it is the *other*.

To take account of this *other* relationality is a theoretical exercise to build a model with which we can understand how contemporary media and subject individuate their relationality. The acknowledgement of non-western variant is itself an appreciation of the complexity of the field where individuations take place, and of the potentials of co-evolution. This exploration, “entering into” relations, is also very important as this study obtains empirical data from Korean people. The interactions between Korean and Chinese culture must have taken place from much earlier times, but it is especially during China’s Han period (from 206 BC to 220 AD) when Chinese troops moved into the northern part of Korea and set up military prefectures for over three hundred years that the cultural influence from China has flown into Korea on a large scale. Among the three ancient kingdoms of Korea (Koguryo, Silla, and Paekche), which existed from around first century BC, only Koguryo was partly under the occupation of Han, but all three kingdoms were greatly influenced by Chinese culture, including Confucianism, Buddhism, writing system, law, central and local administrative institutions, customs, forms of art, the making of porcelain and paper as well as other craft skills, and the kinds of agricultural products (Ho 1992: 157-65).

The Ming and Manchu-Ching period in China coincided with the Yi dynasty (1392-1910) in Korea, an exemplary Confucian society in East Asia. Korea’s cultural links with China were the strongest, with the introduction of the civil service examination system and the popularization of Confucianist books as a result of the improvement of book printing technique. Chinese characters were used as the official

written language but it was very difficult to learn enough Chinese characters for ordinary Koreans, and this has led King Sejong to begin developing a new alphabetic writing system in 1430 and promulgate it in 1446. It is a system of phonetic writing with eleven vowels and seventeen consonants, which is now called the Korean alphabet or *Hangul*.

But Chinese characters were valued as the letter of “learned man” and the simple fact that Korean people have been depending on the Chinese writing system for thousands of years means that there is an enduring structural factor in their mind which guides the way they see, think, and experience the world. Very often they even have to refer to the Chinese character equivalent to their Korean word to make clear what they mean by it. On top of this everyday-life based continuity, Confucianism also continues to hold its position in socio-cultural dynamics in Korea. Even though the country has undergone a rapid capitalist development and reformations of social structure, the Royal Academy, *Songgyungwan*, which has been established in fourteenth century as the nation’s highest institution for Confucian learning, has not lost its voice for ethics and recently it even seems trying to resume its old leading role by reinventing itself.

It is only after the Second World War that Korea has been exposed to Western culture, and it is less than half a century since the country launched a national project for industrial development in 1961. But Korea is now one of the most vibrant developing countries, and is especially strong in information technologies; it is among the three main producers of computer chips and mobile phones in the world. This socio-political background has made Korea a very interesting place where disparate elements, which seem incompatible, are being mixed and fused to produce its own specific relationality. Though it is not the aim of this study to make a theoretical argument on the relationship between the mobile phoning in Korea and this *other* relationality, this chapter intends to show the path, suggesting the possibilities of connection, not only between this *other* relationality and Korean people’s practice with their mobile phones, but also between this non-western variant of relationality and the continuous reconfigurations of western subject’s relationality.

People’s conception of their relationship to the world is different in China and the West, and their material conditions of life have been one of main reasons of the disparity. The fact that agriculture dominated Chinese people’s life may explain the pervasive emphasis on natural cycles, interest in the constancy of nature, and the stress

on harmony with nature in China. Greek thought, by contrast, grew up where shipping, trade, and commerce dominated the economy. Their early interest in the stars, astronomy, navigation, and eventually geometry fed into classical Western philosophy and science. To the ancient Chinese, their land was the world. From the time of Confucius until the end of the nineteenth century, no Chinese thinkers had the experience of venturing out upon the high seas. Most of Chinese people had to make their living solely by agriculture. Land is the primary basis of wealth. In the social and economic thinking of Chinese philosophers, there is a distinction between what they call “the root” and “the branch.” The root refers to agriculture and the branch to commerce. It is that agriculture is concerned with production, while commerce is merely concerned with exchanges. The people, who deal with the branch, that is, the merchants, were therefore looked down upon. They were the last and lowest of the four traditional classes of society, the other three being scholars, farmers, and artisans. The scholars were usually landlords, and the farmers were the peasants who actually cultivated the land. These were the two honorable professions in China. A family having “a tradition of studying and farming” was something of which to be proud.

Farmers have to live on their land, which is immovable. Unless one has special talent, or is especially lucky, one has to live where one’s father or grandfather lived, and where one’s children will continue to live. Thus developed Chinese family system, which was one of the most complex and well-organized in the world. The family system was the social system in China (Kupperman 2001: 73), and a great deal of Confucianism is the rational justification or theoretical expression of this system. Out of five traditional social relationships in Confucianism, which are those between sovereign and subject, father and son, elder and younger brother, husband and wife, and friends, three are family relationships. Furthermore, the remaining two, though not family relationships, can be conceived of in terms of the family. The relationship between sovereign and subject can be conceived of in terms of that between father and son, and that between friends in terms of the one between elder and younger brother. In the *Erh Ya*, the oldest dictionary of the Chinese language that dates from before the Christian era, there are more than one hundred terms for various family relationships, most of which have no equivalent in English.

The Greeks lived in a maritime country and maintained their prosperity through commerce. They were primarily merchants. And what merchants have to deal with first are the abstract numbers used in their commercial accounts, and concrete things are

apprehended through those numbers. Such numbers are what Northrop (1946) calls concepts by postulation. Northrop sees that there are two major types of concepts; that achieved by intuition and that by postulation. A concept by intuition, he says, is one which denotes, and the complete meaning of which is given by something which immediately apprehended. By contrast, a concept by postulation is one the complete meaning of which is designated by the postulates of the deductive theory in which it occurs. Greek philosophers developed postulation, reasoning, and articulated argument. The Greeks had a form of social organization not based on the common interest of the family. They organized their society around the *city* state, while the Chinese people formed a system of *family* state.

The difference in material living conditions has had a great influence on the two cultures' mental framework—language and philosophy—so that they advance different ways of understanding and making relationships to one another and to the world. For the Chinese, nature is never an object of representation, because they think they are always a part of it. They have developed organic and immanent relationship to nature, contrary to the Western kind, which is abstract and conflictual. The Chinese also think that the relationality is not to be a fixed one, but to be in a continuous variation, precisely because only in that way it can be pragmatic. The Greek senses of logos, definition, and representation are all absent in the Chinese mind. Debate or argumentation, regarded by Westerners as an authentic, or the only way to find the essence of a thing or Truth, finds no place either, in the tradition of Chinese thought.

The difference has been considered as a very important, if not main, factor in leading two cultures to disparate paths towards industrial capitalism. It is agreed that the lack of objectification and tension in the Chinese' relationality to the world prevented China from being a forerunner in the race for industrial capitalism, in spite of its many earlier scientific achievements. But, interestingly enough, there have been meaningful studies from the years of mid-twentieth century, which claim that the unique cultural characteristics of "pre-modern" China can be a good reference point for the study of "post-modern" West. At its culmination, the West seems to look for the *other* to find new vocabularies, to speak of itself. And the more important point here is that this new theoretical passage has been set out alongside the prevailing incorporation of electronic, digital technology into human's everyday life.

5.1. Open, pragmatic structure

Chinese philosophy can be seen as an open structure, because of the briefness and disconnectedness of the sayings and writings of their authors. In the *Analects* (1998), there are just short aphorisms and dialogues; each paragraph consists of only a few words, and there is hardly any connection between one paragraph and the next. Seeing a book containing the philosophy of Lao Tzu (2006), *Tao Te Ching*, it is rather surprising that the whole book consists of about five thousand words—no longer than an article. Yet in it one finds the whole of his philosophy, which has initiated such far-reaching and enduring tradition of Taoism. Westerners accustomed to elaborate reasoning and detailed argument would be at a loss to understand what these Chinese philosophers were saying. It is obvious that Chinese philosophers express themselves in the form of aphorisms, apothegms, or allusions, and illustrations. But their insufficiency in articulatedness is compensated for by their suggestiveness, which is almost boundless. According to Chinese literary tradition, “in good poetry, the number of words is limited, but the ideas it suggests are limitless.” Similarly, in the twenty-sixth chapter of the *Chuang-tzu*, it is said: “A basket-trap is for catching fish, but when one has got the fish, one needs to think no more about the basket. A foot-trap is for catching hares; but when one has got the hare, one needs to think no more about the trap. Words are for holding ideas, but when one has got the idea, one needs no longer to think about the words. If only I could find someone who had stopped thinking about words and could have him with me to talk to!” (Fung 1958: 1-29) For Chuang Tzu (1996), *tao*, of which the literal meaning is “the way,” cannot be told, but only suggested. So when words are used, it is the suggestiveness of the words, and not their fixed denotations or connotations, which reveals the *tao*. The brief words in the *Analects* and in the philosophy of Lao Tzu are not simply conclusions from certain premises which have been lost. They are aphorisms full of suggestiveness; one may gather together all the ideas he finds in the works of Lao Tzu and write them out in a new book with fifty thousand or even five hundred thousand words. The reason for this suggestiveness is that, for Chinese philosophers, reality is far much bigger and richer than the words. So they approach humans and the real world with less words, leaving them open, so that they could be applied to various circumstances. It is their strategy to be “pragmatic” and this tradition of pragmatic openness is one of the most unique features of Chinese philosophy.

From very early times on, the function of Chinese philosophy is not the increase of positive knowledge, but the elevation or cultivation of the mind for the practical

world of relationships, while acknowledging oneself as a part of nature. Chinese philosophy is at one and the same time both idealistic and realistic, as it is very practical, though not in a superficial way. Regardless of its different schools of thought, Chinese philosophy has always been concerned with humans, community, and, social and political organizations, either directly or indirectly. It concerns human's present life and the daily functions of human relations; not hell or heaven, or a life in the world to come after death. In the *Analects* (116), when he asked by a disciple about the meaning of death, Confucius famously replied: "Not yet understanding life, how can you understand death?" And Mencius (205) also instructs that the Sage, the highest form of achievement of any individual, is the acme of "human relations," which literally means that the Sage is the morally perfect man *in* society. For Chinese thinkers this-worldliness and other-worldliness do not stand in contrast to each other as do realism and idealism in the Western world. The task of Chinese philosophy is in fact to accomplish a synthesis out of these antitheses, not only in learning, but also in deed. For the Confucians, philosophy is not simply something to be *known*, but it is something to be *carried out*. Philosophy is not simply an intellectual game; it requires a man to *live it*, and it becomes his biography. Knowledge and virtue are one and inseparable.

From the very beginning, Chinese philosophy has been concerned with pragmatic matters—the practical question of advancing the well-being of the individual and the order and harmony of society and the state. In the *Analects* (140; 141) it reads: "Speech enables the noble-minded to act" and "What good are all those Songs if not put to use?" (Songs mean Chinese classic literature from very early times.) This idea of Confucius has been shared with all other subsequent Confucian scholars, and even in the Taoist philosophy of Lao Tzu appears a concern for the best form of government. Confucianism and Taoism have in fact shared the same origin and source, and in a sense mutually define and complement each other. Though Taoism differs from Confucianism in that it is rather inclined to emphasize spontaneous and creative nature in humans and things in the world, compared to the Confucianism's focus on social relations, their basic conceptions are interrelated, while mutually supporting, and they are thus best understood in the context of each other. The important fact is that no philosophical schools and no thinkers in China have regarded philosophy as a mere speculative activity. The goal of learning can be summarized as understanding the world, perfecting oneself, and realizing one's potentiality in the reality of relationships. In other words, the process is one of the extensions from individual perfection to the perfection of all

men, and the one of unifying one's internal attainment with one's external efficaciousness. It is essential that in Chinese philosophy man be capable of reaching the ultimate and highest state of perfection, be it called sagehood, true manhood, or Bhuddahood. Man is therefore capable of generating the highest form of the good without needing to look beyond and transcend his own world. The pragmatism of self-cultivation in Chinese philosophy does not require the worship and dependence upon a supreme God.

This tradition of human-centered pragmatism can be called "intrinsic" humanism, compared to most of humanistic thoughts in the West, which can be called extrinsic (Chung 1972: 141-65). In Greek, as well as in Renaissance philosophy, the existence of man and his power of reason are given a unique place with the background of distinction between the natural and the supernatural, man and the God, the subjective and the objective, mind and body. The affirmation of the value of man tends to be made at the expense of the value of that which is contrasted with man, be it the natural or the supernatural, entailing either denunciation or neutralization. With Renaissance humanism, Chung finds, the Western mind is guided by an interest in the exaltation of man toward exploring, utilizing, and controlling nature as an inanimate object and as a means for achieving human power. It has contributed directly to the development of modern science, but, in the light of scientific achievement, not only has nature been deprived of meaningfulness and considered value-neutral, but human beings themselves are also treated as objects of scientific investigation, subject to a methodology which regards value purely as an invention of man. According to Chung, this is the unavoidable result of the humanism in Western world, which begins with the extrinsic assumption that man and nature are different and therefore in opposition. The modern revolt against this mentality in existentialism is no less extrinsic, Chung argues, for it stresses the absolute subjectivity of man as a humanistic principle to the exclusion of objective and physical nature. And, another line of thought, depth-psychology of man is even more frustrating, because it not only completely objectifies a human being, splitting him or her into two parts of the conscious and the subconscious, but also totally neglects the fact that he or she is a part of nature.

By contrast, the foundational assumption in Chinese philosophy is that nature is intrinsic to the existence of man and man intrinsic to the existence of nature. There is no dichotomy or bifurcation. In all the major traditions and schools of Chinese philosophy it is considered crucial that man and nature or reality should be seen as forming a unity

and harmony, just as man himself is a unity and harmony of mind and body. Body and mind mutually determine and define each other to constitute the existence of man, who interacts with everything present in the world, to grow and develop into an ideal perfection which has both anthropological and cosmological significance. For this reason, the main concern for Chinese thinkers has been, from the start, how they would contain and deliver this intrinsic, human-centered pragmatism within their language. For them language is not a tool for reasoning or argumentation for finding the ultimate Truth; it is itself the container and conveyer of relationalities of things in the world, and hence the guidance for the people's everyday behavior. To accommodate these roles, their language should be adept at various changing circumstances in real world—it should be an “open” structure. And this unique philosophy of language, which is not found in Western world, can be seen as closely related to the origin of Chinese writing itself.

Though written history in China began in the Zhou period (1111-249 BC), scholars think that proto-type of ideographic writing emerged in the immediately preceding times of the Shang dynasty—second millennium BC. Archaeological findings say that priests used oracle bones (turtle shells or large mammal scapulae) in divination, heating the bones until they cracked to *read* the cracks. They carved questions on the bones, and sometimes added instructions gained from the divination. The diviners stored the bones, probably as sacred objects, records, or as accumulated storages of guidance. This so-called oracle-bone script has largely been regarded as the earliest form of Chinese writing (Kohn 2001: 2-4), and it suggests one reason why Chinese philosophers think of language as guiding behavior. Throughout the history, the record keeping in China has been viewed as the accumulation of valuable *guidance* rather than simple descriptions of events in the past. This is a sharp contrast to the origin of Western writing, largely regarded as started to meet the need of accountancy. The storing of the result of past divination signals important and enduring Chinese attitude toward language that values the historical accumulation of literature as guidance. For the Chinese, good guiding words are a precious resource for their culture and they accumulate guiding knowledge as a capital investment and cultural inheritance. The traditional rituals of ancestor worship, which have already existed in the Shang period, incarnate their worldview that society is continuous across even the boundary of life and death, and the spiritual realm is continuous with the natural world. There have been some sinologists under the Bloomfield's (1984) spell who assume that the development

of writing traces an inevitable path from “primitive” pictographs to “modern” phonemic structures. But this is to take the unique nature of Chinese writing at face value, believing only that language is a system of sounds. Chinese common sense about language, which regards it as an open structure that encompasses relationalities of the world, differs from Indo-European counterpart. Popular Chinese language learning aids construct elaborate purported etymologies, assigning a meaning-based rationale to the entire character. The assumption is that language is continuous and open to the real world; sounds, characters, speech, and human behaviors are all integral to the very concept of language. The Chinese even links their language to paintings in a way that contradicts the assumptions of Western world.

What is also remarkable in respect of the openness of Chinese language is the “interlanguage” aspect of its characters (Hansen 1992: 30-54, 196-230). It seems that a Chinese character plays an interlanguage role, which can be considered as similar to Plato’s realm of meanings and its philosophical descendant—private mental ideas. A Chinese character does not “represent” ideas; it plays an analogous explanatory role, similar to the role that ideas play in the Western counterparts. Being picture-like, interlanguage items, Chinese characters are, in this sense, “analogous” to ideas. Both ideas and characters tie the objects in the world to the world of language, purporting to substitute straightforward pictorial representation for the rich field of semantics. The main difference is that Plato’s version regards the ideas as the ultimately real objects in an objective realm of reason, which means an individualist version that makes the mental ideographs purely subjective and private; hence, the ideas are closed at the door of subjectivity. But Chinese characters are, by contrast, unmistakably conventional, social, and public; hence, they are open, picturing the relationality of language-human-world, which is being tied historically and conventionally.

For the Chinese the history is the history of a linguistic community, not that of an individual, and the Chinese use of the characters conforms to historical conventions. Their theories note explicitly the conventional nature of language and the crucial role of relative acceptability of use. As they emphasize the relation of language and society, Chinese thinkers do not get caught up in the problems of definitions. The noble-minded are all-encompassing, not struck in doctrines and it is only the small-minded who cherish territory (Confucius 1998: 14; 35). Social conventions govern all aspects of language—the graphs themselves, the distinctions, and the sounds for the characters. Language depends on social agreement, convention, and coincidence; the “shared”

pattern of use has customary normative status. Therefore, Chinese language training portrays language more naturally as a way people interact with and influence each other, while Western philosophy of language, by contrast, treats the key role of language as conveying ideas, facts and descriptive content. In a word, the Chinese conception of language starts from pragmatics—the relation of language and user; while its Western counterpart focuses first on semantics—the relation of language and the world or objects to be “re”-presented. Chinese language system does not believe that expressions are *about* particular objects or ideas, as its ontology does not assume reality as consisting of substances (objects, particulars) with attributes (properties, characteristics). And it does not treat a sentence as conveying a unit of thought or a fact. But, in Western world, a complete *sentence* expresses a complete *thought*; it has both a subject and a predicate and the predicate says something *about* the subject. Even in slightly bizarre contexts, the grammar requires the subject term, as in “It is raining.” Thus a standard thought is *about* some object and describes that object in a certain way. On the contrary, classical Chinese written language regularly omits the subject and other pre-verbal nouns. It is not sentence-based; it is intuitive.

In his introductory work to the world philosophy, Flew (1989) excludes any sources “east of Suez.” He justifies this retrenchment by saying that it is precisely not for reasons of “European parochialism,” but, philosophy, in his sense of the word, is concerned “first, last, and all the time with arguments,” while “most of what is labeled Eastern Philosophy is not so concerned.” As an exemplary case, he mentions the *Analects* of Confucius: “although such works of the classical Chinese Sages as the *Analects* of Confucius are in their own kind great, that does not make them in the present sense philosophy, because they are not concerned with arguments.” Flew is not alone with this belief; Ryle (2000) also sees that philosophizing essentially incorporates argumentations. In his words, it does so in such a way that “whereas a weak or faulty inference might by luck put Sherlock Holmes on the track of the murderer, a weak or faulty philosopher’s argument is itself a blind alley.” It is clear that the *Analects* is not concerned with arguments in an obvious way. It rather makes a clear statement that “‘clever’ or ‘calculating tongue’ is not humane; it is only ruinous” (200). The book is a collection of aphorisms and brief dialogues which primarily have to do with moral conduct. The reader does not find any definite or systematically defined rules of practical morality. It will be disappointing if he expects to find any arguments justifying the specific moral conduct prescribed. But the *Analects* do in fact incorporate a definite

moral point of view. The main idea in the *Analects* is that of a “superior man” whose function is to be a “paradigmatic standard for practical morality”; and it is a special point of Confucian ethics that moral conduct should not conform to abstract principles or rules specifying what are “correct” in any given situation. Rather, the ideal is to act as this exemplary moral agent does, out of a cultivated sense of that allows him to see what is correct even in unusual, or “exigent” situations for which no rules are available. As such the *Analects* are the expression of a highly sophisticated moral outlook, one which relates actions to specific situations but without tying them to the situations by strict rules. This relationship between moral conduct and its principle will strike many Western philosophers as putting the cart before the horse. For them, what is needed first would be a clear statement of the principle for stating and justifying such conduct, then it remains to be seen which, if any, *can* be stated and justified.

The use of arguments in philosophy has had a long tradition in the West. Zeno’s paradoxes have occupied the interest of the professionals not because he made a great discovery, but because of his interesting arguments. Plato’s dialectic method is a controlled argumentational process leading to more or less generalized principles. The logical principles in the Aristotelian tradition have established a methodological model for the construction of sound arguments by later philosophers. Through medieval times, arguments for the existence of God have been of paramount importance. But it rather seems that they have been important not because the existence or non-existence of God is significant to philosophy itself and people, but because the structure and the validity of the arguments which constitute controversies in philosophical method have been of prime concern. The rejection, acceptance, discussion, and revision of the arguments have formed a glorious history of landmarks in philosophical method, and, after the downfall of the medieval period, when God had become less a matter of public concern, this tradition of making arguments was reworked by Descartes, revised by Leibniz and Spinoza, criticized by Kant, rationalized by Hegel, and supported or re-/deconstructed by subsequent scholars. In modern western society philosophers are no longer those leisured, wise men of antiquity, but members of a particular profession participating in the “productive” arguments.

While studying Chinese philosophy, comparative philosophers are often tempted to pursue the topics like “causality,” “universals,” “the mind-body relation,” or “the analytic-synthetic distinction,” all of which are important in Western philosophy but of no meaning in Chinese philosophy. Western thinkers also tend to impose ready-

made categories upon a subject-matter for a clear understanding. They indeed have a passion for clarity, but Chinese thinkers seem more aware of the uncategorizable nature of reality, particularly of the reality of the human world. For example, in western societies people often identify a person by his religion: “you are a Catholic, he is a Protestant, and I am a Jew.” But to classify Chinese people by calling them Buddhists, Taoists, or Confucians would be a big mistake because, for them, having faith in two or three religions at the same time is natural, as they think all religions are leading to the same goal. In Chinese philosophy, there are no customary dichotomies such as form and matter, mind and body, idealism and materialism, a priori and a posteriori, analytic and synthetic, the empirical and the rationalistic, and, subjectivity and objectivity. For example, the Chinese word *hsin* is used for both the emotional “heart” and the more intellectually oriented “mind.” From the beginning Chinese thinkers have not believed in the distinction between the rational and irrational parts of the soul; nor would they approve the distinction between the cognitive and the non-cognitive. If one applies Western categories to Chinese philosophy without considering this fundamental difference, the result will only be what Whitehead called “the fallacy of misplaced concreteness.” Or, to use a Chinese idiom, it would be a “cutting one’s toes to fit the shoes,” which can be translated into “the fallacy of the Procrustean bed.”

As their basic conceptions of human and the world are incompatible to the Western mind, human-centered thought of Chinese philosophy is fundamentally different from that of the West. Strictly speaking, from a Chinese philosopher’s viewpoint, humanisms of the Western world are not humanism in its full development. In this regard, Wu (1972: 1-18)’s comparative study is particularly illuminating. He maintains that Renaissance humanism and twentieth-century Existentialist humanism can not be considered as humanism in its full sense, as they are products of the “outgrowth” of non-humanist thought. Wu argues that the former signifies the previous dominance of religious supernaturalism more than it does humanism itself, for it is primarily a reaction against medieval thought. On the other hand, Chinese humanism has never been a reaction against any supernatural belief; contrary to the Judaic-Christian tradition, in which man and the God are sharply distinguished from each other, a supernatural world is a world full of humanistic spirit in popular Chinese thought. In China many of the gods are originally from the human world; there are ancestral gods, and others became gods primarily because of their possession of exceptional moral virtues and spiritual power. This means that in Chinese thought humanism has

assimilated supernaturalism as an integral part of itself, since the supernatural world is basically an incarnation of the humanistic spirit. From the viewpoint of Chinese thought, Existentialist humanism is also not humanistic in the full sense as it is primarily a recent reaction against scientific naturalism. For Chinese philosophers, scientific naturalism is not at all antagonistic to true humanism, since the development of science and technology contributes to the well-being of mankind. The remarkable cooperation between Confucian humanism and Taoist naturalism illustrates this tradition very well. Taoism and Confucianism run parallel harmoniously throughout Chinese history so that every Chinese is at once a Taoist and a Confucianist. Chinese humanism is not a reaction against any kind of thought. Being different from the two representative types of humanism, Chinese humanism is tolerant, accommodating other types of thought as a part of itself, and even all-embracing.

Chinese philosopher's strong emphasis on the unity of theory and practice also invites a comparison with American pragmatism. According to Wu's comparative study, the difference between these Confucianists and American pragmatists comes from the historical background of American thought and the spirit of the Chinese philosophical tradition. Wu sees that American pragmatism is a philosophy strongly influenced by Darwinism and the experimental sciences. Under the influence of the former, it rejects "knowledge for its own sake," and advocates that knowledge be the preparation for action, an instrument to solve problems, to satisfy our needs, including the need for survival in this precarious world. And, under the influence of the latter, it holds that a theory or hypothesis performs the function of guiding our action in our inquiry. Therefore, the basic stresses being put on the two terms are qualitatively different between Chinese philosophy and American pragmatism. In a word, the unity of theory and practice in American pragmatism is more concerned with scientific and epistemological problems, while Confucianism is deeply concerned with moral faith. Wu emphasizes that the term "theory" as used in Confucianism is not to be understood in terms of conceptual framework or hypothesis; it should be conceived as *deep conviction* or *ultimate concern*. "Practice" in Confucianism is not to be interpreted in terms of something to be exercised or performed in daily life; it should be understood in terms of a deep moral sense. Practice, in Chinese philosophy, concerns the total moral performance of the individual. As such, the total moral performance of the individual and the totality of his beliefs or theories should be in a harmonious unity, without any inconsistency. Philosophy, for the Chinese, is *lived* rather than *constructed* by the

intellect who unites his theory and practice.

Unlike the Hindu caste system in which the teachings of the Vedas are possessed by only a few, and unlike modern Western society in which philosophy is possessed by the professionals, Chinese society has never evinced aristocracy or professionalism in philosophy. Instead, in China, philosophy is intended for every educated individual. From the very beginning of their learning, Chinese people read classics of their philosophy and most of them do not stop the reading throughout their lives. Philosophy has never been professionalized. There do exist famous philosophers whose influences remain strong to this day, but they were rather leaders of a community than professionals. They answered to the questions from the members of the community, and by providing sensible remarks they became famous, receiving more inquiries from more people coming from wider areas. The questions were not superficial nor metaphysical but practical ones, which had arisen from everyday matters; for example, “what is a proper relationship between a husband and a wife?” or, more specifically, “what should I do to a neighbor who is not returning my horse?”

From the Chinese viewpoint, the ultimate concern of philosophy is not the acquisition of analytic skills, but how to make and keep appropriate relationships in everyday conduct. Rather than demonstrating elaborate arguments, Chinese thinkers therefore prioritize simplicity and sincerity, so that their words can be a practical guidance right away. But it does not mean that no Chinese philosophers ever used arguments. The point is that in Chinese philosophy argumentation has not rigorously exercised as a method, nor is it necessary, contrary to the western counterpart. Unlike Indo-European expression, which encourages a linear, discursive way of thinking, Chinese way of expression does not proceed in a clear-cut linear way; it leaves more room for grasping concrete and diversified experiences simultaneously. It leads to a general understanding that the major methodology in Chinese philosophy is “intuition,” which means the natural synthesis of the outcomes of mortal maturation, intensive observation, direct experience, and persistent intellectual effort. This kind of methodology defies any ready-made categories as in Western philosophy; but it is nevertheless not antagonistic to logic or analysis. Rather, proper analysis and adequate logical thinking can contribute richly to such a synthesis.

Jullien’s (2000) work is an exemplary one which delves deep into this methodology of “a natural synthetic intuitive grasp.” He considers it as unique modality of discourse in China and names it “a strategy of *allusive incitement*.” Focusing on the

structure of poetic discourses of the two contrasting cultures, he labors to distinguish his conception of “allusion” against “explanation”; and that of “incitement” against “representation.” Rather than adopting the term “intuition,” Jullien chooses the word of “incitement.” It seems that he does not think he is doing justice to the unique mode of Chinese thought with the notion of intuition, as its common meaning implies to understand something naturally and instinctively without the need of conscious reasoning, being far short to indicate a deeper process, that of “arousing” something inwardly. Jullien (141-43) maintains that, among three modalities of poetic discourse—direct exposition, the formulation by analogy, and the expression by allusive incitement—the last one has aroused the most interest from the beginning and throughout the development of Chinese poetics. It is in relation to the immediate phenomenon of incitement, and not from the mediated angle of intention, that the Chinese conceived of poetic expression and found the profundity in it.

According to Jullien, poetry conditions the very relation to reality, because what poetry most easily illuminates, by enacting it in language, is the relationship that consciousness forms with the world. In the Chinese perception of the poetic phenomenon, a poet “borrows” from the landscape to express his inner feelings: incited by the world outside, he in turn stirs up the reader’s emotions. Thus poetry in China arises from the relationship of incitement rather than from the method of *representation*; the world is not an object for representation but a partner with humans in a *process* of interaction. Chinese poems are thus mostly associations between the natural motif and the human situation developed next. They involve a level different from that on which the logical signification codified in analogy is formed and are therefore not situated on the level of semantic relevance or irrelevance. On this level of incitement, the “I” and the world are caught in a common vacillation: perception is at the same time emotion; nothing is objective. There is meaning, but it cannot be codified; it is infinitely vague and diffuse. Chinese men of letters conceive of this poetic incitement as an interaction between “landscape” and “emotion.” They are led to this by their philosophy of immanence, which sees everything as coming into the world based on the play of opposed but correlated energies (*yin* and *yang*). Internal emotion borrows from the external world to express its most intimate sentiments just as the world impregnates interiority with its affect, and the indeterminacy of the exchange creates depth in a single process (Jullien 151-53).

The incitatory mode can thus be defined as “an expression endowed with

emotion.” Whereas the analogical “exposes” what one wishes to say “by entrusting it to external realities,” the incitatory mode veritably “stirs” an interiority reacting to the “stimulation” of the world. The incitatory mode should not be confused with the allegorical figure, either: while incitement proceeds through juxtapositions; allegory proceeds through substitutions. Chinese tradition is wholly lacking in allegorical interpretation, which is so common in Greece, in which the commentator, if unsatisfied with the literal meaning of the description, interprets it on another level. Jullien (167-68; 172-73) points out that Chinese commentators seek contextualization, instead of allegorization, looking for historical references, rather than a symbolic meaning. For the Chinese, the social and political world does not stand on a different plane from others, for instance, poetry, painting, or philosophy. It is just as concrete and particular, belonging to the same type of phenomena. Between any natural scene and any situation of the human world, there can be transposition, but not allegory. The notion of incitement is also not to be confused with that of “inspiration,” as they are fundamentally different. Jullien (157- 59) stresses that inspiration, as it has been described since Democritus and Plato, implies a radical exteriority and describes the poem as welling up from a vertiginous and fascinating elsewhere. But, with incitement, the poetic process unfolds in a perfect immanence: not only does the poetic process end with the relationship between a poet and the world and flow from their interaction, but all the elements of the world are also already in a relationship of affinity and naturally interweave their webs of attraction.

For the Greeks a poetic creation is to feel, to make felt by bringing “before one’s eyes,” which is what Aristotle believes the poet must first do for. In this conception, he who sees as though he were “actually present” is most capable of giving the impression of life to the thing he is describing; and, at the same time, this seeing allows him to enrich his invention verbally. Such “visions” (*phantasiai*) are then to be transferred from author to audience. Jullien quotes Quintilian, who takes this up in the Latin tradition. Quintilian (2002) sees that the Greek concept of *phantasiai* (*visiones* in Latin) enables us to “represent to ourselves the images of absent things to the point that we have the impression of seeing them with our own eyes standing in front of us.” In fact, he tells us, the power of visualization is related to the hallucination in Western culture, the faculty which allows us to dream while remaining awake and which translates into a mental disorder; it is transformed in the poet’s art into a power of evocation. In this mode the expansion of meaning is not experienced as a spiritual

discovery, which allows us to see the invisible. It is osmosis, the process of gradual assimilation, which operates through the continuous exchange between the poetic and the reader's interiority. For Westerners it would seem like a paradox and hard to understand that the allusiveness is immediate and spontaneous, precisely because it is indirect. But its richness is inexhaustible, since it does not give an access to another level—whatever name we might give it: the general, the abstract, the spiritual, or the absolute. Chinese poetry is allusive because the Chinese consider the relationship between the spoken and the unspoken as continuous and inseparable; whereas the Greeks distinguished them and developed separately.

To explain something is an inductive process, a progression from the particular to the general. By considering a variety of examples, the mind apprehends the common characteristic that makes them a unique type, and it is the collection of these general characteristics which expresses the *essence* of a thing—the *definition*, the true *logos*. This is Socrates' contribution to Western philosophy, which is so well integrated and conflated with the ascendancy of reason in the Western world for over two millennia. But the Confucian way of allusion is completely different. The *Analects* never seeks to define, even on a moral level; it constructs nothing theoretically. It is because the intention is not to direct human behavior from the outside by shaping it to the teachings of a doctrine, but to favor its adaptation in relation to circumstances. This wisdom guides us toward an ever more intimate reconciliation with what each situation and occasion requires, encouraging an exercise of pragmatic variations and modulations. The prime concern of this wisdom is therefore not knowledge but an indication, which indirectly illuminates something that could not be defined generally—the immanence of things.

Confucius' word is in continuous *modulation*, which corresponds to the particularities of the world. For this modulation to be effective, Confucian teaching does not encourage exhaustive exposition. It does not "drain" meaning through a desire to be "complete," nor break the "concentration" necessary to being "concise." It finds meaning in a delicate equilibrium of these two, and this kind of teaching is the opposite of "spoon feeding" (Kupperman 2001: 67). For Confucius, equilibrium is always the most effective, which allows the words to *point* rather than to *display*. The purpose of it is not truth; instead, it strives toward an adaptation between conduct and situation, such as "occasion-position," as it proceeds from the course of things. To understand this unique method, it is helpful to recall that Confucius often gives contrary answers to the

same question. In one part of the *Analects*, a disciple asks whether he should immediately put into practice what he has just learned: Confucius tells him to consult with his parents first. Then a second disciple asks the same question: Confucius tells him to put it into practice immediately. His interlocutors are perplexed by this apparent contradiction. Confucius explains: the second one is retiring and slow, therefore, he urged him forward; while the first one has more than his share of energy, therefore, he restrained him. Confucian teaching is thus based not on a pre-established principle that transcends the course of events, but on a purely indicative relationship whose coherence is immanent. Confucian wisdom evolves; the appropriateness it seeks, which gives it precision, is not between the particular and the general but between an utterance and its occasion. Confucian instruction implies an ever deeper measure of its importance by maintaining constant proximity to the question. Its concern is neither to reveal the essence of a thing by explanation nor to create an idea out of argumentation and prove its validity. The point is that, through its evasiveness, the word plays in the hands of immanence, and, through its elucidation, the word indicates the way to proceed. The Confucian wisdom has an *overall coherence* from which the harmony of the whole proceeds, through its adaptation to all situations, with its applicability being different in each case. Continually modifying and modulating his words in relation to his interlocutors and occasions, Confucius always instructs the relationality of things.

The Confucian method of allusion tells us the importance of the unsaid in relation to the said and the relevance of the relationship between the two. In the allusion, the said awakens what is not said. As in Jullien's comparison, the relationship between the said and the unsaid with the symbolic function is that of representation, while it is that of correlation with the allusive function. For instance, it is very common for the Chinese to criticize or to praise someone by not mentioning that person at all; instead, they do it by mentioning someone else to whom that particular person can be related with that particular matter. In this case, the relationship between the said and the unsaid cannot be seen as either internal or external; it is referential. While the Greeks favored mimetic relationship of the world between the physical and the spiritual or between the perceptible and the idea, with their symbolic expression; the Chinese based their vision of the world on the correlation of things and their cosmology rests entirely on interactions. From ancient times the Chinese observed nature as workings of five agents—sun, moon, water, fire, and land—which convey modes of compensation and substitution. This world-view is well reflected even in their language; for example, the

Chinese word for “landscape” in English is literally “mountains-waters.” One thing cannot be conceived of without the other because the one is already the other: the said refers to the unsaid; the text to its context; and the visible to the invisible. This is the *other* relationality, which has been a foundation of Chinese thought. Isolation, to seek a thing’s itself-ness, which dominates Greek thought, implies splitting reality. In comparison, Chinese thought does not *split* reality: it only knows *process*. It is open to the particularities of relationships in the process, while always concerning with pragmatics, aiming at unifying one’s internal attainment with external efficaciousness.

5.2. Organic relationality with no tension

Chinese language vividly illustrates how Chinese people conceive of their relationship with the world. Their conception of the relationality, which sees humans and everything in nature correlated with one another to constitute an organic whole, can be seen from their very characters, sentences, and their linguistic practice. First of all, the Chinese do not treat sound as the basic building block of language. As they learn to write, they do not start with phonemic letters or an analysis of syllables into components. They are introduced to stories about the origin and the nature of writing, which are in inseparable relationships with natural world and human life. As their characters do not represent sounds, the Chinese do not learn to *write sounds*; they learn to *practice* the relationships embedded in their characters and sentences. Chinese language training also emphasizes the brush stroke, in addition to the reading and memorizing their classics. The brush stroke links calligraphy and painting; most Chinese landscapes scrolls typically incorporate a poem, proverb, or couplet. The continuity of language, calligraphy, and painting is a deep and important cultural feature of Chinese aesthetics. The excellence in painting and calligraphy depends on the quality of the brush strokes because the strokes reveal a person’s character.

Another unique feature of Chinese writing is that it includes elements known as the radical—a graph or a part of a graph that contributes meaning. The radicals display the relationship contained in the character. There are radicals for human, water, tree, mouth, heart, language, fish, bone, and so on. Complex characters incorporate radicals as their elements, and the radicals indicate the meaning of the characters, through their relationships to each other. For example, the Chinese character for the meaning of “woods” in English consists of three radicals for a “tree” and for the word of “clear” or

“bright,” it puts the radicals for “sun” and “moon” together. As such, most Chinese characters can be seen as the writing of relationships themselves. And, more importantly, those relationships are not drawn from abstract reasoning, but borrowed from real world. Though the radicals in a single character may vary in their sizes or proportions, for the sake of better shape, the important fact is that characters themselves are rendering relationships in the real world as a harmonious unity.

Chinese characters also have great syntactic mobility. They can play many part-of-speech roles. In English, as well, any word-root can play many part-of-speech roles. The difference is that for an English root to do this requires an appropriate inflection, which is not the same in Chinese. In English, a proper noun can become an adjective, for example, *Einsteinian*. It is also possible to make a noun into a verb with *-ize*. And a general noun can be made into a singular abstract noun with *-ness* or *-hood* and so on. This root-inflection structure is widely used in English to make words play different roles in the sentence. The fundamental difference is that Chinese does this *without* inflections. Word order simply determines the syntactic role of the characters in a string. For example, *bai* (white) is normally adjectival, but should be interpreted according to the position in a particular sentence. And, to make the matter even more complicated, the character also has a relational meaning to the context in which it is spoken or written. For instance, the sentence “I white it” corresponds roughly to “I regard it as white” or “I believe it is white” or “I make it white,” depending on the occasion or context. The notorious grammatical obscurity of Chinese writing stems from this relativity, and it even lacks punctuation.

Chinese people’s philosophical approach toward the real world can also be observed from their conventions of grammar. Hansen (1992: 196-230), among others, has studied how the Chinese use nouns to find an unbridgeable difference from the Western usage of nouns. According to Hansen, the Western doctrine of substance and attributes, particular objects and their shared (and changing) properties leads to different kinds of nouns—“count” nouns and “mass” nouns. The mass-count distinction in nouns underlies the different concepts of identity and individuality of things that inform the famous Western problem of flux. A count noun has a principle of *individuality* built in. To understand the noun is to know how to count the objects it refers to. The principle of *identity* for a count noun allows that it can gain and lose *matter* and still remain the *very same individual*: hence, rivers can be counted and remain the same even as the water flows in and out of them. The count nouns correspond to the commonsense view of

objects and reality for the people who use them. The noun itself contains a principle for identifying the *individual* of a common type. The ordinary world of Western commonsense is a collection of particulars or individual objects.

A mass noun, in comparison, refers cumulatively. The concept like water has no *particular* principle for individuating—counting or measuring. Mass nouns are measured rather than counted. The objects referred by mass nouns are thought of as more amorphous, variable components of the world—stuffs instead of objects. They normally resist pluralization and direct numbering. They are modified by “much” and “little” instead of “many” and “few.” They have principles of identity, but do not have an inherent principle of individuation. If there is a need to measure or count stuffs, mass nouns are combined with count sortals such as cup of, ounce of, piece of, and so on. What counts as an individual is thus relative to the measuring purpose; for example, water can be measured by using drops of water, cups of water, buckets of water, or any other measure. Based on this observation, Hansen thinks that Western common sense seems to assimilate stuffs to qualities in its solution to the problem of change and leaves particular objects as the foundation of reality. So the conceptual puzzle about permanence and change in Western philosophy is reflected in this grammatical distinction. It seems that objects are stable and unchanging, yet the stuff out of which they are made constantly changes. In other words, the essence of an object remains the same even though the constituents of a thing may change. This is the foundational idea of the doctrine of essence and a starting point of the process of abstraction to single out pure identity.

In a remarkable contrast, the Chinese seem to be assuming something more like an ontology of stuff. For instance, when they talk of one thousand things they do not actually mean one thousand countable objects, but, one thousand nameable kinds of stuff. Chinese language appears to have few grammatical count nouns. They do not take pluralization and they lack many/much, and few/little distinctions. Numbers can modify some nouns and number-sortals, for example, five head of, can also modify them. Chinese nouns do not have article modifiers, blurring any distinction between different kinds of nouns. Nouns are distinguished mainly by their range or “scope.” Scope is a salient semantic feature of any Chinese character or word. In this unique grammar, some names apply to a small range or portion of reality and others apply to a wider range. Chinese ontology therefore does not use the typical Greek realist one-many structure. Chinese people draw on a more relative part-whole view of reality. They have no

reductive thrust toward atoms or unchanging particulars and no grammatical object-property distinction. Their ontology conforms to the mass-stuff model. The importance of this model does not lie in the scattered nature—"identity"—of the object referred to it. For them, reality is not a multitude of independent and finite objects, but a ground out of which a linguistic community *carves* distinction and marks them with names. This part-whole scheme is radically different from Western thought, which emphasizes the ability to recognize the identity of an object or classify it as of a type. This ontology of stuff which sees the world as a part-whole structure has been called a mereology, and regarded by some philosophers as an alternative to the identity-obsessed Western ontology.

In Chinese thought it is language itself that speaks of social conventions—relationalities—embedded in it. Therefore, its learning process does not draw on the Euclidean model of a series of sentences arranged in a proof structure; it is rather the "scope" structure which concerns the standards for making guiding distinctions, for example, "are there constant names that can make up a constant *tao* (guiding discourse or way)?" or "what standard justifies distinguishing things *here* rather than *there* in social, guiding discourse?" Chinese thinkers do not attribute mental sentences to individual minds as beliefs, and do not characterize the mental process in terms of the sentential notions of premises or reasons. The instruction is that "internalizing a conventional language influences how the heart-mind does that job." By contrast, Western theories of behavior focus on *voluntary* action and use beliefs, desires, or reasons-for-acting to explain a particular kind of action. This *reasoning* model of mental functioning—the idea of an individual, as someone with a faculty of reason who can process inner sentences (beliefs) and desires on the Euclidean model—does not work for Chinese philosophy of language, mind, and behavior. The reason for this difference might be attributed to the social background of their origin: Chinese thought developed from something more like social ethics than from metaphysical or scientific debates; while Western philosophy began where accountancy, navigation, and astronomy were central concerns. The problems with which Greek philosophers first confronted were the issues of explanatory metaphysics; the so-called argumentative theatre hence evolved. Since then, the model of geometrical proof structure dominated the Western conception of mental functioning, not only for philosophical debates, but for politics, science, commerce, and virtually every aspect of Western man's activity. In this tradition of metaphysics, language is a tool, for argumentation and for finding the Truth.

The absence of the “reasoning” model of mental functioning in Chinese thought can also be found from the fact that the Chinese language does not have structures equivalent to those through which English and other Indo-European languages mark the counterfactual realm. Bloom (1981: 72-83) examines what cognitive implications of this difference in linguistic habits might be. The scientific and more broadly philosophical thought of any culture derives ultimately from the cognitive activities of its individual participants and proclivities inherent in that activity. The contrasting cognitive proclivities of English and Chinese speakers reflected in Bloom’s study are certainly not limited in their influence to the domain of cognitive tasks. It is because grammatical schemas such as counterfactuality go beyond content boundaries to serve as the skeletal frameworks, which orient our perspectives. Although linguistic labels do not act to exclusively determine the way in which we think, they do lead us to extend our cognitive repertoires in language-specific ways, to develop many schemas through which we come to recognize the world, store information about it and plan our reactions. The cognitive effect of linguistic labels leads us to build highly complex perspectives on reality that we are unlikely to construct without their aid.

Having no counterfactuals, the Chinese have not developed the mind that analyses what has not happened or what it is not. As they see the world as in a great harmony, Chinese philosophers have had no reason for “conditional” reasoning. As Needham (1954: 54-56) observes, they lacked the third necessary ingredient for a “scientific” tradition, namely, a theoretical orientation, though they developed both a very rich tradition of empirical observation and an active skeptical orientation. What Needham means by a theoretical orientation is an inclination to leave the world of practical application behind, in an effort to construct and test purely theoretical explanatory frameworks. Confucianism and Taoism both reject the theoretical system-building: the former, in favor of providing precepts for ethical and social conduct; the latter, in favor of providing a path by which the individual might bring himself into harmony with the rhythm of nature, rather than distancing himself intellectually from it. Both have a propensity for seeing things with respect to their perceptual and aesthetic component, rather than with respect to their theoretic component (Northrop 1946). They see within their time and space only a collection of occasions and locations, and their interdependencies, which constitute the order of the Universe. They do not crave for abstract symbols or ideas, as they do not believe that man can form a reign in nature or that the mind can disengage itself from the material world.

The following comment made by Hsun Tzu, a Confucian philosopher in the third century BC, clearly illustrates this inclination. He states: “There is no reason why problems of ‘likeness and unlikeness,’ ‘thickness or no thickness’ should not be investigated, but the superior man does not discuss them; he stops at the limit of profitable discourse.” And similarly, in the “Tzu-lu” chapter (13:23) of the *Analects*, it reads: “The superior man harmonizes but does not identify; the petty man identifies but does not harmonize.” The two terms, harmonizing (*ho*) and identifying (*t’ung*), are fundamental to an understanding of the way that Confucian ethics and cosmology were interpreted and transmitted over time. It is the intellectual predominance of *ho*, implying “the capacity of containing and accommodating all manner of logicalities,” over *t’ung*, which suggests the tendency to identify, classify, equalize, and unify, that shaped the Chinese world-view and may have profoundly influenced China’s scientific and economic development (Kwok and Smith 1993: 2-9). Confucian writings are replete with assertions that harmony (*ho*) arises from righteousness, and utility or profit arises from identification (*t’ung*), and that the superior person measures himself against righteousness, and the petty person against utility. The priority of *ho* over *t’ung* is unmistakable. *Ho* nurtures the myriad things, while *t’ung* discontinues them. When any two, or many entities are in balance, it is called *ho*; in this way, all things flourish and the society is together. But, when one *t’ung* is compared with another *t’ung*, all are lost and dispersed. The world of *t’ung* is the world of logicalities, identifications, identifiables, and classifications, which are essential to the scientific “method” in Western world.

It is clear that traditional China did not lack this notion of *t’ung*, as Needham (1954) has abundantly demonstrated many Chinese achievements in technology that required *t’ung* thinking. Gernet (1996: 28) also finds that Chinese civilization is first and foremost a technical civilization. Unlike the nomadic stock-raisers who used skins and felt, the Chinese soon invented weaving techniques requiring considerable skill: silk weaving by the end of the second millennium BC, cotton by the end of the thirteenth century AD. They also displayed, at the same time, remarkable aptitude in the arts involving the use of fire. On the one hand, in the techniques of pottery—the history of Chinese ceramics is one of the richest in the world and the art of making porcelain had reached perfection in China by the twelfth century. On the other hand, in metallurgy—Shang bronzes from the end of the second millennium BC were the finest ever produced; the production of cast iron had become a big Chinese industry by the fourth

century BC; and Chinese smelters succeeded in regular productions of steel some centuries later. From early times, Chinese craftsmen and engineers were called to Persia and even to Russia. Up to the nineteenth century China was a big exporter of luxury products, of which the traffic was worldwide. But *t'ung* was neither valued absolutely by itself nor valued above all else. Accordingly, *li* (utility or profit) remained clearly subordinate to its correlate, *i* (righteousness). The value Mencius attached to the latter is legendary; like *t'ung*, *li* was a quality which fits only for the petty person. By Ming-Qing times the world of *li* produced a great appreciation for wealth, merchant status, and even merchant culture. But *li*, like *t'ung*, never occupied a position of prestige, much less absolute value. From the start, the Chinese worldview entertained a balanced coexistence of all substances in the universe, and it is the universe as pattern (*wen*) based on *ho* that ultimately matters.

Associated with this worldview is the idea of heaven (*t'ien*) as cosmic function. The whole of humanity, from self to family, to state, and to the world, constitutes harmonious cosmic order, overseen by *t'ien*. Heaven speaks by its mandate (*ming*), the orderly process that humans should emulate. Though the Chinese word *t'ien* is translated into “heaven” in English, it does not correspond to a religious meaning of Heaven in Christianity. Historically speaking, Chinese thought begins with a tradition which is not characterized by any systematic mythology or dogmatic personalistic religion, but instead by a sentiment of consanguinity of man and nature, a sense of historicity and continuity of life in time, and finally a faith in the reality and potential perfectibility of man and this world. In the Shang and the Chou times, long before Confucius was born, there were already developed archetypal ideas concerning ultimate reality and its determining authority, the potentiality of man for achieving goodness, the external limitation of man's existence and the need for establishing a relationship of unity and harmony between man and reality in well-tuned behavior patterns. The ideas of *t'ien* (heaven), *ti* (lord on high, ancestral god of man), *hsing* (nature of man), *ming* (mandate, destiny and necessity), *te* (power, potentiality, virtue) and *li* (rites and proprieties), are all interrelated and founded on a sentiment of the original consanguinity between man and nature, and on a sentiment of man's existence as a potential entity capable of development. Thus the virtue of a man is his ability conscientiously to pursue and attain, or realize, the unity of man and reality. Furthermore, the relationality of man is to be realized in the practice, in the actual conduct of himself in a network of relationships.

The concept of *t'ien* has been developed into that of *tao* in the classical period. The term *tao* has also been used in Confucian writings, but it is Taoists such as Lao Tzu and Chuang Tzu who formulated more extensive philosophy of *tao*. The concept of *tao* has become more generalized in scope than that of *t'ien*; it comprehends everything in the world—the ultimate reality (Lai 2008: 71). Regarded as the primordial mode of being of everything in nature, *tao* is impartial to everything as it generates, comprehends, transforms, and preserves all things. And, with this regard, not only human but all things can be thought of being ontologically equal. In Lao Tzu this concept of ontological equality is implicit in the very notion of *tao*, while Chuang Tzu goes a step further with this concept to develop a new sense of the ontological equality of all things. According to Chuang Tzu, all individual things are ontologically equal, because they are only *relatively* determined in the totality of the self- and mutual transformation of things without any substance to their own individuality. Both self-activating and mutually determining, this relationality is another name of *tao*. From the simplest possible approach, *tao* can be understood as “a totality in a permanent process of movement.” Firstly, *tao* is a totality which is basically indefinable and unnameable. A proper interpretation of this indefinability and unnameability of *tao* is that *tao* cannot be limited by any object or be finitely characterized. No object and no character can stand for *tao* without creating a partial and misleading conception of *tao*. The second point is that *tao* is not conceived as a static or unchanging substance, but as a process of movement and change. Though each of them is a totality which is equal, all things comprehended in *tao* are in a process of change and movement. *Tao* gives rise to everything by way of differentiation and self-realization. *Tao* is void and yet produces everything, because it is the principle by which the negative can become the positive, the potential can become the actual, the void can become the substantive, and the one can become the many. It is by the very negativity and potentiality of *tao* that everything positive and actual is created and preserved. In this sense *tao* is inexhaustible, and its workings define change in terms of oppositions and complementation. For the Taoists, this notion of *tao* is the most fundamental wisdom of life, which can be basically experienced in a careful reflection on life and reality.

As *tao* is change, and change always happens from something to something else, Taoists regard *tao* itself as a unity of two opposites—*yin* and *yang*. *Yin* can be identified with the negative, the potential, the subjective, and the preservative, while *yang* can be identified with the positive, the actual, the objective, and the creative. In a

sense, *yin* can be seen as *tao*, as an inexhaustible source from which every form of energy or activity is derived; whereas *yang* represents *tao* as a form of activity which is ever creative, but which has a beginning and an ending and therefore remains exhaustible. Lao Tzu specifically emphasizes the notion of “return” to *tao*, in this process of change. This two-fold movement of *tao*—actualization of *yin* by *yang* and the movement of potentialization of *yang* by *yin*—is inexhaustible and indeterminate. Lao Tzu has applied these cosmological principles of generation and destination to man, as the world of man is not separate from the world of nature. The well-being of man consists in his ability to follow the *tao*, and this means his ability to preserve potentiality for action but not actually acting “out” his potentiality. Because man is a part of *tao* and part of the production of *tao*, a better way to deal with life is not to exhaust oneself; instead, one should try to potentialize the actual and remain one with the source which is *tao*, so that he will become infinitely creative and free himself from domination by destructive forces. It is in this state that one’s life will flow naturally and spontaneously, and this doctrine has been aptly described as “doing everything by doing nothing,” which means doing nothing specific, while doing everything flowing from *tao* on its own. Lao Tzu has used many images and analogies to convey the importance of preserving the potential of life and remaining effortless and natural in the conduct of life.

Chuang Tzu differs significantly from Lao Tzu in that he puts a great emphasis on the relationality of things rather than focusing on the idea of a return to *tao* as the source and origin of everything. For him *tao* is a universal presence and the total activity of all things and it is revealed, most of all, in the relationality of all things, which is itself two-fold—things are relative and relational to each other, and furthermore relative and relational to the totality of thing itself, which is *tao*. In other words, things are different from one another, but are interdependent for their individuality. Thus nothing is *the* absolute or center of the world, as everything is *an* absolute and *a* center of the world. And, at the same time, all things are relative and relational to *tao* in the sense that each of them are a part of *tao* which comes about by way of self- and mutual transformation, and that *tao* is itself a whole which exemplifies self- and mutual transformation. Because of this, no individuation and differentiation is absolute and there is no simple undifferentiated homogeneity. From the point of view of *tao*, an individual is both *tao* and not *tao*. It is *tao* because it is an exemplification of the self-transformation of *tao*; and, at the same time, it is not *tao* because it is not the totality but always a part of it. This relativeness or relationality of an individual or a

thing does not mean deficiency in any sense; rather, it means natural, spontaneous, and creative interdependence. On recognizing this relationality of things, an individual can detach himself from any specific perspective of things and thus open his mind to all the possible perspectives and possibilities which are manifested in things. This attitude does not mean recession or passivity; it is rather a natural and positive result of the understanding of *tao*, which leads him to a spontaneous and creative life, even in hardships and disasters.

Not only for the Taoists but for the Confucian thinkers this organic relationships of all things have been considered in terms of natural correspondence, interdependence, and complementation, in which living and understanding can be achieved and preserved. Ontologically and cosmologically speaking, the objective and the subjective, and, the physical and the mental are transparent to *tao* as the ultimate reality; they are parts of a total dynamic process or continuities. The organic relationship between man and society and the state constitutes further element for this organic relationality: in Confucianism, man is a relational being who depends upon other men and his community for the cultivation and perfection of himself; in Taoism, and in Chinese Buddhism, man is relational to all things and has to interact with and participate in the activities of *tao* in order to be good and perfect, rather than simply identifying himself with *tao*. In these relationships, harmony and harmonization are the key words, to achieve and to preserve. To understand Taoism as an otherworldly mysticism or a magic garden of heterodoxy (Weber 1968: 226-27) is therefore misleading. Though Taoists distanced themselves from the world of Confucian learning, rejecting its instructions of propriety and self-control, which they thought are trappings and obstacles to truly enlightening life, they did not simply retreat to isolated and primitive community to lead their followers towards detached and inactive life. It is true that in Taoism there are in part orgiastic and ecstatic elements, but it is a by-product rather than a vital ingredient, of its emphasis on the force of nature. The point is that, for Taoists, nature is to be *relatively* “understood” and “appreciated”; it is not to be *absolutely* “worshipped” or “mystified.”

Emphasizing the unlimited relationality in *tao*, which produces everything and promises ongoing change and movement, Taoism assumes a “cosmos of internally harmonic order” of nature and society, and there is a total absence of the idea of *tension*, which is a key word for Weber (1968) in his comparative study of Chinese thought and Puritanism. According to him, every religion has a varying degree of religious

devaluation of the world, finding itself at some point in a state of tension with the irrationalities of the world. And, he continues, in strong contrast to the “naïve” stand of Confucianism toward things of this world, Puritan ethics construed them as a tremendous and grandiose tension toward the “world,” and subsequently succeeded in developing modern capitalism. He laboriously illustrates and discusses the Chinese social system—monetary system, cities and guilds, the patrimonial state, kinship organization, and law—to find out whether these characterizing features have had relevance to the functional requirements of modern capitalism. His conclusion is that Chinese social structure on the “material” conditions contained a mixture of elements both favorable and unfavorable to capitalistic economy and the spirit of capitalism. But, the reason for the Chinese failure is that the heart of their philosophy—Confucian and Taoist doctrines—was the *tao*, the immutable order of harmony, tranquility, and equilibrium underlying the universe and human society. Weber understands this tendency in terms of “tension”: the Confucian orientations for man lay in making rational “adjustment” to the eternal cosmic and social order, which sharply contrast with the Puritan “mastery” of it on God’s command.

Confucianism reduces tension with the world to an absolute minimum, seeing that “the noble-minded never contend” (Confucius 1998: 22). Weber thinks that tension toward the world had never arisen in Chinese thought because there had never been an ethical demand from a supra-mundane God who instructs to confront the irrationalities of the world. Nor was there a substitute for this in the “spirits” who raised duties and insisted upon faithful fulfillment of contract and, consequently, never did it involve inner formation of the personality *per se* (229-30). In this “pious conformism,” as Weber names it, the conventional order of secular powers reigned supreme. The corresponding individual ideal is the elaboration of the self as a universal and harmoniously balanced personality, which is like a microcosm. The right path to “salvation” does not exist in their mind; they aspire to be a part of the eternal and supra-divine orders of the world, Tao, and hence the requirements of social life is to follow cosmic harmony in a proper way. Weber likens this relationality between human and the world to that of Western tradition before Christianity. He sees that it was the same for a truly Hellenic man for whom all transcendental anchorages of ethics, tensions between the imperatives of a supra-mundane God and a creatural world, orientations toward a goal in the beyond, and all conceptions of radical evil were absent. The concept of original “sin” therefore does not exist in Chinese thought; instead, there are

conventional or feudal, or aesthetically formulated variants such as “indecent” or “not in good taste.”

The origin of this ethical tradition, Weber maintains, can also be traced from socio-economic factors of Chinese history. As their society is agricultural, Chinese people had an organic relationship to nature which presupposes the unbroken and continued existence of nature and its relationship to humans. The conception of permanent and consistent relationality of humans to nature brought about the ethic of unconditional affirmation of the convention and the adjustment to the world: leading intellectuals always supported the retention of ancestor worship as absolutely necessary for the undisturbed preservation of family, community, and finally, bureaucratic authority. The Confucians accept these “organically given relations,” as Weber names it, as an intrinsic part of their everyday life and social order. Duties of the Confucians always consist of piety toward concrete people, whether living or dead, especially toward those who are close to them. The Confucians owe nothing to a supra-mundane God; therefore, they are never bound to a sacred “cause” or an absolute “idea” beyond life.

But, as Weber observes, this mind-set is incompatible with the economic mentality. According to him, prioritizing a concrete “person” instead of objective functional tasks was undoubtedly a great barrier to the development of the attitude of “impersonal matter-of-factness” (236-37). Confucian attitude contrasts sharply with the Puritan ethic which amounts to an objectification of man’s duties as an assignment from God. The religious duty towards God of the Puritan is to appraise all human relations—including those naturally nearest in life—as mere means and expression of a mentality reaching beyond the organic relations of life. In contrast, the relationality in Chinese ethic develops its strongest motive in the circle of naturally grown associations and is affiliated with or modeled after them. As a result the Chinese are disinterested in or reject things not close at hand and immediately useful. For them, life is a series of occurrences. It does not ever become a whole placed methodically under the transcendental goal. The contrast between this socio-ethical position and the religious ethic of Puritanism is unbridgeable. For the Puritans the world is viewed as material to be fashioned ethically according to God’s will; on the contrary, the Confucian system of “radical world-optimism,” as Weber (236) terms it, removes all tensions between the world and the supra-mundane destination of the individual. Completely absent in Confucian ethic is any tension between nature and deity, ethical demand and human

short-comings, consciousness of sin and need for salvation, conduct on earth and compensation in the beyond, and between religious duty and socio-political reality. In Confucian thought, there is no leverage for influencing conduct through inner forces freed of tradition and convention. Family piety, facilitated and controlled, is the strongest influence on man's conduct.

Confucian teaching demands constant and vigilant self-control in order to develop and maintain dignified relationalities of man and the world. Puritan ethics also requires self-control, but in a completely different way; it means methodically to concentrate one's attitudes on God's will (Weber 240-41). For the Puritans, economic success is not an ultimate goal or end in itself but a means of proving one's self in controlling the world, just as in doing the same to themselves, by means of a definite and one-sided rational effort of will. In comparison, for the Chinese, self-control is an aesthetic one: they did not cut themselves off from the impressions and influences of the world; they strive for a dignified bearing with graceful gestures. The Confucian's word is a beautiful and polite gesture as an end in itself, while the Puritan's one is an impersonal and businesslike communication, short but absolutely reliable. For the Confucian, the "cultured man" (gentleman) is "not a tool"; that is, in his adjustment to the world and his self-perfection, he is an end unto himself, not a means for any functional end. It is precisely this core of Confucian ethics, which stands against professional specialization, modern expert bureaucracy, and special training, especially in business for the pursuit of profit. The Confucian is to be the man of literary education; on the contrary, for the Puritans all philosophical education outside of the doctrine of the Bible is an idle waste of time and a danger to religion. Scholasticism and dialectics, Aristotle and his derivatives, were a horror and a menace to the Puritans. The relentlessly and religiously systematized utilitarianism peculiar to rational asceticism of the Puritans allowed only useful and empirical knowledge of natural sciences and geographical orientation. Such knowledge, on the one hand, was regarded as an avenue to reveal God's glory and the providence embodied in His creation, and, on the other hand, served as a means of rationally mastering the world in one's vocation, enabling him to do his duty in honor of God. For the Puritans, the world is to live "in," not to be a part "of."

Weber makes a mistake to see Confucianism and Taoism as a religion rather than social and philosophical ethics. He also displays rather limited or even biased viewpoint towards Confucianism and Taoism: most of all, for the former, giving it a

name of “naïve” and “pious” “conformism,” he is negligent of its dynamism of continuous modulation; and, for the latter, regarding it as remaining in a garden of magic, he does not acknowledge its liberating emphasis on creativity and spontaneity of humans and the world. But his study is nevertheless illuminating, for he provides the background of the two contrasting modes of relationality in a very persuasive way. It is hardly refutable that the notion of “tension” is absent in Chinese thought, while dominant in Puritanism, and that the difference has contributed significantly to their contrasting path towards modern capitalism. His comparative analysis of the meaning of “self-control” is also elucidating; the difference that the Puritan self-control is a rational and utilitarian asceticism to master the world, while the Confucian one is a dignified bearing to be a part of the world, exhibits a clear distinction between two contrasting relationalities.

Though scholarly interest in China have emerged much earlier, notably with Needham (1954) and Northrop (1946), it is for the last couple of decades that a group of theorists have produced interesting works, and argued that traditional Chinese philosophy contains resources which can answer some of the problems in Western philosophy. Among others, Hall (1996: 698-708) literally claims that classical, which is to say “pre-modern,” Chinese thought is in fact “postmodern.” He maintains that the postmodern enterprise aims at the development of a philosophy of *difference* which privileges an ontological appreciation rather than a cosmological question, and that the Chinese find it easier to think difference, change, and becoming than most Westerners who feel it easier to think in terms of identity, being, and permanence. There is a concurrence between Hall and Jullien (2000), for both of them consider Confucian language as an allusive system. But while Jullien concentrates on its characteristic qualities of “allusiveness” and “incitement,” Hall focuses on its particular traits of “difference” and “deference,” to make a connection to Derrida’s deconstruction of Western metaphysics.

For Hall, Confucian language is a system of differences, a structure or context within which meaning is indefinitely deferred. He relates this treatment of language in the words of Confucius to the thought of Derrida, who writes twenty-four hundred years later. He sees a close relationship between Derrida’s notion of *différance* and Confucian treatment of language. *Différance* is a Derridean neologism combining the two senses of the French verb *différer*—“to differ” and “to defer or postpone”—into a noun

designating active non-self-presence both in space and time (Derrida 1981: 5). For Derrida, meaning is always deferred. The very fact that a word is divided into a phonic *signifier* and a mental *signified*, and that, as Saussure (1986) pointed out, language is a system of differences rather than a collection of independently meaningful units, indicates that language as such is already constituted by the very distances and differences it seeks to overcome. As soon as there is meaning, there is difference. Therefore, Derrida's word for this lag inherent in any signifying act is *différance* (1981: 8-9) in which the structure of "presence" is constituted by difference and deferment. Derrida writes: "At the point where the concept of *différance* intervenes . . . all the conceptual oppositions of metaphysics, to the extent that they have for ultimate reference the presence of a present, . . . become non-pertinent" (1997: 59).

Derrida (1981: 8-15; 1997: 3) follows Nietzsche and Heidegger with this critique of Western metaphysics, by which he means not only the Western philosophical tradition but "everyday" thought and language as well. His argument begins with the analysis of the "philosophy of *presence*"—"logocentrism," which he sees has been nurtured by "phonocentrism." Derrida (1997: 28-29) does not take the sign as a homogeneous unit bridging an origin (referent) and an end (meaning), as "semiology" would have it. The sign must be studied "under erasure" because it is always already inhabited by the trace of another sign which never appears as such. "Semiology" gives place to "grammatology" in Derrida's work and he relates this move closely to Nietzsche's "genealogical" study of morals as unending "sign-chains." "Writing," then, is the name of the structure always already inhabited by the "trace" (1997: 39).

Within the sexual fable of the production of meaning, Derrida exploits a false etymological kinship between semantics and semen, offering his own version of textuality: "A sowing that does not produce plants, but is simply infinitely repeated. A semination that is not *insemination* but *dissemination*, seed spilled in vain, an emission that cannot return to its origin in the father. Not an exact and controlled polysemy, but a proliferation of always different, always postponed meanings" (1997: 65). This version of textuality is a trace-structure; everything is always already inhabited by the track of something that is not itself. Derrida sees that the relationship between the reinscribed text and the so-called original text is not that of patency and latency, but rather the relationship between two palimpsests. The "original" text itself is that palimpsest on so-called "pre"-texts that the critic might or might not be able to disclose and any original inscription would still only be a trace. *Différance*, for Derrida, is not a "concept" or

“idea” that is “truer” than presence. It can only be a process of textual *work*, a strategy of *writing* (1981: 42-43). As a process of textual labor and a different sort of articulation, the movement of *différance* is a “productive” conflictual movement which cannot be preceded by any identity, unity, or original simplicity, nor can be “relieved,” resolved, or appeased by any philosophical dialectic.

Even though his study of Chinese philosophy is very comprehensive and illuminating, Hall’s claim, which regards Derridean notion of *différance* as central to both Confucianism and Taoism, is misleading. As seen above, the notion of *différance* does share one thing with Chinese thought—“the presupposition of difference.” Besides, they have nothing in common, standing rather on opposite. Confucian language works through “allusion” in order to achieve a deferential “access” to the appropriate model, and Confucian deference is based on the recognition of mutual resonances among “instances” of communicative activity. In comparison, the Derridean notion of *différance* defers—“postpones” reading of the text precisely for the reversal or displacement. It rather concerns the relationality between the said and the unsaid in the text than the continuous and expansive incorporation of the text with concrete occurrences in real world, which is the main concern of Confucianism. As Derrida (1997: 78) himself admits, his strategy of deconstructive reading is dangerous in two senses: firstly, to discover the unsaid can be an even deeper obsession for finding *another essence* or an even more rigid form of objectification of the text; and secondly, it can only lead to the abyss of freedom, which means ever more abstraction. Derridean *différance* does not have the dimension of Confucian modulation, which varies its meaning according to specific person and occasion. It has only two dimensions—the said and the unsaid. Though its task is to deconstruct the binary, it does not proceed to embrace further dimension of reality—the innumerable variations of reality. After his task of deconstruction, Derrida seems to be left with nothing; he sees dissemination, the vain attempt to produce meaning from the text, while Confucian wisdom sees limitless applicability from a simple phrase.

Derrida seems still haunted by his own enemy; the dualism of idea and representation has been transformed into the relationship between the re-inscribed text and the so-called original text which he thinks as two palimpsests. In Confucianism, as well as in Taoism, the relationality between the two is immanent; or rather, there are no two texts from the beginning; language and practice, human and nature, philosophy and conduct are on the ontological continuity and open contextuality. While Derrida’s

deferment is a trace-structure (1997: 65), to trace *within* the text which is always already inhabited by the track of something that is not itself, Confucian deference is opening up the word towards contextuality which is always *in* itself. Even though Derrida states that his strategy of *différance* is the movement of a “productive conflict,” it is very hard to see what is being “produced.” It seems that he stops at the erasure of dualism, without proceeding to producing anything, and his erasure itself does not seem successful in its full sense. In Chinese thought there are no binaries to deconstruct or oppose to, as all those mentioned by Nietzsche and Derrida as dualism are considered as elements and participants in the process of becoming in a “harmonious chaos,” and their mode of existence is not conflict, but spontaneous and modulating efficacy.

The materialistic, performance- and enactment-oriented viewpoint is a definite move from most of continental idealism in the sense that it does not focus on the linguistic, representational, and dualistic construction of knowledge and reality. Discourses of complexity theory and vitalist thought brought about the notion of emergent and non-linear order, arguing for the primacy of process over product, and development over structure. With them knowledge, and reality itself, has become a system of relations in a permanent process of movement. It can be said that the underlying propositions of this new relationality are very close to the *other* relationality, considering that, most of all, both are based on the performance-oriented and intersubjective becomings. But, as much as they have taken a completely different developmental path from each other, the vitalist, symbiogenetic relationality and the Confucian relationality cannot be equated so easily. For instance, although both of them suppose the notion of “immanent synthesis” as the basic operation of human practice, there exists an unbridgeable difference. The notion indicates in Confucianism an “actual conduct” of a human as a “total moral performance in a network of relationships,” while in Simondon it designates an affective and emotive internal resonance and the translation of its relation to itself into information for individuation. The emphasis is therefore being laid differently: the former, on contextualization; the latter, on individual becoming, though an individual means not only a human subject, but collectives or any matter. The point is that the underlying conception of human practice for the former is a “modulation” for a spontaneous efficacy, while for the latter it is a “quantum behavior” which means an instantaneous, simultaneous, and unpredictable micro-dynamic of interactions. In spite of its emphasis on relationships, the latter notion of relationality thus seems to contain an implicit danger; the quantum behavior (or the Bergsonian *élan*

vital) may substitute the finalist notion of teleological aim or destiny for the individuality of becomings. And this suggests that western notion of symbiogenetic relationality can find resources to expand itself from the *other* relationality. Combined with Serres' parasitology and Margulis' revolutionary theory on evolutions, it can be a more effective theoretical tool to look into the patterns of development (individuation) of digital media and peoples' life with them.

Chapter 6

Media

The only assignable difference between animal societies and our own resides in the emergence of the object. Our relationships, social bonds, would be airy as clouds were there only contracts between subjects. In fact, the object, specific to the Hominidae, stabilizes our relationships, ... (Serres 1995a: 87).

For Serres the birth of things literally means the birth of what we call “human” and the fundamental mode of existence of all things (and humans) is nothing other than “interlacings.” Every body, every thing presents its own original network and web. The birth of things and humans, thus of nature, is the passage from the figure of the cloud (chaos, for theory, *meteora*, for experience) to that of interlacings. Serres (2000: 98-99) learns from Lucretius, “a physicist with a *combinatory topology*,” who in the first century BC mobilized a theory of flow, of paths and pathways; and, most of all, a topology of local varieties. He repeatedly emphasizes that the whole question in dealing with things and humans, for Lucretius as for us, is indeed to link, paste, unite, adapt, incorporate, and weld the varieties of things and humans one to another. Serres’ prime concern is always centered upon relationships—what is happening *in-between*, being always specific, and defining the specific.

Long before the current technologies of communication *media* were born, the origin of the word—the Greek *méson*—meant that which has its place in the middle, the *milieu* or *in-between space*. Hence media theories preoccupied with technological instrumentality of media as a means, or a tool, have been profoundly misleading. Those theoretical positions presuppose a dualistic “distance” between a medium and individual, even when they treat media as extensions of human sensory-system, let alone when they regard media as socio-political tools and agents of dominating power. A medium is a space, rather than an object, where dynamic interactions are taking place. Moreover, it is not a “neutral” platform; it is a milieu, an ever eventful environment where spontaneous and potential *relations* emerge, while remaining excessive to whatever becomes articulated or mediated as meaningful.

For Latour (2002) technology is itself a form of “mediation,” by which he means a material relation, which allows an individual to express a being through relationships with the other. Humans do not just use technologies but are themselves mediated by them. In his theory the human becomes something constituted of and for other “things,” rather than the measure of all things. On the other hand, technology is

“contained” in the “use” of an object that is itself inserted into a fold in time that connects the use of an object at that moment with its making in the past, with a design that stretches back for centuries and to a hominid tool principle that is two million years prior to the “human.” Rather than a form of mastery, and therefore a problem, as in Heidegger (1977), Latour considers technology as a “relation with alterity” that is folded within “garlands of time” through which we relate to the Other. The very idea of the duality between the social and the material is a “conceptual bubble that needs and deserves bursting” (Woolgar 2002: 262). To re-emphasize this point Woolgar takes an example of the complex crossover effects between the virtual and the real in electronic technologies. Just as “the more virtual” promises “the more real” in current electronic technologies, he maintains, the entanglement between the social and the material might be viewed as a mutually stimulating one rather than as a zero sum game; hence, “the more material, the more social.”

A medium, that is, a technology of relationships, is thus not a geometric space; it requires a topological understanding. As its very etymological meaning—*analysis situs*, which is, analysis of place—tells us, topology is concerned with measuring complex eventuality rather than simplified and abstract objectivity of a place. It focuses on relational and processual happenings in space and time, a quasi metrics of events that is being developed—the dynamics of transitions and transformations of relations. In other words, it is to think about eventuality and emergence, and this means that the dimension of the *potential* becomes crucial with topological thinking. It also entails the link to virtuality, as the word *virtual* comes from the Latin word *virtus*, meaning *potential*. What should be noted here is that the virtual, in the sense of potentiality, is not opposed to the real, and differs radically from the concept of the possible. The virtual is a nascent state of the real, because there is an inherent relationship between the virtual and the new, that of accentuating processualities of qualitative transformations—becomings. In contrast to the possible, which remains within the scope of what we can imagine at a given time, the potential is always “excessive” to, or “boiling over,” what we (can) think of. Therefore, a medium has an inherent meaning of topological relationality, rather than a finite technological object. It is not a space for the object/subject dualism; the prime concern for this space is *communication*—the interactive ontogenesis of a subject and an object.

6.1. Changing space of interactive ontogenesis

If we consider the fundamental mode of the existence of a communication medium as an in-between space where a subject and an object interact, the history of communication media are older—much older than we commonly think. Almost as soon as our prehistoric ancestors made tools of wood, bone, and stone to help them physically adapt to natural conditions, there emerged *meson*, a between space of interaction and mediation. A simple stick, notched to indicate the number of deer in a nearby herd, or some rocks or logs arranged to mark the importance of a given territory, were communication media by which humankind enlarged their sphere of communications. The purpose is an exchange of information, making things and ideas “move.” With their world becoming more and more complex, early humans must have needed more than nonverbal gestures or the shared memory of the group to recall important things. They needed a so-called extra-somatic memory, a memory outside the body. Thus an increase in communication led to the development of communication media to exchange, store, and retrieve the growing volume of information. The microchip of today is one such medium, a direct descendant of a notched stick or a file of rocks in old days.

According to Marshack (1999: 5-14), the art of the Old Stone Age also served as communication media. He cites archaeologists, who do not look at bone tools, figurines, and the famous cave paintings as merely for a ritual magic or an “art for art’s sake.” The re-examination of those objects, some of which dates back to the end of the last Ice Age, has revealed that those could have constituted a systematic attempt to record information. The use of fired clay tokens, which were between one and three centimetres in size, could also have been for keeping records of economic output and trade in several Old World societies, beginning about twelve thousand years ago, and continuing to the fourth millennium BC, before the emergence of writing. Moreover, it was not only writing or drawing on a certain “surface” that was capable of keeping records and functioning in an efficient and comprehensive manner as a communication medium. The quipu, which fulfilled this purpose among the Incas of ancient Peru, is the most illuminating example (Ascher and Ascher 1981). It was a series of cords of different length, thickness, and colors that were knotted and braided together. Each of those elements constituted information, for instance, the record of crop production, taxation, a census, and a variety of other kinds of information. Being a light, portable medium, the quipu was suitable for administration over distance and indeed was

extensively used by the Inca Empire. It is a classic example of a “space-biased medium” (Innis 1995).

Writing systems, whether ancient or modern, are technologies in the sense that they are methods for arranging verbal ideas in a visual space. Bolter (2001: 15-16) argues that there are good historical as well as etymological reasons for broadening the definition of technology to include skills or means as well as machines. According to him, the Greek root of “technology” is *techne*, and for the Greeks a *techne* could be an art or a craft, or “a set of rules, system or method of making or doing, whether of the useful arts, or of the fine arts.” Bolter reminds us that Plato calls the alphabet itself a *techne*, in his dialogue the *Phaedrus*. It is now widely accepted that writing, a technology of arranging verbal elements in a space to be “seen,” began with accountancy. The earliest writing of all, on Sumerian clay tablets from Mesopotamia, concerns lists of raw materials and products, such as barley and beer, lists of labourers and their tasks, lists of field areas and their owners, the income and outgoings of temples, and so forth—all with calculations concerning production levels, delivery dates, locations and debts. To quote an expert on early Sumerian tablets, writing developed “as a direct consequence of the compelling demands of an expanding economy.” In other words, some time in the late 4th millennium BC, the complexity of trade and administration in the early cities of Mesopotamia reached a point at which it outstripped the power of calculations and memory of the governing elite (Robinson 1999: 11), and this was exactly the same demand as the one which gave birth to the computer. In the development of writing, letters first represented the thing, the quantity or the number, and then, the idea. In the same process, the computer initially calculated huge numbers, and then proceeded to store and process knowledge.

The first truly phonetic alphabet was able to accurately and unambiguously transcribe the spoken words of any language, using only twenty to thirty signs or letters. The Greek alphabet first came into use around 700 BC. Within 300 years the Greeks had developed from dependence on an oral tradition based on myths, to a rationalistic, logical culture which laid the foundations for logic, science, philosophy, psychology, history, political science, and individualism. The alphabet, Logan (1986: 17-20) believes, served as the operative ground for this rich development, which was characterized by the classification and abstraction of ideas. He emphasizes that alphabetic writing is based on “visual image” and “matching.” The very word *idea* is indicative of the revolution in thinking that took place with literacy. This word, which is not to be found

in Homeric Greek, has been derived from the word *eidos*, indicating “visual image.” The alphabet, Logan sees, has unique power of separating the visual faculty from the other senses and giving dominant play to the visual. The pervasive use of uniform elements—the phonetic letters—encouraged the additional visual matching of situational elements which formed the ground for Greek logic, geometry, and rationality. Logan observes that the idea of truth itself, the correspondence of thing and intellect, is based on “matching.” To be written down the spoken word should be broken up into its constituents of semantically meaningless phonemes, and represented by meaningless letters. The written word is therefore an “abstraction” of the spoken word, which in turn is an abstraction from the holistic living experience. As a consequence, McLuhan and Logan (1977: 377) insist, the alphabet has served as a model for abstraction, division and separability, and objectification. They see that, with the alphabet, the Greek developed the notion of objectivity and detachment, the separation of man from nature, the separation of the individual from his society, the doctrine of the autonomous, and the seat of rational thought. From that time on, according to McLuhan and Logan, the West went on to develop analytical thinking, which breaks down everything that they encounter in their lives—for example, time, nature, and the human body—into units subject to analysis.

Basic principles of the alphabetical writing—breaking up the words into perfectly abstract and arbitrary signs—have sometimes been seen as parallel to those of current digital media. For instance, Levinson (1997: 11-17) argues that the alphabet is the first digital medium, which has been critical in the success of the diffusion of Moses’ monotheism. According to him, Ikhnaton, the Egyptian heretic Pharaoh, decreed a new monotheistic religion more than three millennia ago but his practice barely survived his lifetime. In contrast, the monotheism of Moses just a century later took permanent root and went on in its Christian and Islamic transformations to convert the greater part of the world. For Levinson the difference is that, while the Pharaoh’s was picture-based “analogical” hieroglyphics, Moses used the alphabet, in effect a “digital” medium, which is a far more efficient and abstract technology of communication. Grasping this fundamental characteristic, Derrida (1997: 300) argues that the alphabet is a “trader,” something like a currency. He finds that the movement of analytic abstraction in the circulation of arbitrary signs is quite parallel to that within which money is constituted. Money replaces things by their signs, not only within a society but from one culture to another, or from one economic organization to another. That is, Derrida

maintains, why the alphabet is commercial, a trader. Just as money gives a “common measure” to incommensurable objects in order to constitute them into merchandise, so the alphabetic writing transcribes heterogeneous “signifieds” within a system of arbitrary and common signifiers: the living language. According to Derrida, if the sign has led to the neglect of the thing signified, then the forgetfulness of things is greatest in the usage of those perfectly abstract and arbitrary signs—money and phonetic writing.

Literacy, which is based on the technology of writing, is therefore abstract, sequential, classificatory, visual, and exactly repeatable. With literacy words have become things, or manufactured products; while in orality words are events, or occurrences (Ong 1982: 72-73). Literacy thus encourages a sense of closure, while orality nurtures addition and aggregation. Ong maintains that sight isolates, whereas sound incorporates. It is because sight situates the observer outside what he views at a distance, contrary to sound, which pours into the hearer. Ong tells that when you hear, you gather sound simultaneously from every direction at once: you are at the centre of your auditory world, which envelops you, establishing you at a kind of core of sensation and existence. Sound is thus a unifying sense, which registers all the interior structures of a human. For Ong interiority and harmony are characteristics of human consciousness and knowledge is itself ultimately not a fractioning but a unifying phenomenon, a striving for harmony. The centering action of sound affects man’s sense of the cosmos, and, for oral cultures, the cosmos is an ongoing event with man at its centre. Ong insists that orality is therefore a form of communication closer to human world: only after print and the extensive experience with maps, human beings came to think primarily of something laid “out” before their eyes. Ong’s phenomenology of sound concurs with Merleau-Ponty’s phenomenology of perception (2002), which sees that vision is a “dissecting” sense.

Though the most efficient way of recording, storing, and exchanging information, writing was the most privileged space of communication until the Middle Ages. No matter whether it was on papyrus, parchment, or paper, only those who were powerful enough to obtain the so-called “craft literacy” could produce, access, or control written information. But after Gutenberg the mass production of books became available, and this Print Revolution brought about far greater influence than the early printers had expected. At first, printers tried to reproduce writing as it appeared in earlier manuscripts but soon they realized that a less ornate and more standardized style was desirable. The art and craft of “calligraphy” declined, and a new world of mass-

produced knowledge based on “typography” replaced it. Though it was a new medium, print started with what was done by older forms: the first wave, known as *incunabula*, included many of the older manuscript titles until texts on new science and philosophy soon became a major part of the printing industry (Eisenstein 2005: 12-40). With this innovation in the production of books, craft literacy waned fast, and this brought about revolutionary changes in almost every areas of human life.

For the subsequent two hundred years or so there have been dynamic interminglings among humans, technology, knowledge, and industry, all of which later called as the outgrowth of Print Revolution. Ong (1982: 121) sees that print made the transformation from aural to visual more complete than writing alone. Postman (1987: 44-63) puts a great emphasis on that print brought about rapid silent reading, which was a rarity in the Middle Ages. According to Postman, as the new practice of silent reading became widespread, individuals came to be capable of acquiring knowledge on their own, and from there began the true foundation for individualism, capitalism, and modern democracy. This move also accompanied and facilitated marked changes in books themselves, which are now commonly taken for granted but in fact innovated the way for knowledge to be obtained, organized, and stored. The index is a case in point: indexes were very rare in manuscripts, in which auditory recall helped to orient readers to texts. In the printing era, however, indexes helped to give rise to the book as a work of reference, which could be consulted at one’s own convenience without having to be mastered in its entirety. The quintessential expression of this trend was the rise of dictionaries, encyclopedias, and grammatical texts. All contributed to the “standardization” of knowledge, to be “processed” and “produced,” and paved the way to the electronic media of the present day. As Mumford (1963: 135) points out, the reproduction of written texts by “mechanized” printing press marks the first assembly line in history.

However, information was not separable from its physical carrier until the advent of harnessable electricity for communications. The book, as well as manuscripts, passed from place to place in much the same fashion as did clay tablets or tokens, and the quipu. They “physically” carried information: to move the information, one moved the medium. Communication over distance was tied to the available means of transportation. It was only with the advent of the telegraph that messages could travel faster than messengers. This leap, from what is called a “transportation” model of communication to a “transmission” one, was nevertheless without precursors. Talking

drums, smoke signals, and the use of polished metal to direct sunlight (heliography) were early ways of sending messages without messengers. The ancient Greeks developed a system of torch signals between towers several miles apart that could relay the letters of the alphabet. In Europe, just before the invention of the telegraph, ship-to-ship and ship-to-shore semaphore inspired the construction of a land-based system, which consisted of towers that used mechanical arms to signal letters of the alphabet.

It was the dots and dashes of Morse code that enabled a definite move to the “transmission” model of communication. Words began to be transformed into electrical impulses so as to travel through a network of wire; it was thus the telegraph in the 1840s that brought about what we literally call the “wired world.” The telegraph first emerged as a powerful instrument of continental communication in the United States and, thanks in part to the development of transoceanic cable technology, became a global system before the end of the nineteenth century. It functioned as a background director of commerce, forwarding orders, coordinating shipments, and reporting transactions. The telegraph brought diverse regional centers of buying and selling under a unified price and market system, and led to a consideration of the creation of standard time zones. The telegraph also worked hand-in-hand with the railroad. It was mutual benefit that made their partnership; telegraph companies found it convenient to use already established rights-of-way, and the railroads benefited as well through the telegraph’s ability to monitor rail traffic and to warn of breakdowns. Moreover, as a new medium to influence on the old, the telegraph transformed the content of the newspaper and journalistic practices into a “telegraphic” style (Carey 1989: 201-29). Most of all, the telegraph much anticipated the telephone with its electrification of information, and the current digital communication media, with its use of binary code.

The telephone, the next major electric communications medium, emerged in the third quarter of the nineteenth century to overcome several limitations of the telegraph. As it was based on voice transmission, the telephone did not require skilled mastery of the Morse code or literacy to read the code into words. The telephone tried to do what was already the preserve of the earlier medium—the telegraph—but in ways that *bypass* some of the problems and complexities of its predecessor; in its early operation the telephone was as much complementary to the telegraph as competitive. The early use of the telephone was prevalently in the urban context of business and government, the same areas in which telegraphy got its start, for the rapid two-way exchanges that could speed up business decisions. The telegraph still played an

indispensable role, facilitating the sending of detailed and often quantitative information that could be collected at a specific point for later action. In a word, the telegraph favoured a linear logic of one thing at a time, while the telephone was an immediate and interactive medium. An interesting point is that the earliest users of the telephone were concerned with the simplicity of two-point communications, between two buildings of the same firm or between the home and office of an executive, until the 1890s, when significant growth in residential services came about (Fischer 1992).

For Marvin (1988: 209-13) the telephone was revolutionary in another way. She looks at several experiments in what has been known as “proto-broadcasting,” which means transmitting information over the telephone to multiple subscribers who listened “on-line.” It started with church services and sporting events, and the famous Telefon Hirmondo in Budapest “proto-broadcast” concerts, plays, children’s fare, and stock market reports in this way. Though less successful, some imitators in North America used telephone to “broadcast,” in conscious attempt to compete with the newspapers for more rapid reportage of current events, especially election results. Thus, several decades before broadcast radio became widespread, its potential was being tested by the telephone. By the end of the nineteenth century the “wired world,” largely through the telephone and the telegraph, had extended the scope of previous communication far and wide, distributing information faster and with less effort. News was packaged differently and had a new emphasis, as did popular entertainment.

These developments in communication media went hand-in-hand with a century-long transition to a predominantly industrial economy and urbanization. The decades that marked the end of the nineteenth century and beginning of the twentieth century saw the bicycle, automobile, and airplane emerging as significant modes of transportation. The sense of space they fostered, coupled with the experiences of the increased speed of railway and steamship travel, led to World Standard Time, the creation of time zones. In the sphere of art, Cubism and Futurism responded to or celebrated changes in space and time. Cubism broke up and repositioned space by simultaneously putting multiple perspectives onto one plane. Futurism celebrated the accelerated pace of life propelled by the new technologies. This was also a time of major public works, such as bridges, canals, and tunnels. Urban electrification integrated rail transportation with the city, as streetcar and subway lines took hold in major cities of the world. This in turn promoted further urban growth, creating suburbs and commuters.

Another key element prefacing the transition to twentieth-century industrial mass society and culture was a new awareness of people, places, and things fostered by the technology of photography. From the mid-nineteenth century photography influenced illustrators working in a variety of disciplines, and during its first decades there already emerged a new standard for the quality of information in pictures. But what unleashed this influence was not only on the picture per se: it went on to change the way humans view and relate to the world. By the final decades of the nineteenth century, new techniques of lithography enabled photographic reproductions to be used in newspapers, books, and magazines. And in the early decades of the twentieth century, photojournalism entered a period of spectacular prominence, changing the nature of the newspaper during the 1920s, giving rise to formats that have continued to the present day (Goldberg 1991). The visibility of a disaster in the next day's newspaper increased peoples' desire to "see" as well as read about such events. This trend still dominates current media: only the primary medium has changed from still photography to film, television, and video.

Even though the telegraph and the telephone were revolutionary, they still have one limitation: they should be "wired." A large number of researches and experiments devoted themselves to the dream of the "wireless." After a series of successive foundational discoveries and inventions, the so-called "radiotelegraphy" was invented by Marconi, shortly before the turn of the nineteenth to twentieth century. Marconi's goal was simply to successfully transmit Morse-coded messages from point to point without the use of wires. He had little interest in the wireless as a medium for voice transmission. But others, for instance, Fessenden, worked on this problem and considerable strides were made until the First World War impeded further research. After the end of the war a number of amateur stations began "broadcasting" voice, together with live and recorded music. Initially, those were operated by enthusiastic hobbyists, who were the students of the new technology, versed in Morse code and keen to decipher military, civilian, and maritime messages. But as voice and music broadcasts increased, what began as a hobby became an entertainment business. By the early 1920s, there emerged an increasing number of corporate stations broadcasting on a regular basis. The end of this decade saw the creation of the vacuum tube radio with loudspeakers, and within half a dozen years, despite economic hard times during the Depression, many families owned a set—radio had become the first, true mass medium.

Though wireless, radio was a one-way medium, while "wired" telephone was

two-way. Brecht (1932) sought to change radio from its sole function as a distribution medium to a vehicle of communication with two-way send/receive capability. Writing in the midst of the rise of the Nazi dictatorship, Brecht envisioned two-way communication, a less centralized and non-hierarchical network of communication, such that all points in the system can be actively involved in producing meaning. He was discontented with the fact that technology was advanced enough to produce the radio and society was not yet advanced enough to accept it, which means that radio was one-sided when it should be two-. His suggestion was to change the prime objective of radio from distribution to communication. He insisted that “the radio would be the finest possible communication apparatus in public life, a vast network of pipes.” In his socialist vision of society, radio should know how to receive as well as how to transmit, and how to let people speak as well as how to let them hear, so as to bring them into relationships instead of isolation. Brecht pointed out that the decision to manufacture radio sets as receivers only was a political decision, not an economic one. His ideal of two-way communication via radio technology is based on the supposition of radio as “mass” media and somehow realized in later forms of radio programs that encourage listeners’ participations and incorporate their productions, though not for “socialist” objective as he dreamed of. Interestingly, the truly revolutionary two-way communication has been realized by the coupling of radio, telephone, and one more crucial technology—that of electrifying not only sound, but also a wide range of information.

The electrification of sensory data through transducers and sensors enabled various entertainment media to establish their own technological standard and to couple with one another. The film became capable of combining acoustic data with its earlier optical ones; radio transmitted gramophone records; the television aired feature films. One medium served as the content of other media, and, in this way, they all promoted one another. But these couplings of technologies had no “general” standard, anticipating the emergence of digital technology (Kittler 1999: 16-19). Digital technology functions like an alphabet but on a numerical basis; it replaces continuous data with discrete scannings at points in time as equidistant as possible. It was in 1936 that Turing’s universal discrete machine stated the principle of all digital technology. Extrapolating or reducing the equally discrete typewriter, it consisted simply of an endless paper tape, the idea of which goes back to the year of 1800. On this “paper machine” for data storage, a write/read/erase head for data processing could write the binary signs 0 and 1 while a

transport device for data addressing made it possible to access the neighboring signs right and left. Turing proved that this elementary machine is equal not only to any mathematician but solves all decidable problems of mathematics through simulation of any other correctly-programmed machine. Thus the Universal Turing machine concluded all developments for the storing, indexing and processing of both alphabetical and numerical data. For the alphabetical data processing, developments can be traced from lists, catalogues, and the card indexes to the Hollerith machine of the American census of 1890. For numeric data processing, an almost parallel development can be seen from Schickart's calculator for the four basic types of calculation or Jacquard's programmable looms, to the pioneer of the computer, Babbage, whose differential engine of 1822 reduced the time-consuming developments of series in trigonometry and ballistics to recurrent difference equations. To achieve the alphanumeric universality of Turing machines, however, the two additional developments had to be brought together—Boole's logical algebra and Goedel's theorem of incompleteness, which made statements and axioms as manipulable as figures.

Compared to the Turing machine of 1936, which was infinitely slow, the computer is a miracle of economy of time and space called forth by the exigencies of the Second World War. Shannon (1963) showed that simple relays connected in series or in parallel can automate all operations of Boole's algebra; Zuse built the first computers for Luftwaffe research from telegraph relays while the cryptography department of the Wehrmacht rejected his offers of automation. On the other hand, at the end of 1943 the British secret service came up with computers based on overmodulated tubes for Turing's war-deciding crypto-analysis of secret VHF radio traffic of the German army. The decisive moment came in 1945, when John von Neumann designed the now customary architecture of sequential but microsecond-fast computers for the planned American uranium bomb whose rate of explosion set new standards in the measurement of time. Von Neumann's design articulated the fundamental structure of information technology as a "functional" interrelationship of hardware elements. No matter whether the data is alphabetic or numerical, binary numbers represent them all internally. In Shannon's word, information became a "quantity." The classic distinction between arguments and numerical values has been removed and both became permeable. It is precisely this mathematization of the alphabet which permits operations to be applied to other operations, and ramifications to be automated. In this way computers become able

to comprehend all other media and can subject their data to the mathematical procedures of signal processing (Rabiner and Gold 1975).

6.2. *Interlacings create uncharted territory*

A mobile phone is, in a nutshell, a coupling of a two-way radio and a computer. As a communication medium, a mobile phone's physical quality can be summarized under two main points: it is based on radio technology, which makes use of electromagnetic waves and "low-power" transmitters; and it depends on digital technology, which samples and converts not only the voice but also various information into binary numbers, while enabling itself to be a multi-medium with its highly sophisticated microprocessor. Winston (2000) begins the history of mobile radio communications with Heinrich Hertz, the discoverer of electromagnetic waves. However, a thorough understanding of electricity was necessary before inventors could produce a reliable, practical radio system. Starting with the discovery of electromagnetism by Christian Oersted in 1820 and continuing until and beyond Marconi's successful radio system of 1897, dozens of inventors and scientists around the world worked on different parts of the radio—power generation, telegraphs, lighting, and, later, telephones. Oersted showed how an electric current creates a magnetic field in a famous experiment with a compass under a live electric wire. And in 1821 Faraday reversed Oersted's experiment to see whether a magnetic field could create electricity. He discovered induction and thereby could build the world's first electric generator. It is a very important point because, for the first time, mechanical energy could be converted to electrical energy; but for electromagnetism to be used for "communications," there still needed more understanding than creating a current or picking up heavy weights.

Almost ten years later, in 1830, an American scientist Joseph Henry succeeded in transmitting the first practical electrical signal, which can be called the forerunner of the telegraph. And several years later Samuel Morse, who worked with Henry, invented the first practical telegraph, applied for its patent in 1838, and was finally granted it in 1848. Henry helped Morse build a telegraph relay or repeater that allowed long distance operation. Morse's system used a key (a switch) to make or break the electrical circuit, a battery to produce power, a single line joining one telegraph station to another and an electromagnetic receiver or sounder that upon being turned on and off, produced a clicking sound. He completed the package by devising the Morse code system of dots

and dashes. It was the simplicity and ease of the Morse Code that made Morse's system different from Wheatstone's, a system developed earlier using the deflections of a needle which was used in railway signaling, and from Henry's, to whom he was indebted for his basic ideas. The code was extremely simple for the operators: to open or to close a switch to send electricity from a battery along the telegraph wire, and at the receiving end, the pulses of current operated a pen which marked a strip of paper whenever current was present. Skilled operators could soon send messages in code at up to thirty words a minute and could spell out the message just listening to the sound being made by the pen.

By combining the two kinds of pulses, it was possible to represent every letter in the alphabet by a code of four pulses or less. To create this remarkable "programme," Morse made a careful study of the frequencies of different letters of the alphabet used in printing by examining the numbers of each letter kept in typesetters' print trays. He then gave the letters which were most frequent the shortest codes. In this way, the number of pulses that had to be sent to communicate an average sentence in English could be kept to the minimum. Thus the letter E, which is the most commonly used letter in English, was given a Morse code of a single dot. The next most common letter, T, was represented by a single dash. Less common letters were combinations of dots and dashes. Numerals and punctuation marks were made up of combinations of five and six pulses respectively. A dash was to last as long as three dots. A space as long as one dot was left between the pulses making up the same letter. A space as long as one dash was left between different letters and a space as long as five dots was left between different words.

While a number of inventors and developers concentrated on wireline telegraphy and few ever tinkered with wireless communication, Faraday continued his study to find out whether space could conduct electricity. And it was Maxwell who pondered constantly over Faraday's findings, translating and interpreting the field results into a set of mathematical equations. By that time scientists knew that light was a wave but could not figure out what made it up. In 1864 Maxwell reached a conclusion that light, electricity, and magnetism were all related, all worked hand in hand, and that all these electromagnetic phenomena traveled in waves. And he went further to find out that if electricity rapidly varied in amount then electromagnetic waves could be produced at will; they would *radiate* in waves to a distant point. Maxwell's conclusions were distributed around the world and created a sensation, but it was only in 1888, fifty

years after the invention of the Morse code, that Hertz could reliably produce and detect radio waves. Before Hertz's success, some inventors, the most notable were Thomas Edison and David Edward Hughes, brushed close to detecting radio waves but did not succeed. Hertz's experiments and findings were recognized and validated by inventors around the world who began working in the field. Among others, Marconi did indeed establish the first successful and practical radio system. Starting in 1894 with his first electrical experiments, and continuing until 1901 when his radio telegraph system sent signals across the Atlantic, Marconi overcame every kind of discouragement to make radio something reliable and useful. But Marconi never envisioned his system broadcasting voices, he always thought of radio as a "wireless telegraph." It was five years later, in 1906, that the first radio band wave communication of human speech was accomplished by Reginald Fessenden over a distance of 11 miles, from Brant Rock, Massachusetts, to ships in the Atlantic Ocean. If it was with Marconi that the telegraph became no longer attached to wires, it was with Fessenden that radio would be no longer just a wireless telegraph. Many historians regard the radio era as beginning here, at the start of the voice transmission.

The development of the mobile radio system can be divided into two parts (Mehrotra 1994: 1-5). Phase one is when the early systems were being developed in the 1920s and phase two begins after the classification of "Domestic Public Land Mobile Radio Service" from the Federal Communications Commission of the United States in late 1940s. The first important use of mobile radio using an automobile instead of a ship was in 1921, when the Detroit Police Department instituted a police dispatch system using a frequency band near 2 MHz, just above the AM radio broadcast band at that time. The system was similar to the present day paging systems. It was one-way transmission made of Morse code and the patrolmen had to stop at a wire-line telephone station to call back in. In 1928, the first voice based radio mobile system went operational. Although the system was still one-way, the effectiveness of the voice-enabled mobile radio communication was immediate and dramatic, especially for the police and emergency services. Little thought given to private, individual telephone use: most equipment was still experimental, with practical systems not implemented until the 1940s, and no interconnection with the land based telephone system. But, by the early 1940s, a significant build-up of police and other public service systems was realized: in 1932, the New York City Police Department instituted the use of the 2-MHz band for mobile communication; and in 1934, the FCC opened four new channels in the 30-MHz

to 40-MHz band. It was only in the late 1940s that the FCC started to make mobile radio available not only to police and fire departments, but also to the private sector. Bell Telephone Lab thereby could inaugurate the first mobile system for the public in St. Louis, in 1946. But the available channels were still too limited to be able to satisfy the expanding public demand, and this situation provided the impetus for the development of cellular radio communication technology. The first cellular system was put into operation in the Chicago area in 1983, by American Telephone and Telegraph (AT&T). Although this analogue cellular telephony had continued to satisfy American needs for over ten years, the big mobile explosion has come from another new technology—personal communication services (PCS), based on low-power micro-cellular technology.

Cellular technology means dividing the space into so-called “cells”—normally about 10 square miles—to make use of low-power transmitters for extensive frequency reuse. And this is why mobile phones are also called “cellular” phones. Each cell has a base station which exchanges the signals coming from users, so as for the users to experience no difficulty while they move around among cells. In order to operate the mobile phone network as efficiently as possible, base stations are located so as to maximize the number of calls or “traffic” that can be connected. Therefore, the geographic size of a cell depends on the size of the traffic during its peak use periods. Cells in populated areas with many mobile phone users are smaller than those in less populated areas. The automatic taking over between cells, a “hand-over” or “hand-on,” is controlled by a computer in the switching centre. The switching centre knows which cell your mobile is in, and switches it to the next cell if you move across a boundary. For this to happen, a mobile phone talks to its base station at regular intervals when it is switched on. This means that an individual, with his or her mobile phone, exists as one of the System Identification Code, as a radiowave generator/receiver, producing information. Individuals with their mobile phones are operating like the Second Kind of Maxwell’s Demon (Lem 1974): rather than sorting out information, they “produce” information. Mobile phone carriers chop up the space into cells to allow extensive frequency reuse across a given space, so that millions of people can use the same frequency—to produce information—simultaneously. And that is why mobile phones and base stations use low-power transmitters, which have three advantages: firstly, the transmissions between a base station and the phones within a cell do not make it very far outside that cell; secondly, therefore the same frequencies can be reused extensively across other cells; and thirdly, the power consumption of a mobile phone becomes

relatively low, which is what has made mobile phones possible with small batteries.

A mobile phone is an extremely sophisticated radio, which communicates by modulation and radiation of electromagnetic waves. But still, had it not been digital technology, current mobile communication systems would not have been available at all. The fact that the speed of mobile communication is virtually instantaneous owes much to digital technology, which is able to execute millions of mathematizations and calculations in a second. When a phone call is made, the voice is converted to electrical signal, and the signal is sampled, broken into binary numbers, and transmitted as a series of electrical pulses. This pulse code modulation (PCM) technology has benefits of reducing noise and cross-talk (the interference between two neighboring telephone lines), and allows many more telephone conversations to be transmitted along the same set of wires. This is possible using “time division multiplexing”: although 1/8000th of a second is a very short time to humans, for current electronic systems it is quite a long time. In that time, for a basic PCM system, it is possible not only to sample a phone call’s voice and to transmit binary numbers representing that sample, but also to transmit another 31 binary numbers before the system needs to come back again and sample that voice. This means that the binary numbers representing samples of a certain phone call’s speech can be interleaved with 31 others. Two of these numbers carry special signaling information, and the rest is used to carry telephone conversations.

The heart of a digital mobile phone is the circuit board with computer chips. The analogue-to-digital and digital-to-analogue conversion chips translate the outgoing audio signal from analogue to digital and the incoming signal from digital back to analogue. The digital signal processor (DSP) is a highly customized processor designed to perform signal-manipulation calculations at high speed. The ROM and Flash memory chips provide storage for the phone’s operating system and customizable features, such as the phone directory. The radio frequency (RF) and power section handles power management and recharging, and also deals with the hundreds of FM channels. Finally, the RF amplifiers handle signals traveling to and from the antenna. The most critical part, a microprocessor or a central processing unit, is a complete computation engine which is fabricated on a single chip. It executes a collection of machine instructions that it is told to do, based on three operations: using its Arithmetic/Logic Unit, it can perform mathematical operations like addition, subtraction, multiplication and division; it can move data from one memory location to another; and it can make decisions and jump to a new set of instructions based on those decisions. However sophisticated the

job a microprocessor does may be, it is based on these three basic activities. Even the incredibly simple microprocessor has a fairly large set of instructions that it should perform. The collection of instructions is implemented as bit patterns, each one of which has a different meaning when loaded into the instruction register. A set of short words are defined to represent the different bit patterns. This collection of words is called the assembly language of the processor. An assembler can translate the words into their bit patterns very easily, and then the output of the assembler is placed in memory for the microprocessor to execute. Bits are almost always bundled together into 8-bit collections, and these collections are called bytes. It is not clear why there come 8 bits in a byte: widely acknowledged thought is that the 8-bit byte is probably something which people settled on through trial and error over the past 50 years. The first microprocessor, the Intel 4004, which was introduced in 1971, was not very powerful but it was amazing that everything was on “one chip.” Prior to the 4004, engineers built computers either from collections of chips or from discrete components, which means transistors, wired one at a time. A chip, as it is called an “integrated” circuit, is a small, thin piece of silicon onto which the transistors making up the microprocessor have been etched. A chip as large as an inch on a side can contain tens of millions of transistors. Simpler processors might consist of a few thousand transistors etched onto a chip just a few millimeters square.

As Haraway (1997) has already noticed, no objects, spaces, or bodies are now sacred in themselves; any component can be interfaced with any other if the proper standard, the proper code, can be constructed for processing signals in a common language. The common language is binary numbers, and the microprocessors are the “translators” of that language. The language is represented by mathematization, subject to modulation, processed automatically, and reproduced in almost infinite versions. But it does not mean that all forms and possibilities of information are simply subsumed under, or disappear into, the “black-box” of a single tiny chip. New media, based on binary numbers and the microprocessors, have the “cultural layer” as well as the “computer layer” (Manovich 2001: 46)—in other words, the metaphysical layer as well as the physical one. Manovich calls this characteristic of new media “transcoding.” The two layers are composited together: a medium’s technical operation works hand-in-hand with culture, ontology, and epistemology of the society it belongs. With these interlacings, the power of micro-processors growing at an exponential rather than a merely linear rate has brought about uncharted conceptual territory (Chaput 1988: 183).

Whereas manufactured products and craft objects before them have developed in line with their forms as well as with their uses and functionings, miniaturized electronics based on microprocessor technology have considerably blurred this formerly clear-out picture. A microelectronic object can no longer be apprehended as an aesthetic or technical whole; in the absence of a synthesis, or continuum, users are to develop or grasp whatever their competence allows, to deal with the possibilities of millions of interactions happening in a single tiny chip.

The objects with digital technology have thereby been endowed an unstable character; half-hard and half-soft, half-physical and half-metaphysical. Bolter and Grusin (1999) interpret this instability as coming from the two contradictory imperatives of current digital technology: the transparent presentation of the real by offering a more immediate or authentic experience; and the enjoyment of the opacity of media themselves. For example, the computer graphic specialist mathematizes linear perspective and creates “models” of shading and illumination for the “immediacy,” in other words, for the users to think it “real.” But, at the same time, a lot of multimedia applications are all for the hypermediacy, the expressions of a fascination with media, in which creators and users take pleasure in the act of mediation. This contradictory but nonetheless combinatory practice of immediacy and hypermediacy privileges fragmentation, indeterminacy and heterogeneity, and emphasizes process and performance rather than a “finished” object through its operations of erasure (interpenetration), tiling (juxtaposition), overlapping (multiplication), and replacement (exchange) of the images. The notion of process and performance, nurtured by the development of digital technology, has been crucial in the move from industrial mechanics to information and communication technologies, notably in the case of so-called “bottom-up” technology. De Landa (1992) contrasts synthetic reasoning against analytic reasoning, in relation to the sciences of Artificial Intelligence and Artificial Life. The latter adopts synthetic reasoning; it constructs from the bottom-up, as opposed to the top-down, in de Landa’s terms. He takes an example of the development of neural nets, which have a number of de-centered and interlinked processors. They are not “programmed” but rather “learn” tasks through experience which reinforces certain connections between the processors. It is in this fashion that artificial life can act more like the human brain, rather than a traditional computer (Marchessault 1996: 120-29).

Embracing the spirit of the “bottom-up,” current technophiles define themselves working in tandem with the cutting edges of information technology, which

means a successful conjunction of advanced technological hardware and sophisticated software. The edge is not only about the speed and power of memory, but also about the range and possibility of human senses. It is on the continuum of hardware-software inter-systems that comprise the material-immaterial expressions of the culture of technology. Moreover, technological edge for them does not necessarily favor the new; sometimes traditional expressions like kinship retain a strategic relativity to come to terms with emergent techno-culture. Tutton (1996: 135-40) suggests that these transformations can be described by the term “technicity,” which means technologically mediated (im-) materiality. With its technological invisibility or transparency, which has been resulted from its incomprehensible interior complexity, a digital medium’s technological form undergoes a mutation: instead of referring to its technological hardware, it becomes a matter of software—a matter of information, of data (Rutsky 1999: 109-111). And conversely every information—voice, image, text, and so on—is “formalized” and “aesthetized,” being subjected to digitization and calculation, and reduced to its minimal elements, to the status of (invisible) bits of information. The city space no longer simply *resembles* the grid of microprocessors: it has, in a sense, already *become* the technology itself, already been transformed into a graphic representation of data. It is a world of a dense mix of data, all of which are subject to continuous “unsecuring”—reproduction, alteration, redesign, and editing. This unsecuring—a complexifying or “inflation” and a flattening or “deflation” of data or a space—happens simultaneously, working reciprocally (Landon 1992), in the techno-world of microprocessor.

In this regard, Chaput (1988: 184-85) speaks of the “aesthetics of microchip,” by which he means “a matter of complexity, of the endless proliferation of their networks and the extent of their combinatories.” According to him, this complexity is such that microchips come to have “a secret aesthetic of their own,” because it is no longer possible for any one person to understand them. It is true with most of current digital objects; there is no need for the knowledge on their hardware to use them. To address this experience, Springer (1996) makes use of the term *matrix*, which originated from the Latin *mater* that means mother and womb. For him high-tech digital objects present uncanny feelings of “simultaneous attraction and dread,” the mixture of a joy and the fear of a “dark”—“you have it and use it but you don’t know what it is.” Jameson’s word for this experience of a “dark” is “technological sublime” (1991: 37), which indicates that representations of such immense communicational and computer

networks are themselves nothing but a distorted figuration of something even deeper, namely, the whole world system of present-day multinational capitalism, lying beneath and indeed motivating the profusion of techno-cultural images and data that make the high-tech world so complex. Jameson's view, however, is not simply dystopian; he does not think individuals as subsumed under the capitalist high-tech sublime. He speaks of "the schizophrenic aesthetic," in which the present suddenly engulfs the subject with (1991: 27), and notes that this fluid materiality is not to be seen simply in the negative terms of anxiety and loss of reality, but can also be viewed in the positive terms of euphoria, a high vividness of life.

As Gibson (2000) suggested a quarter century ago, the appropriate response to this high-tech world may be interaction, not mastery. Just as Gibson's characters, it is for individuals to take the risk of remaining open to the fluid techno-cultural world, riding its unpredictable flows and currents, to create new patterns of interaction, whose results cannot be foreseen. It is also for the individuals to learn that culture, not to control it, but to hack its codes and to re-route the subroutines of its logic. Technophile users take a great pleasure in seeing "unintended" consequences of their own tooling, and this "noise" contributes to far greater possibilities of digital technology, working as a medium for opening up or breaking the skin of the "body social" (Mol and Law 1994) or for suturing of its own opening. The main term that has defined technology throughout modernity was "instrumentality"; but, with digital media, arguing whether it is the "autonomy" of the machine or the outcome of the "laws of a universal human intentionality" is not appropriate. The concept of "process" enables us to consider a technological object "in itself" and to describe its performance—the entanglement between a human and an object. The ancient Greek notion of "techne," the origin of the conception of technology, seems reviving, as it is more closely related to an art or crafts rather than to the industrial production of technological objects, while also different from traditional meaning of art or aesthetics. Whereas industrial production tends to "regulate" and "secure" objects in terms of technological formula and presupposed use for humans, and traditional meaning of aesthetics tends to confine objects in terms of an "eternal" value, the notion of "techne" allows a more poetic mode of human practice. It can be led to the continual breaking of things, freeing them from the static context or pre-fixed representation, and mobilizing them as part of an ongoing process or movement.

The history of communication media tells us how specific interminglings of

objects and subjects in specific times have shaped specific technologies. New media tend to supplement and/or reform, rather than replace, older forms of media (Livingston 1998). For this process Bolter and Grusin (1999) coined the term “remediation,” calling their approach “the genealogy of remediation.” For the notion of genealogy they are indebted to Foucault as they look for historical affiliations or resonances and not for origins, in their study of communication media. For them remediation is the process throughout the last several hundred years of Western visual representation: what is new about new media comes from the particular ways in which they refashion older ones and the ways in which older ones refashion themselves to answer the challenges of new media. They explain remediation as a borrowing or “repurposing” to take a “property” from one medium and reuse it in another (as paintings have done with the Bible or other literary sources). Digital media function in constant interactions with earlier media, precisely the same as each earlier medium functioned when it was introduced. Thus, what is important is each medium’s particular strategy for remediation. The history of communication media, that is, a genealogy of affiliations, is thus not a linear progression, because older media remediate newer ones, just as new media remediate older ones. They form a network of remediation; hence the chronology is not important. All current media honor, acknowledge, appropriate, and implicitly or explicitly attack each other, and it is not rare to see old media, which have been thought as “dead,” re-surface as a partial form of new media.

It is not only in the case of communication media that historical affiliations or resonances take place. Looking into the history of cybernetics, Hayles (1999: 13-18) makes use of the conceptions of seriation, skeuomorphs, and conceptual constellations to interpret constant interminglings among things, ideas, humans, and technologies. Seriation is a term appropriated from archaeological anthropology, in which changes in artifacts are customarily mapped through seriation charts. In the history of cybernetics, Hayles remarks, ideas were fabricated in a pattern of overlapping replication and innovation. Moreover, the ideas were seen as mutually entailing each other through a cumulative process that continued across the years. Such a constellation is the conceptual entity corresponding to an artifact, possessing an internal coherence that defines it as an operational unit. Some of the ideas composing it are discarded, others are modified, and new ones are introduced. Like the attributes composing an artifact, the ideas in a constellation change in a patchwork pattern of old and new. Skeuomorphs plays a crucial role in this mixed space. It is a design feature that is no longer functional

in itself but that refers back to a feature that was functional at earlier times—for example, the arms in a digital clock. Like a Janus figure, it looks to past and future, simultaneously reinforcing and undermining both. Skeuomorph calls into a play a psychodynamic that finds the new more acceptable when it recalls the old that it is in the process of displacing and finds the traditional more comfortable when it is presented in a context that reminds us we can escape from it into the new. Hayles finds that, in the history of cybernetics, skeuomorphs acted as threshold devices, smoothing the transition between one conceptual constellation and another.

It is clear that the dynamics of seriation, skeuomorph, and conceptual constellation also happens in a wider context of a society—for example, among media and industries. The basic idea of Ford’s assembly line relies on the separation of the production process into sets of simple, repetitive, and sequential activities. For this reason the printing press has often been called the first assembly line in history, and computer programming relies on the same principle that breaks a task into a series of successive operations to be executed one at a time. This logic of Fordism corresponds to the way of cinematic production: cinema replaces all other modes of narration with a sequential narrative, an assembly line of shots that appear on the screen one at a time, which is totally different from the spatial narrative that had played a prominent role in Western visual culture for centuries. In his study of a genealogy of the computer interface, Manovich (2001) observes that these languages of cinema, which means cinematic ways of seeing the world, structuring time, narrating a story, and lining one experience to the next, have become the basic means by which computer users access and interact with all cultural data.

But there is a difference that, in contrast to cinema audiences, most of whom are able to “understand” cinematic language but not “speak” it (i.e., make films), all computer users can “speak” the language of the interface. They send e-mails, organize files, and run various applications. Moreover, they “direct” virtual cameras in computer games; they “edit,” or “montage,” which is originally the film’s strategy to overcome its indexical nature. Cinema’s avant-garde aesthetic strategies have also come to be embedded in the commands and interface of computer software—they become “material”-ized. The strategy of collage has re-emerged as the “cut-and-paste” command, the most basic operation one can perform on digital data. The avant-garde move to combine animation, printed texts, and live-action footage is repeated in the convergence of animation, title generation, paint, compositing, and editing systems into

all-in-one software packages for the computer. Manovich's term of "deep remixability" (2006: 6-7) designates this unprecedented material qualities of digital media. He observes that software is like a species within the common ecology, that is, a shared program environment. Once a new kind of operational logic is fitted into already existing production procedures, job roles, and familiar tasks, it starts interacting, mutating, to make a hybrid. If integrated into a single digital production environment, then the hybrid of different software comes to function in a new way, bringing about a new "effect," though each piece of the software has originally been designed to do different jobs in different contexts for different purposes.

These dramatic functionalities of digital media have in fact been anticipated from much earlier ways of structuring information, probably since the beginning of writing. The alphabetical writing system is itself a program to arrange spoken words into a space. Vernacular grammars and Arabic numbers were programs to ease and facilitate the use, and they accelerated the influence of the printing press. The index in printed books is yet another example, which gave rise to the text as a work of reference, and resulted in dictionaries and encyclopedias, and manuals of grammar—the standardized classification systems for knowledge. These reference works can be directly compared to contemporary computer databases for the storage of medical, legal, and business information. The Morse code is also a program, one that standardizes the transmission of messages. The computer-based linking of stock markets and currency exchanges on a global basis recalls the telegraph's role in transforming the commodity price and marketing system in the late nineteenth century. And just as the earlier systems of railway traffic regulation and ordering depended on telegraphy, tightly linked current systems of air traffic monitoring and inventory control are tailored to the coordinating capabilities of the computer. Computers can treat previously discrete forms of communication as technically the same and this convergence of previously discrete semiotic systems of textual and audiovisual materials signals major changes in how such materials are to be categorized, catalogued, and stored. Beniger (1986: 390-425) argues that the computer's greatest impact so far has been on other media and that the capacity of the computer, to digitize the output of all other communication and information media, will make it into a new "generalized medium" in the twenty-first century. In this sense, computers and their networks can be seen as something like *information utility*, for the *City of Bits* (Mitchell 1996), not unlike *public utilities* on which modern cities depend for its water, electric power, and transportation.

6.3. Beyond remediation

From a couple of the last decades of twentieth century, after poststructuralism and constructivism had “melted everything that was solid into air,” the unprecedented immediacy and speed of technological objects have attracted theoretical constellations. Displacing the panegyric of textuality and discursivity, the force of things called for theoretical concerns with unexpected violence in the form of traffic jams, rail accidents, viruses and hackings on computers, or environmental pollution. There emerged a need for the rediscovering the multiple new ways in which social and material relations are entangled together. Law (2002)’s approach finds that objects are an effect of stable arrays or networks of relations, but he does not examine the possibilities of space and objects that can transform themselves into the new relationships. By contrast, the analysis of fluid objects (Lash and Urry 1994; Urry 2000b) suggests that un- or de-formed objects in fluid space are not always failing networks and they help make what we call society with their performative and integrative capacity. What matters in this approach is not the kind of Simmel’s (1994: 6) “will to connection,” by which he means a social action generated by a human as the starting-point to connect up the world, but the kind of constitutive agentic effects of materials, within which the networks of sociality and materiality are entangled.

Cross-fertilizations among various “new materialisms”—in the anthropology and geography of material culture, in science and technology studies, and in the new sociologies of consumption and risk culture, to name a few— have firstly focused on the social life of things and the expressive, retroactive, or “interpellating” effects which they have on human activity, reinvigorating and altering the terms of classical dualisms of idealism and materialism, realism and constructivism, agency and structure, or essentialism and difference. But there has also emerged perplexing confusion, which juxtaposes the thing-ification of human actions and discourses to the personification or spiritualization of things. The vocabularies of reification and fetishism have emerged to criticize wrong paths of materialism: reification refers to the unwarranted transposition of human relations, processes, actions and concepts into impersonal or nonhuman objects; while fetishism can be seen as the reverse process of the personification and “agent-ification” of material objects, which are thought to be possessed by spiritual or supernatural forces and command a unique reverence as a result of this magical

attribution.

The category of human practice offers a possible starting point for overcoming these theoretical pitfalls; and the conception of performativity distances itself from rational discursive models to move closer to emotional and corporeal modes of experience. As a reinvigorated tradition in the sociology of the body (Schilling 1993) has variously pointed out, the immediacy and materiality of the human body may identify the “missing link” and act as the most proximate ontological mediator between idealism and the “naked” materialism of things. Canguilhem (1992)’s “organology” is also, in his own way, a materialistic interpretation of the world, which explains machine constructions referring to the structures and functions of organisms. He makes use of the vocabulary of molecular biology and thereby completely dissolves theoretical pitfalls of earlier materialism. Without any reifying or fetishizing, he reverses the Cartesian relationship between the machine and the organism.

Canguilhem’s revolutionary account of machines can be seen as phenomenological, and it is Simondon who incorporates Canguilhem with other vitalist thinkers, especially with Bergson, to develop onto-genetical account of, not only machines but any entities (individuals). With Simondon the individual *atom* is replaced by the individual *monad*, which exists unique and independent of each other, yet always capable of entering into new relations with each other to create new entities. To establish this theoretical perspective Simondon criticizes Wiener’s theory of cybernetics arguing that “right from the start, cybernetics has accepted what all theory of technology must refuse: a classification of technological objects conducted by means of established criteria and following genera and species.” Simondon aims to overcome this shortcoming of cybernetics by developing a theory of individuation that sees an entity, an individual, as in a metastable equilibrium and always on the process of transductive individuation. But Simondon does not provide a sufficient account on the matter of the process of “technical” individuation. It is clear that his notion of the individual designates not only a human subject but collectives (groups as well as society), things, and technology, and any entity in the world, but Simondon does not explicitly acknowledge the role and effect of technical individuation. In his three successive, though not complete, phase of the entity—pre-individual, individual, and trans-individual—technology can be seen as indeed being incorporated into the process of individuation, in an eternal return of the trans-individual to the pre-individual stage where the trans-individual becomes once again one of the conflicting elements for the

transductive process of individuation. But technology is, in this process, rather a supporter or a marker of the ever-returning trans-individual, far from being one of the most crucial, conflicting forces of the process. Simondon does not pay close attention to how technology *transduces* the psychic and the collective individuation in the process and how the ongoing psychic and collective individuations *transduce* technology.

Stiegler (2007) expands Simondon's theory to make his own argument on this technical and scientific process of individuation. He sees that, as forming a transductive relation, the affect as psychic individuation socializes itself always already into collective individuation, and then transforms itself into knowledge, that is, both science and techniques. Stiegler considers the advent of machines as a stage in the process of "grammatisation," the process whereby the flux and flow networking our existences become discreet elements. It is similar to Simondon's word of "concretization": for instance writing, as a machine or technology, is a stage in grammatisation, the breaking of the flux of speech into discreet elements. According to Stiegler, since the dawn of the industrial revolution, the process of grammatisation surpassed the sphere of language, and that of logos, while invading the sphere of the body. The machines and apparatuses of reproducibilities of the visible and the audible have appeared on the scene, and it continues with cognitive technologies, in which the grammatisation of all kinds of knowledge in general and the grammatisation of affects lead to the convergence of technologies of matter, information, and living entities.

The grammatisation of technology and the grammatisation of the spectatorship, for Stiegler (2002: 148-56), are two processes in what Simondon calls a "transductive" relation. He explains this relationship taking an example of the technology of image, which he describes as "systematic discretization of movement," or a process of "grammatisation of the visible." According to him, there are three stages in the recent history of the image object: in the nineteenth century the invention of the analogue image, that is, photography; in the twentieth century, the digital image, that is, computer-generated image; and, at the end of the twentieth century, the analogico-digital image, that is, digital photography. Each stage is a part of the grammatisation process by which all the fluxes, through which symbolic as well as existential acts are linked, can be discretised, formalized, and reproduced. In this process, great moments of technical innovation "suspend" a situation which previously appeared stable, and impose a new situation. Analogico-digital technology is one of such moments, which suspends a certain belief that the analogue photograph had within itself. Stiegler argues

that, precisely because manipulation is the essence of the digital photo, it calls into question what Barthes called the “this was” of the photograph.

According to Stiegler’s observation, it can be said that digitization is so far the most radical form of “discretization” in the process of the grammatisation of the visible. In fact an image is always in a way discrete, because to produce and to realize an image, an artist or a filmmaker treats it as discrete elements to be edited and assembled, while the spectator puts this together in imagination as a “continuous” whole. But digitization “opens the possibility of new knowledge of the image,” enabling the spectator to have not only a synthetic but an analytic relation to the image. This means that to view an analogico-digital image is to engage with the technical synthesis involved in the production of the image. A kind of knowledge of the apparatus by the spectator conditions the experience of spectatorship. Therefore, analogico-digital photography possesses a different spirit than previous photographic technology because what the spectator knows about the image is its uncertain relationship to reality. This is similar to the way of grammatisation of language by the alphabetization of writing, which produced changes in the synthesis of language, bringing about the critical and logical spirit. But as every language is always undergoing a process of becoming through the “use” of that language by speakers, grammatical rules can never locate a language beyond the rules invented in the course of linguistic performance. Similarly, the digital image technology institutes increasing possibilities of “analytical” synthesis and manipulation emerging from the technology itself, and there simultaneously emerges the transformation of what is being seen, which has been transduced in-between the technology and the spectator. .

Guattari’s (1992: 16-37) writing of “the subjectivity’s entry into machines” can also be seen as one of the illuminating theorization of the transductive relationship between the human and the machine. He talks of subjectivity as contributing to the fabrication of new “assemblages” of enunciation—individual and collective—with a multitude of machinic system, that is, “collective apparatuses (equipment) of subjectification” for which he takes examples of monastic machines, the neo-platonists, and the Court of Versailles. These apparatuses produce fundamental paths/voices and their criss-crossings are the basis for modes and processes of subjectification. In western societies, according to Guattari, there are firstly path/voices of power over exterior territorialities; secondly, that of knowledge, deterritorialized modes of knowledge about human activities and machines; and thirdly, that of self-reference, the creativity proper

to subjective mutations. His perspective in this argument is, though schizoanalytic, very much in line with Simondon: all these systems are raw material of existence, and are forever entwining in unexpected ways; and they are in a sense equal, tenable, but only to the extent of various consistencies supported by collective systems. The path/voices are thus in a meta-stable equilibrium, in Simondonian sense. The point is that material infrastructures do not directly condition collective subjectivity. The question should be instead how “components” essential for a given set-up take consistency—individuate—in space and time as a function of technical, scientific and artistic transformations.

Guattari illustrates how three fundamental capitalist components over the last thousand years transduced the possibility for singularizing processuality to create the new fundamental point of reference, possibility of fundamental “remapping” or “re-positioning” of subjects. Prior to eighteenth century, it was “the age of European Christianity” with churches and disciplinary grids like guilds and school systems. It worked by step-by-step logic with clock and artisanship; its objects were iron, wind or water mills; and its technologies were mainly breeding of animals and plants. From eighteenth century, “the age of Capitalist deterritorialization of Modes of knowledge and technique” began to displace subjectivity, bringing about disequilibrium between human and tool, and disappearance or eradication of social territorialities. Capital operated as a mode of re-territorialization of human activities and structures; there were biological revolutions like Pasteurization; and the main objects were steel, steam-powered engines, and manipulated time emptied of natural rhythm. Now it is “the age of planetary computerization” in which raw materials are replaced by a multitude of the new assemblages—plastics, silicons, etc. Accordingly, subjectivity has become subject to biological “engineering” or machinic “interpenetration.” Guattari’s reading of the fundamental remapping of subjectivity through time differentiates itself from de Landa’s (2003) writing of materialist history of societies. As a new synthesis of sociobiology and complexity theory, de Landa’s achievement can be seen as a fine example of object-centered ontology; but it seems rather more of a physical reduction, which tends to leave aside the questions about irreducible particularities of human practice and societies, than providing a viable explanation of interactions among humans, culture, language, and technology, which always have “left-overs” or “excesses” that do not belong to physical laws.

The arguments made by Stiegler and Guattari invoke the biological term of *symbio-genesis*, which should be distinguished from *symbio-sis*. Symbiogenesis

embraces never-ending radical becomings, even the ones by accidental encounters that break the boundary of self-preserving auto-poiesis. In comparison, symbiosis means couplings or interminglings that imply purposiveness and self-preservation, even in the cases of across-species, and however revolutionary are their results. In this sense, Manovich (2006)'s influential argument of "deep remixability" of digital media can be seen as a tale of symbiosis, or, that of symbiogenesis in a *closed*, specific system of digital media. It is because Manovich appropriates Licklider (2003)'s idea that "in the anticipated symbiotic partnership, men will set the goals, formulate the hypotheses, determine the criteria, and perform the evaluations; computing machines will do the routinizable work that must be done to prepare the way for insights and decisions in technical and scientific thinking."

Citing the story of the fig tree, which is pollinated only by the insect *Blastophaga grossorum* to constitute not only a viable but a productive and thriving partnership, Licklider defines symbiosis as "living together in intimate association, or even close union, of two dissimilar organisms." What draws his attention is the picture of dissimilarity and therefore potential supplementation, not co-evolution. His supposition is that computing machines can do readily, well, and rapidly many things that are difficult or impossible for man; and men can do readily and well, though not rapidly, many things that are difficult or impossible for computers. He thinks that men are noisy, narrow-band devices, but their nervous systems have very many parallel and simultaneously active channels. Compared to men, computing machines are very fast and very accurate, but they are constrained to perform only one or a few elementary operations at a time. And, while men are flexible, capable of "programming themselves contingently" on the basis of newly received information, computing machines are single-minded, constrained by their "pre-programming." Men naturally speak redundant languages organized around unitary objects and coherent actions and employing 20 to 60 elementary symbols; but computers "naturally" speak non-redundant languages with only two elementary symbols and have no inherent appreciation either of unitary objects or of coherent actions. Therefore, symbiotic relationship for Licklider means "cooperation" or successful integration of positive characteristics of men and computers; men are tool-maker and -user while machines are artifacts to serve for men. There are no interminglings between humans and technologies in fundamental levels of their becomings. With his underlying focus on the close "control" and purposiveness, Licklider remains positivistic, and the same applies to Manovich because, as he writes

from the standpoint of software design rather than that of human's creative tooling of it, what he argues for is in the end possibilities of an instrumental serviceability than of an openness towards transversal becoming.

To recall Leroi-Gourhan (1993) enables us to recognize that technology evolves in a far wider context than human's intentionality. It was as early as in 1940s that he talked of the case of locomotive, which evolved from wheels. He emphasizes that the underlying principles of wheels were spread throughout twenty applications and they had been known for many centuries. The point is that it evolved "spontaneously." He compares construction of tools to the movement of amoeba, which extends substances out beyond its mass so that it might seize and capture an object it wishes to digest. He famously declares that "We witness an act of *touch* or *contact* in almost every technological process." The emergence, caused by this spontaneous act of touch or contact, is what creates diversity and is based on a play of forces and forms that consists what Margulis (1998: 5) calls the non-negotiable requisite for different kinds of the living on this planet for billions of years. Deleuze's (1988b: 140) notion of "fini-illimité" (unlimited-finite) is not comprehensive enough to express its full potential. Deleuze argues that, instead of the previous two "force-forms," which means the "infinity" and the "perfection" in the classical times and the "finitude" in modern times, now a new play of forces and forms, the "unlimited-finite" establishes a field of life, labor, and language as beings have neither a perfected form nor an essential opacity. He speaks of DNA as the best example of this player on the premise that an infinity of beings can be and has arisen from the four bases out of which DNA is constituted. He seems based on Jacob's (1982: 39) observation that a limited amount of genetic information in the germ line produces an enormous number of protein structures, and as such nature operates to create diversity by endlessly combining bits and pieces. This DNA-based account of the play of forces and forms for living organisms is not fully onto-genetic, because of its phyletic limitation. The activity of living organisms or things, including technologies, for their evolution—or individuation in Simondon's word—does not merely comprise selection and elimination inside the wall of species. Convergence, trans-coding, and even co-existence with enemy play a fundamental role. Though symbiosis generates novelty, it is symbiogenesis that makes complex entity (Margulis 1998: 9).

The subjectivity of a digital medium is a "crowd" and its genes are not necessarily in the nucleus, to borrow from Margulis (1998: 33). As an individual, it is

always in temporary metastable state, a reactive instability, and is ready for further transformations. The path of the evolution of digital media tells a remarkable story of symbiogenesis; just as physical *contact* and *hunger* have been pre-requisites for the living on this planet since immemorial times, digital media have shown insatiable appetite for parasiting on the possibilities of mediation all across other media, to create an unprecedented fluid entity. Incorporated within a common software environment, various media—the telephone, portable music player, camera, and computer (with its functions of e-mail, surfing, and memopad, for example), and so on—have turned into a single medium, the mobile phone. What have been mixed and reborn are not only the material qualities of different technologies and their different cultural characteristics, but also their fundamental working methods, techniques, and assumptions. Bolter and Grusin’s conception of remediation is not sufficient to describe this new fusion. The mobile phone does not simply remediate particular media; instead, it *blends* and *fuses* all possibilities at hand from other media.

This liquidizing hybridization is only possible with digital technology, which translates media techniques into algorithms, turns them into digital data, stores them in compatible file formats, and conversely reads them to enact a certain function. With digital technology evolving from day to day to become even more intricate and sophisticated, the range of communication technologies being combined into the mobile phone is continuously expanding. These technologies interact altogether within a common operational platform, and their physical and aesthetic qualities are remixed, to become a new hybrid. The result is not a collage, nor a juxtaposition; rather, it is a chemical fusion. It is not simply a mechanical sum of all elements that has been incorporated. It is a new parasitic, symbiogenetic interface emerging with its own distinct logic, which calls for a new way of understanding. Furthermore, this new hybrid is “active,” open to any possibilities at hand, responding to queries and experiments. It is simultaneously a set of different media and a system for generating new media tools, and, consequently, new types of media. It is a single new tool which provides us with a wide range of already-existing functions, and it is also a birth-place for the new array of yet-to-come functions.

More than any other communication media, the mobile phone is now arguably the most immanent medium to individuals, and this immanence can be thought of focusing on its three qualities—physical proximity, spacio-temporal immediacy, and technological transparency—which operate in close interrelationships and

enhancements of one another. First of all it is the easiest medium to carry around, and is now what individuals keep closest to their body. This quality of physical proximity, together with the technological achievements in its ubiquity, works as a promise of all-time availability, in other words, spacio-temporal immediacy. And, the two qualities, physical proximity and spacio-temporal immediacy, work hand-in-hand with its third quality—pure functionality—to create even greater immanence. In the mobile phone, there is a minimal trace of hardware. Individuals might well think that it works by itself. The complex logic of digital technology is deliberately packed into its tiny body, and any trace of machinic operation is sacrificed for the sake of technological transparency giving simplicity of use to guarantee an immanence to the user's mind and body. It has become like a part of the individual's body. The mobile phone is prosthetic more than any other communication media.

The mobile phone immanently potentializes the possibilities of everyday life. Its physical immediacy and anytime anywhere connectivity, among others, work for the mobile phone to be a great potentializing medium, one of the most powerful mediator in the individuation process. There is a difference between the possible and the potential, which needs to be attended to (Massumi 2002: 9). Possibility is back-formed from potential's unfolding. But once it is formed, it also effectively feeds in. Being fed back, it prescripts: implicit in the determination of a thing's or body's positionality is a certain set of transformations that can be expected of it by definition. Possibility delineates a region of nominally defining—that is, normative—variation. In comparison, potential is unprescripted. It only feeds forward, unfolding toward the registering of an event. Possibility is a variation *implicit* in what a thing can be said to be when it is “on target”; while potential is the *immanence* of a thing to its still indeterminate variation under way. Implication is a word for structure, while immanence is for process; and they work together for events and the emergence of the new.

Mobile phoning therefore constitutes a dynamic topology of becomings for the medium and the user. Its potential is not the kind of the dynamism of matter in Maturana and Varela (1980) or in de Landa (1992). Their notion is close to autopoiesis, which selects the environment in ways that allow it to self-make as a self-reproducing organism. They do not offer enough the ways of elaborating the potential for the co-evolution of organism and environment because autopoiesis takes disturbances to the organism's equilibrium and homeostasis as destructive. This closure of the organism to information is the main point of Ansell Pearson's (1999: 170-216) argument. What is

important to the understanding of the mobile phone and the users' experience is that their boundaries are caught up in machinic assemblages that involve modes of transversal becoming. Continuity or autopoietic function does exist, but it is as a specific mode of their becoming rather than the whole story. What is of crucial importance is that they must be thought as open to "information." Here information should be understood in terms of the event or chance occurrence arising out of the complexity of open systems—the machine and the user. The process of their individuation is under far-from-equilibrium conditions of meta-stability where micro-states that make up the meta-stability are neither in a linear nor in a deterministic relationship to it. It means that the dynamism and transformability of the machine itself and its relationship with individuals cannot be properly examined with pre-established categories or ideological presuppositions. To look into the concrete, present-centered, and enacted experience would be the most appropriate way to address this new medium and the individuals' life with it.

Chapter 7

Mobile Diaries

There are two interrelated reasons for selecting to work on the topic of the symbiogenetic relationality between mobile phoning and the people in Korea. Firstly, the country has become an interesting "third" space where western popular culture is being mixed with traditional Eastern value system to create a unique, dynamic culture. On top of this, the fact that Korea has been awarded the title of the most broadbanded country in the world by the Organization for Economic Cooperation and Development (OECD) in 2006 illustrates an element of high-end information technology being incorporated into the hybridity, suggesting even more possibilities of symbiogenetic emergence. Closely related to this socio-cultural background, the current state of the penetration of mobile phone technology in Korea is almost saturating; hence the second reason is the number of subscribers itself, which is reported to be ninety-four percent of the whole population (48.6 million), as of 2008. This statistic given by the Korean government does not take into account the number of multi-subscribers, but it nevertheless manifests how widely has the technology been adopted by the population.

Thirty people, divided into two groups, were asked to complete their daily use of the mobile phone for a period of one week during September 2006 and subsequently invited to further in-depth interviews. They were asked to provide detailed accounts of particular points from their diaries and were also encouraged to talk freely about their thoughts and feelings on living with mobile phones: for example, their best or worst moments, their frustrations, or what they regarded as the most important function of the mobile. Through their diaries and open-ended interviews, the respondents showed a wide range of new cultural activities springing up and evolving around their mobile phone uses. This chapter provides stories on these activities identified by each of the respondents' name and designated number, and these first-hand accounts of cultural activities reveal that new kinds of communication, which call for a new theoretical approach, are emerging.

With its promise of permanent connection, the mobile phone enables its user to organize their everyday lives and to manage their relationships at all times. Moreover, this unprecedented promise of anytime, anywhere connection seems to be bringing about much more immanent and affectionate kind of communication than we have seen with other media. The unique material property of the mobile phone encourages new

ways of communicating, and, consequently, new ways of making relationships and new formations of subjectivity. For some of the young, the mobile phone has become not only a machinic device to make a connection to other people, but rather something which is capable of reaching his or her emotional center. For instance, one college student reveals that she is most happy to have her mobile close to her all the time, because she can literally “feel” her boyfriend with it when she is missing him. Considering the number of messages she sends and receives from her boyfriend throughout the day, often over twenty, it is not surprising that she is so attached to her mobile, both physically and emotionally. When she is talking or texting on her mobile, her mind and body are not separable; her “mindbody” is being engaged immanently in the occasion and the machine.

Not only its promise of always-in-touch, but the mobile phone’s so-called “accessory functions”—for example, watch, camera, calendar, morning call, alarm, phonebook, calculator, and schedule management—have also become very helpful and indispensable in most of the respondents’ everyday lives, claiming a more and more important part of their daily experiences. For those who are making the most of the various functions of their mobiles, the mobile phone is not simply a “phone” to make and receive calls; it has evolved into something else and this evolution is opening a new horizon for their everyday experience. Four people even say that the best and the most important aspect about having a mobile is the wake-up call, phonebook, schedule management, and alarm, rather than talking or texting.

Nevertheless, there still survives the mobile phone’s original merit. As for “the best moment with a mobile,” there is still a big and strong advantage of having the mobile in an emergency. Twelve people say that the availability of making an instant connection while in an emergency has given them the best moment with their mobiles. The phonebook with many contacts and group-messaging to them is also found to be the most memorable occasion for several of them. Twenty-six out of thirty respondents regard “talk” and “text” as the most important function of their mobile phones. Interestingly, the younger they are, the more they think texting is more important than calling. Eight out of ten among those in their twenties respond that texting is the single most important function they use—they seldom make calls; while only one out of twenty members of the elder group thinks that texting is the most important. For most people in their thirties, calling and texting are equally important. But it seems fair to see that talk function is slightly more important than texting for the elder group, considering

the fact that six of them say talk function is the single most important function they use.

The camera function, regarded as auxiliary at the beginning, now provides the individuals with various telling daily experiences thanks to the high resolution digital technology. What draws particular attention is the fact that seven people in their thirties reveal that their camera phones often give them their best moments, providing an instant image for future reference, a memory, or just a joy to catch fleeting moments and, more importantly, to share those moments with others at later times. Interestingly, while using their camera phones a lot for various purposes, younger people in their twenties do not give them a huge credit for the picture-taking function, as compared to the older group. It seems that to take a picture with the mobile feels far more natural for the younger generation because their mobile phone experiences mostly date back less than five years, which means that by then almost all mobile phones on the market had cameras. For those in their early twenties a mobile phone with a high-resolution camera is rather taken for granted, so it is not a big thing for them to take a photo anywhere and anytime they want and post it to their personal home pages. Camera phones are allowing them to enjoy unprecedented possibilities of a rich cultural experience.

With new functions being introduced almost every month, mobile phones are more and more transformed into a space for self-expression and self-experimentation. Thanks to the camera phone technology and mobile Internet service, individuals are becoming user-creators, who enjoy creation as much as sharing. As they are so varied, the practice of mobile phoning and the formation of new subjectivities found through this study allow no precise *explanation* or *generalization*. It only seems possible to *describe* them as diligently as possible and it is therefore simply for the sake of clarity that the following descriptions are parted into three sections. For instance the management of relationships and self-expression or self-experimentation with the mobile phone cannot be seen as separate activities in any sense; they are in an ontogenetical continuum, consisting elements for individuation.

7.1. Management of Relationship

7.1.1. Mobile sociality

With short and repetitive calling and texting, the respondents are making, keeping, and controlling their social network. Mobile phoning is an important part of

their life, which is indispensable for managing their relationships; and for their relationships, the mobile phone is a place of habitation, where those relationships are happening and residing. If in the nineteenth century arcades served as architectural phalanstery for the people living in the Industrial Age, as Benjamin (2002; Caygill 1998: 143-48) observed, now densely populated microwaves are serving as a new electro-magnetic phalanstery for the people living in the Information Age. If construction played the role of the subconscious for the people living in the nineteenth century, now what plays the role of the subconscious are invisible short waves. As a material metaphor, electro-magnetic waves are complicated: they are electrical currents, oscillating movements in the air; they are very short and powerful microwaves, traveling only in straight lines; they are also fragile, affected by clouds, or even by rain. As they are very short waves, they need a chain of relay points so as to be able to construct a wireless communication network. To accommodate this purpose, the living space of individuals needs to be divided into “cells,” which have been fragmented in accordance with the volume of traffic of the signals traveling there, and masts need to be planted in those cells to mediate the signals.

In this electro-magnetic field, an environment which has been provided by mobile communication technology, each individual stands for multi-centric nodes of connection, not unlike those masts in each cell. Each node is autonomous, while capable of micro-coordinating its movements with other nodes for a specific end. After every event of connection, each node reverts to its original and individual condition. This pattern is repeated throughout the individual’s everyday life. When the relationships are not mediated by these connections, they are at the risk of alienation, and when they are mediated, they progress toward intimacy. Every single shot of connection serves to intensify even the most ordinary moment of individuals, enabling them to make and manage their relationships with others. Now the mobile is a necessity, whatever that may mean, once an individual becomes a member of a group.

After I started university I realized that the mobile phone is the basic instrument of social communication among all people. We make appointments by mobile, and, though we stick messages on notice boards for meeting times and places, nobody seems to see it. And, very often, we need to change initial arrangements, so we have to rely on our mobiles. (Hwang, 10)

It’s just unacceptable. You run the risk of losing friends if you haven’t got a mobile or simply don’t respond to a mobile call or text. That means you are out of the circle, out-of-time,

out-of-place, ... all of totally unacceptable things. (Bae, 18)

It is unforgivable if you don't carry a mobile. If you don't answer the call when the caller knows you have a mobile, or if you don't return a message, that's unacceptable, too. You will lose your job. (Shin, 29)

Since I got a boyfriend my mobile phone has become an essential part of my daily life. Even more important thing than the fact that I can receive phone calls from him at any time any place, is the sense of satisfaction that I can avoid disapproving comments from my parents. If I get a call from him via our landline home phone, my parents would intercept it, and it is really stressful. Sometimes we call each other more than ten times a day and if my parents knew about that they would go mad. To make sure I get the calls coming in at odd times, like 1 or 2 am, I even set my phone to silent mode and then fall asleep with it in my hand. There have been times when I took those calls, I spoke gibberish and then fell asleep during the call. Can you imagine... I'm still groggy from being woken though the other party is awake. (Kim 3, 16)

I get worried if the phone does not ring for a while. I wonder why I am not getting any calls. (Ahn, 2)

Hwang, Ahn, Bae, college students in their early twenties, and Shin, a salaryman in his thirties, see their mobile phones as indispensable for their social life. For them a mobile is a promise of connection, a constant availability of instant communication. They always keep their mobiles on as they want to be available to the connection at all times. But this possibility ensnares and haunts them. They often make calls and send messages excessively. They are very sensitive to their mobiles' vibration and compelled to check if anything has come in. They check their pockets quite often to make sure it is still there. They are constantly expecting. This always-on possibility can bring disappointments, too, as in Ahn's case. For them a mobile is an artifact for opening themselves up to all the possibilities of the present moment as well as to future possibilities, creating a constant state of anticipation. To expect a call or a text on their mobiles all the time means that they are constantly sending signals to the outer world, in order not to become alienated, in exactly the same way as their mobiles are ceaselessly sending signals to the network, not to be lost.

Densely populated by digital signals in the form of invisible microwaves, the space they are living in can be seen as so-called "smooth space" without any walls. It is the space of cosmopolis, rather than that of global cities. Illuminating contemporary

living space, Conley (2002) states that cosmopolis refers to cities or the world as a city, where inhabitants can assert their differences and negotiate them in a productive and affirmative way. It differs from the homogenizing global city, dominated by the market that silences many of its citizens, as has been discussed critically by Sassen (1991), Scott (1997), and many others. The aesthetic and ethical dimensions in cosmopolis are absent in the purely functional global city. Conley begins with the ethical dimension of cosmopolis, seeing that the cosmopolis implies mutual tolerance and understanding, by which he means that arriving humans have to be given rights, but they also bear the responsibility of acceding to the status of cosmopolites in turn. For example, they have to change some of their customs and abide by the laws of the hosts and, in turn, those laws also have to be modified to accommodate the new arrivals. He makes a point similar to what Kristeva (1994: 183) calls “double transformation”—the dynamic of continuing, non-violent transformations. In this dynamic, it is important to “think toward the horizon”; to alter one’s perceptions and to invent new “smooth spaces” instead of building walls. Conley rightly points out that cosmopolis is a mobile term, with all its physical and electronical movements. If we remind that wired communication with powerful centers has operated hand-in-hand with global cities, wireless communication with multiple centers would work properly for the cosmopolis. The creation and practice of cosmopolis are an ever-evolving process, which needs continuous negotiations. While globalism mistakenly attempts to reduce everything to a common denominator—one world culture, a cosmopolis can be thought of as a net or a rhizome (Deleuze and Guattari 1987).

As more and more possibilities of digital communication technology are being incorporated into mobile phones, individuals’ everyday experiences with their mobiles are accordingly proliferating, and in many cases they bring about unexpected consequences. The space is becoming what Guattari (1995) calls *chaosmos*, rather than a cosmopolis, which still implies harmony, order, and continuity. In *chaosmopolis*, individuals make connections to form always temporary and partial assemblages, either in physical or in electronic space. With the material properties of digital fluidity, mobile media create and serve this space very well, bringing about chaotic planes of human practice. But, in part, beneath this chaotic space, there still exists the strong remains of what Koolhaas (1997) sees as a European form. Observing that the city or polis remained relatively stable from Greek and Roman times to the middle of the 20th century, emblemized largely by its European form, he thinks these forms—“grid

structures”—are being made to disappear into function with micro-electronic media. Still the indebtedness of mobile media to the logocentric past does not seem to fade away so soon. Mobile communication technology itself is based on digital technology, which would not be possible at all if it were not for strong belief in the mathematical structure and computability of nature and the human mind. Like a face looking at both the past and the future simultaneously, this complicated characteristic of digital technology constitutes another defining element of mobile communication media.

The practice of mobile phoning in chaosmopolis is rhizomic, sprouting from various unexpected points, thanks to the mobile phone's immediacy to the individual's needs. It is perhaps the best, unparalleled medium for the management of contingency in chaosmopolitan social relationships. For practical purposes, either in the case of business or private relationships, mobile phoning is adept for different situations. Not only has it become a crucial aid for connecting people, but it also even changes the ways of doing business and making appointments and relationships, in its process of contingency management. Especially for businesspeople, the mobile phone has become an indispensable necessity. And it sometimes serves them in a way of going “far beyond common expectations,” as in the following cases:

I use my mobile for work calls rather than for family matters. I do text a lot. If I think the person I'm calling may not be able to take my call, sending a message is really convenient. I've been using a mobile phone for eight years and it's so cool that now I feel strange when I come to think how I managed everything without it. If I go out without my mobile, I race back to get it. Sometimes I want to leave it but I can't. (Lee 3, 24)

If you find yourself in an amusing situation or you have something private to tell a colleague at work, you can send a message and arrange an illicit rendezvous, without raising anyone else's attention. (Kwon, 27)

Customers always call me on my mobile as they don't know where I'd be at that moment. They also call me on my mobile because, ... , well, how can I put it, the fact that they can get through to my personal mobile seems to make them feel more personally attended to me. Whatever the reason, even when I'm with someone, if my mobile rings, I always answer. I also take a lot of calls from my clients at home. My mobile phone is an extremely important work tool for me. The fact that “You can use it any time any place” is really important to me. (Jeon 2, 20)

I get really frustrated and panicky if I go to a region where my mobile can't get a signal. Because I work in selling insurance products I always have my mobile switched on. I'm making myself available to my customers pretty much 24 hours a day. Obviously I'm on my mobile when I'm out and about for work, but even when I'm in my office I tend not to use the office phone but rather my mobile. (Seon, 22)

When you're used to having a mobile and you can't use one, it's really frustrating. I was on a business trip recently and found myself with a big problem. If I left the hotel, it was impossible for my business partners to contact me, and when I needed to call them I had to look for a payphone. It was extremely inconvenient. And I was always anxious when waiting for or going to appointments too. (Kim 1, 11)

I cannot do anything without my mobile phone. Not only when I'm at work but when I'm at home with a landline phone near me, I find myself using my mobile. (Seong, 3)

There are downsides to having a mobile. Now you can't avoid the work calls, and calls from the bank and credit card companies on your holidays and days off. (Kim 1, 11)

Thanks to my Bluetooth hands-free, I make as many calls as I can while driving to work. It is against the law to talk on a mobile when driving, but if you use hands-free it is overlooked. It takes about an hour to my office, and, every morning, setting off from home, I make up a list of people to whom I want to talk. Those calls are really important for me. I, sort of, "manage" my social and personal network through them. It can be about anything. Not only about business, but also on personal matters, or on family occasions, as long as it is a "friendly" issue. As I don't like to have meetings late in the day, or to join a group for a drink at night, it is kind of my own way of keeping people close to me. (Seong, 3)

For the above businesspeople, most of the time their mobiles are regarded as a positive benefit, even though there are also times when they feel they are compelled to answer the phone and thus are tied down and constricted by it. For Jeon and Seon their mobiles are an indispensable aid to their job, which asks them to be responsive to their customers at all times with their mobiles on. They are making themselves available literally 24 hours a day. As long as their mobiles work, they do and can work. They are so deeply attached to their mobiles that it is not strange to see them as part of the artifact and to see the artifact as part of them. This attachment can of course give them an ensnaring and haunting sensation. Lee, Kim, and Seong talk how greatly they are carried away by feelings of insecurity, uncertainty, frustration, and anxiety, if they do

not have their mobiles with them. The feelings are so pressing that, they say, they can't help but rush back to retrieve it. It means that the space of mobile phoning is not all about freedom; it also has a strong element of coercion, or the mechanism of control, as "all time availability means all-time tied-up." The structuring elements are localized—"flattened"—in this "immanentist culture" (Lash 2002: 167).

Being close and immediate to human body, mobile phones often give individuals a moment of instant way-out. Kwon takes pleasure in squeezing out a private moment instantly, while not being detected by anyone around him. His mobile is something which allows him to manage breathing-moments amid a tense working day. It can be said that Kwon is living in a space he constructed with his mobile, together with his working environment. There he always seeks out another connection, another event, over the boundary of his working day. For Kwon both environments run parallel, working together; his space of mobile phoning is not only smooth, but also variegated.

For Seong the borderline between the two environments is not clear. While Kwon enjoys his adventures with his mobile in the office, Seong makes it in a different place, in a different way. With his mobile Seong makes use of his personal moment to manage his business relationships. He reveals that, as his job is headhunting, making and keeping a very good relationship with relevant groups of people is crucial. He thinks making calls via the landline is far from ideal and often ineffective. He openly admits that he is trying to make the most of "personal" appeal, which he regards as the mobile's main advantage. It is because his business is now so competitive that simply being good at his work is not enough, which means that he has to develop a strong relationship with people as well. Through his own experience, he believes the mobile is perfect for a personal appeal, as he always gets very positive responses. He tries to make calls efficiently, so his conversations are rather short; they are mostly bits and pieces of personal matters, business information, or about family occasions on either side. These short but repetitive contacts, Seong believes, are what connect him to the people most important to his job. The contacts take place very frequently, and they are very friendly and intimate; but, as Seong admits, what emerges as a result is a relationship based on "informational" connections and "catching up," rather than something which involves strong and long-lasting ties or proximity.

It is a relationship nurtured by intense, but ephemeral encounters, and there emerges an immediate, disembedded intersubjectivity. For Wittel (2001) this is one of the main characteristics of what he calls "network sociality," which stands counterposed

to a community-based sociality. He sees that a community-based sociality entails stability, coherence, embeddedness, and belonging. It is a “narrational” social relation, based on mutual experience and common history characterized by “duration.” Network sociality, in contrast, consists of fleeting and transient, yet iterative social relations. According to Wittel the social bond at work in network sociality is not bureaucratic, but informational. Created on a project-by-project basis, by the movement of ideas, network sociality establishes ever temporary standards and protocols. It constantly produces and protects proprietary information. And it is also characterized by a combination of work and play, not a separation of the two. Wittel thinks that this new sociality is constructed on the grounds of communication and transportation technology, and mobile communication technology is now taking a great part in creating and pushing even further the characteristics of network sociality.

At any time and from anywhere mobile phones allow individuals to exchange immediate data, creating dynamics for rhizomic interactions. And the individuals manage contingencies, which arise all the time, by the events of those movements. Rhizomic events never arise without connections. In a mobile network an individual exists as a number or a name in the machine’s contact list, or even a shorter pre-given code in the list of speed-dialing. Mostly the size of each individual’s mobile network has been found to be rather small, five people in the smallest case and twenty in the largest. But these relationships are very close and intense, even though they are not “enduring” or “narrational.” To manage these relationships, which are central and crucial to them, respondents endlessly exchange small bits of their everyday life. Through this sharing, it has been revealed, they are endeavoring to enhance or intensify their already-existing relationships, rather than to explore new ones. In these intimate and repetitive communications, interestingly, mobile texting is playing a great part. And, as it will be treated later, the practice of mobile texting brings about a new way of emanating subjectivity, which leads to a new subject formulation.

Beginning a day with texting “I got up” or “good morning” to the people close to them, seven out of ten twenty-somethings and eleven out of twenty thirty-somethings continuously give and take calls and messages all day. Sometimes they send or receive caring texts via group-messaging. Quite often these intense communications occur in a very short time span, for example, twelve texts in twenty-five minutes, or six calls in ten minutes. Not for urgent matters at all, in most cases, they are for sharing very tiny bits of their life—feelings, affections, stories, fights, soothings, and appeasements.

If I have somebody coming up in mind, I begin with texting “where r you,” and, upon receiving a reply, I plunge into long, and, quite often, numerous successive calls or messagings. I also make the best use of D-day function, which is a schedule alarm for special occasions—birthdays, anniversaries, or for anything I don’t want to forget for the people close to me. (Jeon 1, 13)

When I receive a simple message from a friend like “Have a nice day!” it really cheers me up. It’s quite a different feeling from getting an email or hearing a voice. (Min, 21)

I don’t think there is anything quite like a texting for sending an idea just as you’ve thought of it, right away, in any situation. Letters and e-mails aren’t as instant as text messages. You need to sit down, switch on the computer.... (Kim 1, 11)

At times texting is a really handy tool. Amongst ourselves, we use simple words and pictures to communicate. We reply quick, too. E-mail doesn’t even compare; it’s so quick and convenient: in particular, when you have a simple question to ask, when you need an instant reply wherever and whatever the other party is doing, and when you need to send vital information “right now” or for private information. Once, a friend of mine was going to the countryside and asked me for directions, and I made a mistake, giving her the wrong information. As soon as I realized, I sent her another text and she was able to change her route and head the right way. She reached her destination safely, without having to tell anyone else in the car that she had been going the wrong way. (Yoon 1, 7)

I like to call my boyfriend very late, when I feel like it, and ask him to sing a song for me. I am most happy hearing it. My mobile is something which connects us two. He always cares for me; after we part at night I always get a message from him. ... Well, it is like “Great being with you,” “The noodles were horrible, never again,” or simply “text me when you get home safely.” (Jeon 1, 13)

I mostly use text messages to ask and see how my friends are doing. Sending and receiving texts – it’s different from speaking on the phone, isn’t it? In particular I think emoticons are fun so I use them a lot in messages. These days I hardly ever e-mail. I simply send information by text messages. For longer messages I just call. If I didn’t have my mobile I would probably e-mail a lot more. (Park 3, 25)

Mobile texts serve effectively for informal personal relationships. Being instant

and handy, they make individuals feel convenient, as well as making them feel special and pleasant. Emails, once regarded as the fastest and the most efficient way of personal communication, are giving way to mobile messages, as Kim, Yoon, and Park reveal. A still more interesting fact found in mobile messaging is that the messages on those tiny screens can also be very powerful for eudemonic purposes. In the above cases, mobile messages are sources of pleasure, happiness, and affections. Jeon and Min say that they like caring, affectionate messages very much. Such messages not only create a feeling of “co-presence,” but also a far deeper rapport or empathy. As Park reveals, emoticons in particular play an important role in creating messages of affection or for fun: they not only offer the non-verbal cues that typically pepper face-to-face conversation, filling the gap between mobile texting and face-to-face communication; but also replace a word or even a whole sentence, enabling sender as well as receiver to save time and to play with.

Material qualities of mobile messaging allow individuals to be able to communicate in a way unprecedented, combining the informality of oral communication with the reflectiveness of writing. Mobile messaging constructs a totally new environment for the individuals involved. It is a new thing; the saying has been fused with the said. The act of saying something and the content of what is being said are combined to form a new whole, revealing much more about a person, and the new whole is something totally different from the act of saying or the content of the said. This conflation opens up a new possibility of the way people make relationships with each other and the way of subjectivity formation. Mobile phones become a medium for the extension and exploration of new subjectivities outside the constraints of everyday face-to-face life. For example, to text something what they would not normally say in a face-to-face encounter implies a new way of relating to others, as well as opening up a certain area of inner-subjective reflection. New and radical subjectivity becomes possible, and, accordingly, a new possibility of relationships arises, and again, new networks of intimacy enable the creation of new forms of subjectivity, which have been fused with mobile communication technology.

Messages are very important to me. There are many times when it's better to send a message rather than to talk. There are occasions you can imagine the person to whom you want to call is busy at that particular moment. Especially in those cases messagings are really cool. You simply send a message, and they can send a reply or give you a call back when they are available ... messages are convenient for both sides, I think. I manage an accessory shop, and I text a lot to my customers. Well, basically, to give them product information, and to keep them

in touch for more intimate and personal relationships, rather than commercial. (Yang, 17)

Whichever way you think about it, mobile texting is the greatest thing. I very often send a short greetings message to my clients early in the morning, such as “i wish you have a very nice day” or “it’s getting colder so take care not to catch cold”... that type of thing. I also send such messages to my friends and family members. Sending messages to my clients and family members on their birthdays and anniversaries is also something I always try not to forget. To receive a message on your special day, isn’t it meaningful? (Jeon 2, 20)

Yang, who manages an accessory shop, and Jeon, an insurance salesman, show a clear preference for mobile texting to calling. They like to try a very personal and emotional approach to their customers through mobile messages, similar to the case of Seong, a headhunter, who makes the most of his time driving to work trying to make as many calls as he can. Though Yang and Jeon prefer texting while Seong likes to talk, what they aspire to in their mobile communication environment is not so different. Very similar to Seong, Yang and Jeon’s topics are varied: they include not only up-to-date information about their products, but congratulations on birthdays and anniversaries, best wishes for the children’s school exams, tips for cooking or diet, essential information for driving a car in extremely hot or cold days, and so on. They also make the most of group messaging. Jeon and Yang agree to emphasize that their mobile phones, especially mobile textings are tremendously important for their business, and they “believe” a mobile message has far greater effect and power on their customers than a talk. In fact, when questioned how it works, six out of ten respondents say that it is very “touching” to receive an affectionate message on their mobiles from salespeople. Moreover, Jeon goes one step further, utilizing mobile social network service (SNS), which is a mobile version of a blog hosting service on the Internet. He manages his home page there, and encourages his clients to join it. It has become an essential part of his everyday life. He exchanges messages and photos with his clients there, while uploading various contents— cartoons, photos, nice phrases from a book he recently read, and virtually anything he has made and finds interesting.

7.1.2. Immanent messagings

Being short, repetitive, and often somewhat detail-obsessed, mobile calls and texts frequently go deeply emotional and affectionate. Though practical topics still occupy an important part of mobile calling and texting, emotional and affectionate

conversations and messages are found to be increasingly claiming a major part of mobile communication. The motivations for affectionate and emotional messages seem rather immediate, immanent, and unconscious, sprung out of technological possibilities of mobile phoning and vicissitudes and perversions of everyday life. For the people working to a tight time line, and experiencing continuous changes and problems affecting their everyday situation, a mobile phone, being always present, seems allowing them an immediate way out, even without them realizing it.

I don't think there is anything quite like texts for sending ideas just as you've thought of them, right away, in any situation. When it rains, or the autumn leaves are falling, even before I think of it I get my phone out and am writing "My dear friend, it's so lovely, I miss you." Letters and e-mails aren't as instant as this. You need to sit down, switch on the computer Texts are not that expensive either. But you've got to get the knack of sending an understandable message in one go. If you have too many characters in it, the message automatically goes in two, so you have to try not to use spaces but link everything together. That's why I use emoticons a lot, too. There are times when my text bill is higher than my call bill. I think others use text messages a lot too. I get replies to about seventy percent of my texts. Last year I got less than half. (Kim 2, 30)

Last Sunday I went hiking. It was magnificent. All the green leaves are turning yellow or red. Being dumbfounded, I was sitting on the top of the mountain and, all of a sudden, I got my phone out of my pocket and began to send a message to my girlfriend. I sent five messages in a row because I couldn't fit everything I wanted to say into one. (Seong, 3)

Kim and Seong show that their messages can hardly be seen any "re"-presentation of their thought or feeling. It is something like what Deleuze (1994; 2002) calls a-subjective current of consciousness or immediate data, which is in opposition to everything that constitutes the world of *the* subject who thinks and operates the machine, or the machine itself. It is something "in-between" the subject and the object, being wild and immanent. Without struggling with words and sentences to "re"-present their ideas or feelings, Kim and Seong simply hit the keys and let it go. If we follow Deleuze (1994) to see that sensation is only a "break" in the current of human consciousness, these immanent moments of sensation can be seen as constituting the passage from one to the other as "becoming." In this way material qualities of mobile phoning engender ever evolving subjectivity around the environment created by mobile communication technology and the individual's interaction with it.

I enjoy mobile messaging whenever I like. Even while in class, without seeing keypads. I often send them over a hundred a day. Most of them are to my friends... to my girlfriend, ... and, of course, one or two a day is to my Mom. On what? Well, nothing important, really. We just text to each other on whatever we're up to, whenever we like. (Kim 4, 6)

It can be about anything. Something like "It's raining, my new trainers got wet, I don't like it," or "What's the exam schedule?" or "Have you seen Kim today? Check it out, he's wearing a really weird green jacket," or "Oh, this class is boring, it's killing me, what about you?" We often go crazy, sending messages with no meaning at all, cooking up weird letters, but we make sense of it anyway, as we please, and send back replies. It's fun. I do text a lot. (Ahn, 2)

Residing in-between the subject and the object, their immanent messagings also seem to release a certain kind of inner power of the subject. The messages from Ahn and Kim do not seem belong to any existing grammar, and their practices escape from any conventional thought of sending a "message." It can be seen as mindless currents of consciousness. Even though the messagings are fragmentary, they resonate nonetheless, making the event powerful. Though they are bitty, messages from Kim and Ahn are acknowledged by the other party in an instant, in most cases, and accompany responses in a similar fashion. During this traffic there emerges a new relatedness between not only two parties engaging in mobile phoning but also between them and their mobiles. Their fragmentary events are enveloped in a "plane," in the terms of Deleuze (1994: 35-60), and these seemingly chaotic planes of immanent messagings consist radical empiricism. They superimpose themselves in a stratigraphic order. It is also a topological order, which consists of what Serres (1995) sees as tales of the land; wild, forested, labyrinthine tales of passage through catastrophe and bifurcations. Events of immanent messagings are fragmentary wholes, which are not aligned with one another like pieces of a jigsaw puzzle. But they resonate nonetheless, creating a whole, even though their edges do not match up. The immanent messagings, described by Kim and Seong, are events of virtuality if the word "virtual" does not mean something that lacks reality, but refers to something that enters into a process of actualization by following the plane that gives it its own reality. They are, therefore, the events of singularity, which actualize themselves in subjects and objects in all moments that those subject and objects pass through.

Immanent messagings, which populate and freshen up those interviewees'

everyday lives, are intensive features of their experience. They are immediate and fluctuating events, which pave, occupy, or populate the plane bit by bit, if we follow Deleuze (2002: 25-33). Every bit of those events does not measure the plane out, split it up, or break up its continuity or integrity, because the plane of immanence is the indivisible milieu in which events are distributed and held together. Events secure the populating of the plane on an always renewed and variable curve; whereas the plane of immanence secures the events' linkages with ever increasing connections. Intuitive and fractal in nature, they are movements and directions that situate and stabilize the subjects in the relationships with others. Those events also imply a sort of groping experimentation, precisely because the plane, which envelops the event, is clearly not a program, design, end, or means. The events of immanent messagings seem to be infinite movements caught within each other, each folded in the others, in an immediate, perpetual, and instantaneous exchange. In those movements the return of one event instantaneously relaunches another in such a way that the plane of immanence is ceaselessly being woven. It is their fractal nature which makes such movements always different from one another. Each of those movements is always singular, being itself a distinct variation. There are varied movements and planes of immanence that succeed and contest with each other.

Immanent, immediate messagings are chaotic. Here chaos is characterized less by the absence of structure than by the infinite speed with which they take shape and vanish. It seems impossible to make a connection between them. But it is not an inert or stationary state, nor is it a chance mixture. The important point is that, by making a section of chaos, immanent and immediate messagings require creativity, and, in doing so, call for a radical empiricism, as it is presenting only movements of events. No one plane of mobile phoning could encompass all the chaotic events. Each plane has its own way of constructing immanence; therefore every plane is a One-All: it is not partial, but distributive—it is an “each.” The planes of mobile phoning are “interleaved,” to borrow from Deleuze (2002: 25-32), because what vary is not just the planes, but also the way in which they are distributed. It is not possible to say that one plane is “better” than another or that it does or does not answer to the requirements of society or individuals. The planes of mobile phoning concern a matter of becoming; there coexist events, distributed in a stratigraphic order, escaping every possibility of deterministic explanation and totalization.

I'm kind of person who moves mostly between work and home, and is always running out of time. So I send texts to my wife, whenever I can squeeze a moment out of my hectic day. She works too, so we often send messages like "Let's go home together." Funnily enough, I sometimes send messages like "I miss you" or "I love you" whilst working. I just feel like it. It's a bit much to call and say it on the phone, isn't it? On top of that, we live together so we're used to hearing each other's voices. Messages are different, though, don't you think? Seeing the message on the screen of your mobile is special. It is quite something for me as well when I hit the letters without realizing what I am doing. (Lee 2, 23)

For Lee his mobile flexes its muscle as a material-semiotic object, which gives keen pleasure through different sensory and kinesthetic modalities. His message is not a speaking mind, but a speaking mind fused with a body, or rather, speaking body with all its material properties and their movements. What seems interesting here is the interaction between his mobile and its materiality; Lee's immersion in an imaginative realm and delight in the physical world; and the underlying regularities of verbal expression and the free-form of natural language. Being small and always present, his mobile's physical proximity to him seems to engender greater intimacy for him, both mentally and physically. Through his message he pours out what he does not "say" in other communication media environment, and he is delighted to feel something special while hitting the keys in, and seeing the messages on the screen. It is a new, different kind of sensory pleasure from anything he has had with other communication media. It is also an outcome of a creative play among conflicting elements; the free-flowing currents to release his inner power, the requirements of a linguistic form, and the constraints from the limited space of his mobile. The event of Lee's immanent messaging is enabled by this complicated environment, generated by him, his mobile and its material properties, together with the interactions among all of them. Every bit of the event lets out an immediate data, which enters into a process of actualization, to situate and stabilize him in the relationships to his mobile and to his wife. It constitutes an intensive feature of his everyday life.

The vibrant new field of mobile textuality seems to be central here, forging a robust and nuanced account of how new material properties of mobile phoning give rise to unprecedented environment for human relationships. The transfer of materialities takes place among the mobile, a network of the mobiles, their material properties and the individuals who use it. This traffic is becoming increasingly important as the individuals are seamlessly integrated with the technology which actually takes care of

their everyday matters from the simple act of making a connection on the move to the releasing of their inner desire in unprecedented ways. Mobile phoning is therefore a space in which transfers of senses take place, and in the process it generates an environment where its physical properties and usages structure our interactions with it in ways obvious and subtle. To change a communication medium is to transform the context and circumstances for interacting with its material properties, which inevitably changes the way of making a connection as well. To change the physical form of a communication medium is thus not merely to change the physical act of communication but profoundly to transform the way of structuring the relation of an individual to others and to the world. The possibility of this transformation is especially potent when the medium reflexively interacts with the individual involved, and, interestingly enough, along the way of the reflexive interactions there can arise unexpected loss and transformation. Lee's case shows that, the mobile phone, which has been introduced to the arena of human practice as a tool for managing emergencies among police officers, has now been stripped off its original purpose. The mobile phone has turned into a medium which allows an individual to liberate inner desire.

Haraway's conceptions of symbiosis and diffraction (1991; 1997) can be borrowed to understand this phenomenon. Seeing that an organism in reality is not exclusively concerned with survival, Haraway enables a break from the notion that all organic life is geared to autopoiesis. She argues for a new logic of life, which accompanies symbiosis and diffraction. For Haraway diffraction actually entails a loss of the centripetal motivation for survival and symbiosis is a trans-genic process by which two different genetic types merge to constitute a new one, like a cyborg. It is related to the mutual interdependence between two distinct species, and the relation of parasitism, and the association rather than elimination, as in the case of Darwin's evolutionist concept of natural selection. Rather than relying on discrete genomes entering into combat to settle the question of who is the fittest for survival, the evolutionary patterns of symbiosis entail much greater levels of complexity, volatility and transgression, in which information processing is not a matter of elimination and selection, but of convergence and transcoding (Ansell Pearson 1997: 123-50). Moreover, there could be different intensities of symbiosis – varying from complete synthesis to far more modest forms of nesting, interaction, and cooperation, and even to the “failed” symbioses, like infections, disease, or death. For example, whereas the chimpanzee and HIV coexist, other primates who have been infected by HIV could develop AIDS, and

in most case lose their lives. For Haraway, this is a historic event for us to witness the ascendance of symbiosis and diffraction as a new logic of life, as this shift is primarily due to historical developments in technoscience, war machines and commerce. She maintains that the arrival of intelligent machines has displaced the self-evident centeredness of integrity and authenticity within technological culture, and has enabled us to proceed towards a far less humanist and more playful field of hybridities.

Haraway's historicist postulate, however, is in a different domain from Deleuze and Guattari (1987: 7-21, 36) who believe that the very principle of nomadology has always been symbiotic with the more autopoietic state apparatus. In other words, there have always been symbiotic "assemblages" throughout history, operating through shifting itinerant relationships. In contrast to Haraway, they do not see the diffusion of different technological cultures as a historical phenomenon. They see that humans and technologies are merely the effects of forces – itinerative transformations of energy and matter. Deleuze and Guattari use the notion of "machinic assemblage" to describe the particular constellations of forces that constitute as well as displace transformative practices of becoming. They see that there are no individual statements—self-evident integrity or authenticity—as there are only statement-producing machinic assemblages. Their assemblages are fundamentally libidinal and unconscious and have elements (or multiplicities) of several kinds: "human, social and technical machines, organized modal machines, and molecular machines with their particles of becoming-inhuman; Oedipal-apparatuses and counter-Oedipal apparatuses, variable in aspect and functioning." Therefore, the distinction between closed (autopoietic) and open (symbiotic) technologies does not seem as straightforward as with Haraway's. For Deleuze and Guattari the self-referential (autopoiesis) and the other-referential (symbiosis) are mere vectors, existing in relative dependence. The notion of machinic assemblage allows us to extend to and to embrace all multiplicities, including between-forms and hybrid offsprings. It also enables us to extend the conception of symbiosis beyond Haraway's biopolitical discourse.

The notion of machinic assemblage assumes no territoriality. Its law is not that of *logos*, but *nomos*, which works for Deleuze and Guattari's nomadology. The state apparatus, which emerged in the form of a bounded territoriality, requires a law which we understand in terms of *logos*. Law is thus often seen as a preoccupation of the state apparatus or spatially distributed (fortified) cities, as they need to encode a wider range of forces and techniques such as engineering, policing and military force in order to

maintain their bounded territoriality. Deleuze and Guattari emphasize that, whereas law as *logos* indeed suits the striated spatial organization favored by the state apparatus, nomadology appropriates a different kind of law, that of *nomos*, which follows numerical and distributive modality of “coding.” Law as *logos* is autopoietic; it can deal with the operations of other systems only if they are being translated into the language of law. The *logos* of law is binary, either something is or is not. It attempts to become self-referential, and succeeds in that when law becomes sovereign.

However, the aim of *nomos* is to regulate every flow of whatever matter. *Nomos* itself belongs to no system in particular, but works as a “code” or “cipher” between systems. Its purpose is not to close itself off from any other operating system but to dissimulate itself throughout every aspect of information processing, enabling systems to continue to differentiate themselves while being connected. *Nomos* thus operates on the basis of the translation of assemblages by establishing equivalences between different singularities. The aim of translation is not to make everything the same, as in *logos*, but to enable infinite and continuous differentiation. *Nomos* enables movement and thereby deterritorializes, while *logos* sets up a grid and territorializes domains. For *logos*, risk is primarily defined in terms of a lack of ordering, whereas for *nomos*, risk relates to a lack of mobility and movement, to incommunicability of information flows, and to codes that cannot be decrypted.

Deleuze and Guattari’s argument for machinic assemblage and nomadism should be understood in relation to the conception of rhizomic emergence to be a powerful reference point for the understanding of mobile phoning where material properties of the technology and the user’s subjectivity interpenetrate into each other. They see that nomadism comes from the fissures and cracks in the “disorder” of everyday life, and travels through the cracks in the virtual walls of institutionalised structure that are often called “risks” (or noise) in logocentric modes of organization. The cracks are themselves the points of rhizomic emergence. As Deleuze and Guattari lucidly put it, the principles of the rhizome are those of “connection,” “heterogeneity,” and “multiplicity.” The rhizome also has the “principle of asignifying rupture” because it may be “shattered at a given spot, but will start up again on one of its old lines, or on new lines.” More importantly, the rhizome has principles of “cartography” and “decalcomania,” as it is not a tracing mechanism but a map with “multiple entry points.” Psychoanalysis, for example, is a representative tracing of the subconscious. For Deleuze and Guattari tracing is not a creating a new, it is a representing an old,

following lines that are already there. Mapping, on the other hand, “constructs the unconscious” by orientation “toward an experimentation of contact with the real.” Therefore, addressing a machinic assemblage properly does not mean a tracing but a mapping of its connection, heterogeneity, and multiplicity.

The cases of immanent mobile messagings are manifestations of rhizomic emergence, arising from cracks—various contingent moments in people’s everyday lives. With the messagings, the mobile phone deterritorializes; it does not stay within the boundary of the phone; it dissimulates itself through interactions with the user enabling him or her to reach out beyond the horizon of common expectation, even without them realizing it. The events of immanent messagings constitute multiple entry points to subject formation: each of them is singular and particular; they resist any generalizations.

7.1.3. Amputation, connection, and translation

I use emoticon a lot and like to play with words. I draw and make up letters and characters. It is so dull to write a sentence on your mobile. You’ve got to do something cool with your mobile. Sometimes it is rather fancier to send a cool image than to talk. I even like to use those emoticons and new words while talking with my friends face-to-face. (Park 2, 9)

I love image mail. It is much more expensive than messages, like 30 times, at most. But it is worth it for me. An image can tell you a thousand words, you know. (Hyeon, 15)

I use text messages a lot for pranks. I also make up and use new emoticons in messages. I enjoy it. Especially on friends’ birthdays and at Christmas, I cook up unique images, words, and characters. In return? I get frantic replies back! The funny thing is, sometimes I find them making sense of my icons and characters in a very different way from what I meant. It’s really enjoyable for me to talk about it and to laugh with them. (Lieu, 8)

It is undeniable that the mobile phone is a prosthetic artifact to enhance an individual’s capacity for communication by a technological addition. But, as seen in the above cases, a mobile as prosthesis is not a simple physical extension; it is rather a two-way channel or a conjunction point where the material properties of a mobile phone and an individual interpenetrate into each other. Material properties of mobile phoning, which have been engendered as a result of the mutual interpenetrations, enable Park, Hyeon, and Lieu to transform their capacity of communication. With their inventive

rigor, they show a similar kind of “new productive practices” (Hardt and Negri 2001: 217-18), the force of potential metamorphosis on the plastic and fluid terrain of the new communicative, biological and mechanical technologies. Their material properties of their mobiles permeate their minds and bodies, giving rise to a new practice. Corporeal extension, the Industrial Age notion of the prosthesis does not work any more; their prostheses are now informational, and they are not only “extending,” but also “intensifying” the experiences of mobile phoning. The environment, created by the interpenetration between the technology and its user, is itself not unlike what Deleuze and Guattari (1984: 36-44) call a “machine,” a system of associative breaks, which makes cuts and linkages in material flows to introduce individuals’ desire as a constitutive part of machinic production.

Being untethered from existing order, Park, Hyeon, and Lieu enjoy pushing themselves to the edge. They break conventions, while allowing themselves open to the greater possibilities. For them the mobile as prosthesis is for making an amputation, and, at the same time, for reaching out towards a new connection and filling-in. Through their mobile phoning they exercise their own being cut-off and emptied out, in search of the extension and the event of relay for informational exchanges. As Deleuze and Guattari explain that the machine’s break-cut-slice of the material flux is in fact an associative linking across different registers of material flow and therefore does not fall into incoherence, those seemingly chaotic practices of mobile phoning constitute a part of their everyday life and their subject formations.

As a point where both being cut-off and a relay take place at the same time, the space of mobile phoning is a particular juncture, where translation comes to happen, entailing unexpected consequences. It is not a simple extension of existing elements; it is a writing of the new, and, at the same time, a rewriting of existing relations among individuals, material qualities of their mobile phones, and the interactions occurring in-between. Material properties of mobile phoning cannot be seen as pre-fixed; they arise with the user’s practice and the writing and rewriting of relations are inevitably caught in a complex play. Bits and pieces of mobile phoning and their convulsions are translated through corporeal sensations; very often much of them can be left unexpressed, and inevitably, there can also follow untranslatability. Mobile phoning as prosthesis is thus the event of a relay which involves a passage over the abyss of chance and accident. It works in a constant state of flux, creating conjugations and ramifications all the time. Various unexpected translations are the important part of the

prosthetic connection.

Treating translation as a point where literalness and freedom are united, Benjamin (1969: 69-82) presents us with an elegant description on how it is a creative process in its own right. According to him, a translation touches the original lightly and only at the infinitely small point of the sense, thereupon pursuing its own course according to the laws of fidelity in the freedom of linguistic flux. It is, he continues, just as a tangent touches a circle lightly and at only one point, rather than sticking to the point and setting the law according to which it is to continue on its straight path to infinity. For Benjamin a translation seems rather a new creation, which remains loyal to the original at the least sense, rather than an exact reproduction of it. He regards the point of translation as an opening to a creative play and a greater possibility.

In a slightly different manner from that of Benjamin, Serres (1982b: 71-83) incorporates information theory to see that translation is an act of invention, brought about through combining and mixing varied elements. For Serres translation involves creating convergences and homologies by relating things that were previously different. The act of making “something new,” whether it be a discovery of an object or the formulation of a theory, occurs through the forging of novel associations, almost a kind of bricolage. In this process there can be involved a kind of transformation, in other words, a breaking of fidelity towards the original source. Hence translation can also be a kind of betrayal, treason, according to Serres. Treating translation as a form of communication, Serres thinks patterns of communication as equal mixtures of signal and noise or interference produced in the course of transmission. For him communications are characterized as much by failure as they are by success, as noise plays a formative role in any communication. Serres’ argument is based on a perverse aspect of information theory first identified by Atlan (1974). Atlan criticizes that the scheme of classical information theory places noise or interference in a completely external position, outside the relationship between the sender and the receiver. He argues that, noise, in a sense, is the backdrop against which the communication happens. Further, he insists, this backdrop plays a role, since it is the necessary ground against which the signal stands out as something different. As such, noise is really a part of the relationship between sender and receiver. For the sender, noise will be an obstruction, but for the receiver, it does not always need to be the same—it may have its own informational value. Serres shares this point arguing that noise is a productive component of all information transmission. He maintains that communication is noisy,

as a mixture of messages subject to transformation.

This is also the point where Shannon and Weaver (1963) identify maximum informational value, at the peak of curvilinear function which is midway between the two extremes of equivocation, where noise and signal are equally mixed. In a bell shape with information on the vertical axis and equivocation on the horizontal axis, zero equivocation is a situation of absolute clarity between sender and receiver, thus no information whatsoever, since for such a circumstance to occur there must be absolute identity between the two parties. At the other extreme, maximum possible equivocation, no message can be detected either, under the barrage of interference. There is no information, since nothing can be distinguished from background noise. Serres names the space of translation where transformation takes place as “third space,” which lies in “between.” And he proceeds to give the name “third-instructed” to the one who is able to give up the comforts of disciplinary specialism and risks putting oneself into perpetual translation. Park, Hyeon, and Lieu’s mobile phonings are noisy; they are producing chaotic messages. But they are opening themselves to chance and accident, while breaking up with conventional orders. They are “third-instructed,” to borrow Serres’, who enjoy throwing themselves into the unknown territory of being translated.

There’s nothing funnier than to see people staring at that tiny screen, thinking what to say—or write. You’ve got to just hit the letters in, and send it, that’s it. That’s what you do with your mobile. (Park 3, 25)

My boyfriend sends erratic messages, with no syntax, out of context, almost like a broken poem. It is weird. But, somehow I’ve come to like it. It’s quite an experience. When met in person, he doesn’t look like kind of person who would send those junks. He says to me to feel it, rather than read it. And I am trying that way. It’s quite moving, I’d say. You’ll never know what it is like. (Min, 21)

Why? I don’t know. But we feel something common, very exciting, when we give and take that junk. And it is good to feel we are sharing something really cool. That’s all. We get even more excited when we find each other understanding the same image or icon in totally different ways. I feel embarrassed upon being asked the meaning of my emoticons and weird words. It’s just pointless to ask the reason for it, or meaning of it. (Bae, 18)

“Hitting” the letters in rather than “writing” a message, “feeling” the erratic junks rather than “reading” them, “sharing” something cool rather than simply

“exchanging” messages—these are different forms of communication which have not been expected in the earlier stage of mobile phone technology. What they are doing is a deviation from common expectation, and a stepping forward to a new horizon. In Deleuze and Guattari’s terms (2000: 36-40), what they are doing is detachment-cuts, an occlusion—a clear manifestation of desire to break away from ordinariness. But, precisely because they are also the events of associative linkages, they concern heterogeneous chains to produce a larger flow. They execute cutting and connecting at the same time as productive and constitutive forces. The cuts and the connections, as partial objects and the continuous flux, are confounded in a single event and each event stitches up the individuals and the event together, to constitute a subjectivity for the individuals and the technology.

Erratic mobile messages create visual images that mark the limits of what ordinary sense of reading can discern. If an individual hints at origins far too remote, as in the above cases, the message’s legibility is being pushed to the limit. At this border of legibility, what lies between the individual and the mobile phone is not so much the disjunction. Rather, there emerges a conjunction, in which an individual is being fused with the material properties of mobile technology. In other words, when an individual reads what he or she cannot read, the occluded message displays a trajectory in which the individual becomes part of the circuit to produce meaning out of the noise. Interpolated into the circuit, positioned inside the technology, the individual exercises agency within the context what Hayles (2002: 48) calls “posthuman conjunction,” as it is where the individual’s flesh and the material properties of mobile phoning are bound together. It is a new environment where individuals, mobile phones, and their dynamic interactions are evolving together in complex configurations.

The dynamic interplays among words, nonverbal marks, numbers, and icons work together to constitute the message’s materiality so that they function as a whole. The experimental textuality extends the material properties of mobile phoning and mobilizes them as resources for a new materiality. Its specificity comes from each of particular environments, generated by the user’s performance and the technology. Its effects are achieved through interplays among words, images, numbers, codes, and icons, and their contingent boundaries susceptible to multiple reconfigurations. Multiple pathways and leaky borders are creating hypertextual profusion. Broken and reassembled, the message achieves understanding anyhow, being still allusive and limp rather than coherent. As it is open to multiple pathways of interpretation, the message

forms the midway through which the formation of the subjectivity can be re-directed as coextensive with mobile technology. Just as the message's hybrid articulation does not exist apart from the dynamic interplay among various codes, the individual does not exist apart from the interaction that incorporates him or her into material qualities of the technology to produce an environment from which *a* subject and *a* technology emerge.

Park, Bae, Min and her boyfriend take pleasure in creating and sharing the free-flowing messages and the components' dynamic interplay. Being merged together with mobile technology, their messages are immediate data arising from the cracks, which happen at any time at any point from contingent moments in their everyday circumstances. All the data enters into a process of actualization via multiple pathways, and through this process they situate and stabilize themselves in the relationships to others, and along the way their subject formations take place. This kind of the process of subject formation is lucidly illuminated in Bergson's vitalist philosophy with his seminal conceptions of "duration" and "creative evolution" (1998: 1-7, 29, 46-48). For Bergson our personality changes ceaselessly, being built up each instant with its accumulated experience. Although seemingly identical with one another, our personality never repeats itself in its very depth. With regard to the moments of our life, each of them is thus a kind of creation. By creation, Bergson does not mean a synthesis of given elements because if the elements pre-exist, the synthesis that will be made is virtually given, being only one of the possible arrangements. He sees that, in the domain of life, which he thinks is that of duration, the elements have no real and separate existence; they are manifold mental views of an indivisible process and for that reason there is radical contingency in progress, incommensurability between what goes before and what follows.

Bergson points out that our duration is not merely one instant replacing another, but the continuous progress of the past which swells as it advances and gnaws into the future. In Bergson's philosophy the past is preserved by itself automatically in this process of duration. In its entirety, the past follows us at every instant; all that we have had is there, leaning over the present which is about to join it, pressing against the portals of consciousness that would fain leave it outside. He observes that our cerebral mechanism is arranged just so as to drive back into the unconscious almost the whole of this past, and to admit beyond the threshold only that which can cast light on the present situation or further the action now being prepared, which is, only that which can give useful work. Our past, then, as a whole, is made manifest to us in its "impulse"; it is felt

in the form of tendency. A mental state, as it advances on the road of time, is continually swelling with the duration which it accumulates: it goes on increasing, rolling upon itself. Consciousness cannot go through the same state twice and that is why our duration is irreversible. Even though a human's psychical state may seem to be cut off from those which precede it, and to be disconnected from those which follow, in fact, it stands out against the continuity of a background. For Bergson each of our mental states is born by the fluid mass of our whole psychical existence. Each is only the best illuminated point of a moving zone which comprises all that we feel or think or will, at any given moment. It is this entire zone which in reality makes up our state.

From this point of view, Bergson proceeds to see that all fabrication, however rudimentary, lives on likeness and repetition. There is only *like* reproducing *like* in nature because what is repeated is some aspect that our senses, and especially our intellect, have singled out from reality. He regards that our actions, upon which all the effort of our intellect is directed, can move only among repetitions. Therefore, we do not *think*, but *live* real time. For Bergson what is important is not a solid nucleus, but an indistinct fringe that fades off onto darkness. He criticizes mechanism and finalism in that they agree in taking account only of the bright nucleus shining in the centre. He thinks that, because the nucleus has been formed out of the rest by condensation, the whole must be used in order to grasp the inner movement of life.

Bergson's philosophy of creative evolution provides us with an insightful guide to the understanding of seemingly meaningless and chaotic human practices evolving around mobile phoning. It is clear that the free-flowing text with no syntax does not belong to a solid nucleus of the machine or the user. It can be seen as coming out of an indistinct fringe, to borrow Bergson's term, being born by the interaction between the fluidity of digital mobile communication technology and the whole mass of the individual's existence with the materiality of the technology. Their fabrication, the immediate and impulsive mobile phoning, is in fact a product of driving back into their whole accumulation of experience, as well as an instant initiation of the most serviceable element of them. Moreover, the fabrication endures through what follows it, just the same as through what was before. Their creation is not based on the "exactness," which means a bright, solid essence of their subjectivity and reality; it is based on the "likeness" or approximation of them. Through the repetition of those likenesses, with each of them never being the same, their subjectivities and relationships shoot, grow, and ripen. Each moment is new, and is being added to what was before. For

their subjectivities and relationships, what was before, what is now, and what will be in the future are indivisible. They altogether comprise a whole. Each of their mobile phoning stands out against the whole mass of their existence, which has been incorporated into the material properties of digital mobile communication technology.

7.2. Everyday life with something other than a phone

7.2.1. *Up-momenting*

All respondents agree with the fact that now there is no better way other than mobile phoning when they make and change their appointments. The very best of it is up-dating, or rather, *up-momenting*, as one of the respondents describes. Up-momenting, as it is called, takes place in two ways. One is literally the possibility of making, cancelling, and changing an appointment at all times. With their mobiles always on, it is very common to arrange an immediate meeting, which means to join each other in even a couple of minutes. Moreover, it is very interesting to find that to change or cancel an appointment via a mobile is more forgivable than to do the same via other media. This possibility as well as flexibility is valued as an extremely important and helpful function for all respondents. But some show mixed feelings about it because they think there are far too many alterations in their appointments. They are quite sure that most of the changes would not have been made at all, were it not for mobile phones. They are not sure if their mobiles are helping them to manage contingencies or creating contingencies themselves.

The other type of up-momenting is excessive calling or texting each other to the last minute until they finally join together. For example, even when getting out of the taxi, arriving at the appointed place, they tend to text “I’m here, coming in,” in addition to the earlier messages like “Don’t forget it” “Come on time” “I’ll be a bit late” “I’m in the taxi, in 10 mins, there,” and so on. Sometimes those callings and textings can be as often as 14 times in 15 minutes, as in the following case:

When going for an appointment, I don’t like my friend to wait for me without having calls or messages from me. Well, we are not that patient, enough to wait for somebody with nothing coming in. I do text if I am getting late, or for any changes, definitely, but very often I text simply to fill in the vacuum, while moving, in the subway or in a taxi..., for example:

(15:07) I’m on my way ther

[15:07] o, wher r u
 (15:08) passing teheran road
 [15:08] come quick
 (15:09) ok
 (15:13) it's a bit cold
 [15:14] I know, come quick
 (15: 14) too many cars, getting slow
 [15:15] not rush hour yet
 (15:15) I know, don know why
 (15:17) o, moving, can be ther in 5 mins
 [15:17] come quick
 (15:20) around the corner
 (15:22) here, out of taxi (Chang, 5)

*Times for outgoing calls are in parentheses; while for incoming ones are in brackets.

This kind of up-momenting, Chang says, is small bits of assurance on small bits of anxiousness, rather than something to solve a bigger anxiety. It is also to fill a vacuum, even though it is for a very short while. Without knowing why, Chang and his friend like to call or text each other, rather than to listen to music or to enjoy a mobile game while approaching the arranged place or waiting for the friend to arrive. It would be a too static description to see this excessive messaging as a simple form of “tele-cocooning” (Habuchi 2005: 178-79). Rather, there lies a new sense of temporality beneath this intense chopping up of time and filling it with something. In the sea of information, countless images and texts compete with one another and their parts and sublaterals proliferate, creating incalculable contingency. To make the matter even more complicated, they are always in transition; nothing remains the same. What emerges as a result is a new poiesis of life, which prompts individuals to respond quickly and to perform instant assemblages. It demands an immediacy of subject. Chang and his friend may have wanted to hear “the voice of the body,” even though they are to see each other in minutes. They may have wanted a “synthetic congruence” of here and there, body and voice (text), and, the real and the virtual.

“Up-momenting” also takes place for relationships and everyday matters. For relationships, up-momenting seems to work hand in hand with a contradictory sense of presence/absence, which means a powerful sensation of somebody’s presence while he or she is not present. For everyday matters, making an arrangement for ordinary things plays a very important part in mobile phoning among family members. What time to

come home, what/where/when to eat, where to go this weekend—those are seemingly unimportant topics and matters far from being emergencies. But continuous and repetitive communications on those ordinary matters seem in fact to play a crucial role in family life. It is like up-momenting of their relationships and their very existences. Even for a full-time worker in his thirties, for example, calling and texting his family members comprise about half of his daily mobile phoning.

I feel nervous when I realize that I have not made any calls or not sent any messages to my wife and my daughter that day. I call or text each of them several times a day, except when I am having a madly busy day. Those are mostly very short ones, not so important, really, but anyway I feel I have to do it and I am happy doing it. (Park 1, 28)

Park reveals that most of his calls and texts are not for matters of urgency at all. But he feels like having to make a call or to text his wife and daughter anyway. It is his mobile phone which reminds him of his family, who are not there with him. His mobile provides him with an intense, and therefore, very commanding sense of the presence of his family. This kind of contradictory sense, which is of presence, and, at the same time, of absence, is one of the most powerful material properties of mobile phoning. While deterritorializing, which means, eroding a sense of place, the mobile phone reterritorializes. As Castells (2006: 258) observed that mobile networks are indeed augmenting the significance of the local rather than the global, the mobile phone has become an indispensable tool for managing and enhancing family relationships.

Park adds that he keeps different ringtones for each of his family members, and for different groups of contacts. For him, in that way, different dimensions of relationships are recognized at once, and his responses follow accordingly. In his mobile different ringtones are standing for different modes of existence for individuals or groups. The smooth space of mobile phoning has been differentiated; it has become multiplex. For instance, for the incoming calls from his wife the ringtone is a part of the tune from “What a Wonderful World” by Louis Armstrong; and for those from his daughter it is a part of the melody from “Key of Heart” by Boa, a famous Korean singer. He has spoken to each of them to decide what to choose from their favorite music. In fact in anybody’s mobile phone an individual or a group exists in a different mode; whether it be a name, a number, a collection of photos or images, or a part of a category in “contacts.” Still, to be a powerful mode of existence, a ringtone is the most eloquent of all, because it is very expressive of personal traits, as in Park’s case. The up-

momenting of relationships and their very existences via mobile calls and texts is, for Park and his family, itself a product of material qualities of mobile phoning which they are living on. It feels so natural that they never question it, nor even recognize it. The contradictory sense of presence/absence, which means to feel an all-pervasive sense of the presence of somebody in his or her absence, is never noticed, though it is so compelling that they cannot help but make a call or text each other several times a day.

7.2.2. This is *not* a phone

A mobile phone can be a tool that acts as the hub of one's day, being far more than a swish gadget that makes phone calls whenever and wherever. It has often been proclaimed that the computer would be the ultimate medium because it can incorporate every other medium within itself. As if imitating the computer's omnivorous appetite, or rather, incorporating the computer itself within it, the mobile phone now attempts to swallow up every possible media. And its profound metamorphosis from a "phone" to a far more complicated artifact is also the result of vigorous interactions between its material properties and the individuals' creative tooling and re-tooling of it.

For Yoon, sending or receiving a crucial e-mail without humping a laptop, and opening or amending a document before a presentation is not a problem at all with his new smartphone. On top of that, his new phone, which has a large screen, makes surfing the web less of a strain on his eyes, though the coverage remains a bit patchy and the speed is often far lower than the claimed maximum speed. It also has Bluetooth, a technology of short-wave radio connection, so he always puts on a wireless earset for calls. For him to manage everyday life, those once-called accessory functions are playing a greater part than calling and texting. Among them the most important function for him is, interestingly enough, a wake-up call, which he has set himself, adopting from a piece of his favorite music. As well as getting it for himself, he gives a wake-up call to his girlfriend too, everyday.

There is fast-growing popularity for once-called auxiliary or accessory functions around me. You see, mobile Internet, a built-in camera, alarm, morning call, schedule management, phonebook, world-time clock, stop watch, memo pad, and others are coming new or upgraded with almost every brand-new model. They are there just to be found. The most useful one for me is, in fact, morning call function. I do it for my girlfriend, too. Every morning. She asks me to give her a morning call, saying that my music works far better than hers. Well, believe it or not. (Yoon 2, 26)

Once I get a new phone, I flick through all the features and have a play. I've found that I make most use of the phonebook, and camera functions. Phonebook is tremendously important for me. I have all my contacts there. It would be a disaster if I lost my mobile. I have saved the numbers which I am most frequently calling on to the speed dial buttons. But it is funny that I often forget the speed dial number I have set, and eventually end up with using the phonebook. (Jeon 1, 13)

For Jeon her phonebook is the only and the most comprehensive reservoir of her contacts. Moreover, she reveals that, when in an emergency, just a simple act of scrolling down over the list of contacts from her phonebook provides her with immense emotional comfort, prior to the possibility of asking for practical help. Jeon's mobile allows her to "possess" relationships to others, which she can make use of at a particular moment, whenever and wherever. With her mobile it seems her relationship to other people has turned into a kind of substance. Her relationships have been registered on her mobile phone, and having those registrations in her pocket has become a necessary and indispensable resource for her psychological and practical safety. But, as well as granting her greater and flexible chances to appropriate the relationships, the phonebook on Jeon's mobile phone also seems to subject her to an irreducible relatedness.

I read my fortune from my mobile. It is one of the new services started this year. Well, it says this month would not be so great for me, a bit disappointing, but I don't take it seriously. It is fun, anyway, to be able to read your fortune on this tiny screen, while moving. (Bae, 18)

I used to have a portable CD player and would take it with me all the time, but now that I can download and listen to music on my mobile I don't take my CD player with me any more. CDs are expensive to buy and CD players are too big and bulky. I have to take the phone out with me anyway, so to be able to listen to music on my phone means, I can get the best of both worlds. It's great. (Myoung, 4)

Oh, one major thing in my life that has changed since having a mobile is that I don't wear a wrist watch any more. Unless I particularly need to put it on as an ornament I find I don't need a watch. I don't even need an alarm clock. (Kim 4, 6)

As seen in the above cases, a mobile phone is no longer simply an artifact for "communication" with other people. As more and more functions are incorporated into

a smaller handset, thanks to the ever-upgrading of digital mobile communications technology, a mobile phone provides various means of entertainment and aids to the management of everyday life. The calendar, calculator, stop watch, alarm, and memo pad functions, as well as schedule checking, are found to be very useful for all respondents, for both business and personal purposes. How they make use of those functions vary: as for the memo pad function, for example, from a simple note of an appointment or a bus number, to a long list of what-to-do-next-year or some moving lines from a poem. Some of those memos are later moved to their mobile home pages so that they can be shared among groups. The mobile Internet is found to become more and more popular, and seems quite well settled in the lives of both age groups. Most respondents are well acquainted with its various contents, and expect more to come. They are observing movements from mobile phone makers and service providers. The most popular use of the mobile Internet is for downloading; they get ringtones, wallpapers, games, colorings, sing-a-song practice programs, among which they can buy on-line. They use mobile Internet services in many different ways, too: to search for and book tickets for the movies; to look at tube maps, to find a place from an address, or to find a short-cut to a certain place; for stock market information, the weather forecast, or traffic information. It is more common for respondents in their twenties that the mobile Internet is more for fun than for practical information. They not only take pleasure in downloading varied contents to enjoy or to personalize their mobiles, but they also like to check out their bio-rhythms, fortune-telling, and even how many calories they have taken in that day.

Some have found new, and creative, if not innovative, uses of their mobiles all by themselves and are very happy about it. A college student, Ahn (2), has put the rear side of her mobile to a practical use as a mirror, and finds it very important and useful. For another businessman, Kwon (27), a flash, installed in his mobile for the built-in camera, has been used as an instant torch in the dark. The alarm function, which is commonly used for wake-up calls, also finds a new use. A couple of creative users utilize it so as not to miss their stop when traveling by train, or to wake themselves up on time while taking a nap. They also make use of it not to forget appointments or to remind themselves of something important which has to be done at a particular time, such as taking medication. And, as in Seon's case, this creative tooling of a mobile phone can be extended from the boundary of one's own individual benefit to that of taking care of other people.

I have set the alarm on my mother's mobile phone so that she won't forget to take her medicine for her diabetes. She gets more and more forgetful these days. I am concerned. I regret I can't stay close to her more often, for longer. You see, ... I have my own family to take care of, and I am working, ..., so I got a mobile for her, set my mobile number as speed dial number 1, and set alarms for her medicines. (Seon, 22)

Ahn, Kwon, and Seon agree with the fact that they take great pleasures from using their mobiles, and they especially appreciate the built-in camera function. For them, not a single special occasion or any funny situation goes by without being recorded and subsequently shared on their mobile home pages. They are very fond of capturing transient moments of their everyday life. The availability of taking a picture with a mobile phone has yielded unprecedented promise, and users have been responding to the promise by tooling it in many unprecedented ways. Among them, an interesting case is a full-time housewife, who has been using her mobile to log her daughter's progress in tooth-straightening. She has also been keeping a daily record of her son's changing condition with his atopic dermatitis, as the appointment with his doctor is once a week.

I make two logbooks for each of my children and keep them separately. The idea came to me one day, all of a sudden, just naturally. I thought, well, now I have my mobile on me all the time, and the built-in camera is quite good, why don't I take pictures of my boy, taking medicines for his atopic? I think my son should see his doctor at least every two days, because his condition is changing noticeably. You know, his medication should vary according to the progress of his skin condition. ... To make a logbook is no big thing, really, because I've been using my mobile a lot to take photos of my children. (Cheon, 14)

Everything is just fine if she has a mobile with her, Cheon says. She is a heavy user of the mobile's various functions. Using her mobile, she manages schedules for herself and her two children, checks wider family members' anniversaries, keeps records on the memo pad, and, most of all, takes and saves photos of everything she feels needed. She says that she cannot even think of her life without a mobile, and that what she has been and is doing with its built-in camera would be the best and the most important part of her everyday life.

The camera-phone also works as an invaluable business tool for the business

people. For the case of Kang, who runs 24-hour convenience store, it is a very important daily job for him to take pictures of products, which need additional orders, or have been damaged in transit. He sends the pictures to the supplier. He also sends images of cracks on the floor of his shop to the management office. He says his high-resolution camera-phone becomes even more important when he gets involved with troublesome customers. As his shop remains open day and night, he sometimes experiences problems with drunken customers, especially at night. As they are very likely to deny everything they have committed while they were drunk, it is very important for him to take pictures or to record real-time video of what happened, in order to get compensation, even without the help of the police.

As I run a 24 hour convenience store, I always have my mobile with me, not only when I am out of the shop but also while I'm in the shop. When I am away I need to hear from the store. I feel anxious without it. At times I can't tell whether I control the store or the store controls me. Well, ... whatever. And, having a mobile while I am around the store is no less important than having it while away. In fact it is even more important, I would say. At past I used to call suppliers to make claims and to explain the details of faulty goods over the phone, but it took me ages and there were times someone had to come in to inspect the goods. It was slow, complicated, and sometimes they didn't believe in me. Now as I can use the camera phone to take and send pictures, it's so convenient. The camera phone, together with picture messaging, is perfect for me. How about the nasty, impolite customers at midnight? Having said that, it seems I use my mobile mostly to run my business, rather than for personal things. To be honest, I don't do much of that. Oh, I do make calls to my wife, and my two sons. (Kang, 1)

For Han (12), a businesswoman working in merchandising, her camera phone is also something she keeps ready at all times. On her mobile phone she keeps photos of advertisements which worth noticing, images of new designs, not to mention those of the products which she wants to discuss with her colleagues. She says that she was overjoyed when she first got her mobile camera phone with the most recent technology, as it meant that there would be no need to carry her digital camera and notebook computer any more. If you can get an image of high quality and send it via photo-mailing, she says, it is just stupid to carry a bundle of equipment. And besides, she adds, how small and beautiful those tiny mobile phones are with their amazing camera functions?

Another businesswoman, Yang, who runs an accessory shop, has a similar story.

One of the best things about having a camera phone is being able to photograph things when I'm browsing in shops so that I can look at them later. You see, I run an accessories shop. My mobile is a bit dated—I got it about a year ago, the resolution isn't great but it doesn't matter too much, as long as I can recognize the pictures of the merchandise. To be honest, I have a great digital camera but I don't always have it on me. I only take it out when I know I'll definitely use it for work on a particular day, so I take photos on my mobile more often. And, there is another reason, too. If I got out a digital camera there might be a lot of questions asked, where are you from and why are you taking a picture, so on so forth, but with a camera phone I'm left alone. It seems using a digital camera looks suspicious but a camera phone doesn't. In addition, when I have to sort out unexpected tricky situations, my camera phone is very useful. As I buy and sell accessories I sometimes have to make claims for faulty goods or for the ones damaged in transit. I can use my digital camera to do it, but, well, I am doing it with my mobile, as I always have it on me, anyway. It's much easier. For me, the digital camera has become an additional thing to carry, making my bag bulky. It's annoying to have two different pieces of equipment to deal with. I only take a digital camera out with me for very special occasions. When I upload my camera phone pictures onto the computer I find the quality not so different. (Yang, 17)

For Kang, Han, and Yang their mobile phones have brought a new way of doing things, creating a new culture of use around them. Along the way there take place productive interminglings between the physicality of their mobiles and the phenomenologicality of their perception and experience with their mobiles. Being interested in and fascinated by the high-resolution digital camera function in their mobiles, which is an object of their direct experience, they have found new uses for it which have eventually led them to finding a new way of doing business. It is the same as in the case of Cheon, who has been logging each of her children's progress in tooth-straightening and atopic dermatitis. For her, the mobile phone is an indispensable tool not only for the management of everyday matters and relationships, but also for a record keeping. While making very good use of the memo pad function on her mobile, Cheon has grown particularly fond of taking pictures with its built-in digital camera and arranging them in her own special way. The brilliant idea of making a logbook on her mobile is, therefore, a by-product of interactions between Cheon's vigorous tooling and re-tooling activities and her mobile's material property.

When a medium remediates other medium or media, re-appropriating its or their material properties, the resulting product can appear far different from the medium or

media from which it borrowed part of its or their material properties. It is because the material properties of an artifact cannot be specified in advance as if they pre-existed the specificity of the interaction with humans, as Hayles (2002: 5-16) maintains. As an emergent property, the material quality of a camera-phone thus depends on how it mobilizes its resources as a physical artifact at the moment of interacting with the users. It is important that the emergent property has to do with the performance being executed by the users which includes physical manipulations as well as conceptual frameworks, and it is why a built-in camera in the mobile phone works in a far different way from a standalone digital camera, as seen in the above cases.

For the technology of digital camera, which has passed on its technological properties to mobile phones, current proliferating culture of camera phoning is nothing other than an unexpected by-product. Moreover, mobile phone makers had never presumed that the functions of the wake-up call, phonebook, watch, or alarm would be the most important of all for some users, not to mention the inventive use of a mobile as a mirror or a torch. In fact these unplanned by-products of human activities, in other words, random phenomena or noise, exist in any real living situation. It is just the same as there exists electronic noise in all circuits and devices as a result of thermal noise. In any electronic circuit, random variations occur in current or voltage, caused by random movements of the electrons carrying the currents as they are jolted around by thermal energy. The higher the temperature the higher is this thermal noise. In a parallel fashion, it seems the more a medium is being used by eager users in a variety of ways, the more the unexpected sublaterals of human activities flourish.

The proliferation of random phenomena is rather a promise, than a failure. As Hayles (2002: 48-63) points out that noise is an important component in the process of configuring the subject as an I-terminal, noise can play a productive role in complex systems by forcing them to re-organize at higher levels of complexity. The noise that permeates mobile phoning can be seen as a stimulus to emergent complexity, which testifies that human practices with mobile technologies are always unstable and unpredictable. The mess in the middle promises to be organized into a new kind of practice, an emergent articulation produced by creative users who take pleasures in instantiating singularities throughout their engagement with the artifact. They are the interpolated subjects who have become an active part of the material properties of the technology. Just like the noise of reality cannot be so easily foreseen, technologies always entail unexpected consequences. Deviation from previously foreseen results is

not a failure; it is rather the mark of the real, the inscription of interacting complexities that may rarely or never be completely eliminated. Contrary to the traditional sciences that aim to reduce random phenomena to the minimum to achieve predictive power, the current technology of mobile communication seems to be opening itself to unexpected consequences, and rather eager to exploit such randomness to expand its horizons.

Among others, Serres (1982a: 15-16, 34-39) strongly argues for the noise in a system and even maintains that it is the noise which creates the system. He depicts the noise as the Parasite, and calls it The Demon or The Third Man. He sees that the noise is in fact an integral part of the system, precisely because it invents something new for the system itself. In Serres' parasitology, the guest comes to dominate the dining table, violating the system of exchange. The host and the guest are in the process of passing by, being sent away, or touring around. They exchange places in a space soon to be defined and from this noise comes a new story. By experiencing these perturbations and subsequently integrating them, the system, in Serres' theory, passes from a simple to a more complex stage. Thus, by virtue of its power to perturb, the noise ultimately constitutes the condition of possibility of the system. Serres urges us to rethink the world not in terms of its laws and its regularities, but rather in terms of perturbations and turbulences, in order to bring out its multiple forms, uneven structures, and fluctuating organizations.

The relationship of parasiting between a human and a machine has been present from the earliest days of human history, and it has been a source of reflection since the beginning of philosophy. Aristotle considers that the goal of *techne* is to create what nature finds it impossible to achieve and that *techne* sets itself up between nature and humanity as a creative mediation. But the status of this intercession has been a source of various interpretations. While mechanistic conceptions of the machine do not accept anything that can differentiate it from a simple construction *partes extra partes*, vitalist conceptions assimilate it to living organisms, unless the living organisms are assimilated to the machine. The latter was the path taken by Wiener as he opened up the cybernetic perspective in *Cybernetics* (1965). On the other hand, more recent systemist conceptions reserve the category of autopoiesis or self-production for living machines, as in Varela (1993), whereas an older Heideggerian school of philosophy entrusts *techne* with the mission of "unveiling the truth," thus placing it on an ontological pedestal—on a *Grund*—that compromises its definition as a process of opening.

According to Guattari (2005: 41-43) it is by navigating between these two

obstacles that we can attempt to discern the thresholds of ontological intensity that will allow us to grasp “machinism” all of a piece in its various forms, be they technical, social, semiotic, or axiological. He sees that, with respect to every type of machine, the question should be raised not of its vital autonomy according to an animal model, but of its specific enunciative consistency. Not unlike Hayles (2002), who sees a technology’s material metaphor as an emergent property created by interactions between the technology and the user on different occasions, Guattari puts a great emphasis on a machine’s particular enunciation in a specific circumstance—a machinic assemblage, rather than its material assemblage, which means an industrial finalization. A machine’s material assemblage means for him to put together its parts artificially by the human hand and by the intermediary of other machines, according to diagrammatic schemas whose end is the production of effects, products, or particular services. Thus, according to Guattari, it becomes necessary from the outset to go beyond the delimitation of machines in the strict sense to include the “functional ensemble” that associates them with humankind through multiple components: material and energy components; semiotic components that are diagrammatic and algorithmic; social components relative to the search, formation, and organization of work, and, to the circulation and distribution of goods and services produced; the components of the human body; individual and collective information and mental representation; and, investments by individuals producing a subjectivity in adjacency with its components. In the context of such a functional ensemble, which henceforth will be qualified as “machinic ordering,” the utensils, the instruments, the simplest tools, and, the slightest structured parts of a machinery acquire the status of a protomachine.

For Guattari machines require more and more abstract human vitality as they make their way along their evolutive phyla, and it is thus impossible to refuse human thought as a part in the essence of machinism. In this way Guattari positions the relationship of a human and a machine in that of a host and a guest, each parasiting the other. For a human and a machine, being in the context of functional ensemble means being in the middle, melded with each other, changing places, and being part of each other. Their places are inevitably noisy, with all the interminglings of various components: the material, the semiotic, the social, the subjective, and so on. It is precisely for this reason that Guattari maintains that it is necessary to establish a distinction between semiologies producing significations and asignifying semiotics. Contrary to the former, which operates as the common currency of social groups, the

latter manipulates figures of expression which work as diagrammatic machines in direct contact with technical-experimental configurations. Guattari criticizes the structuralists for the fact that they like to make the Signifier a unifying category for all expressive economies of whatever order, be it language, icon, gesture, urbanism, or cinema, with their semiologies of signification. It seems clear that the structuralist postulates a general translatability able to signify all forms of discursivity. But, Guattari points out that in doing so they have missed the mark of a machinistic autopoiesis, which does not derive from repetition or from mimesis of significations and their figures of expression. For him this autopoietic nexus of the machine is what wrests it from structure, and what is linked instead to the emergence of meaning and of effects that are no less singular for being indefinitely reproducible. While structural retroactions, their inputs and outputs, are called upon to function according to a principle of eternal return, the principle of difference proper to machinistic autopoiesis is based on disequilibrium, on prospecting for virtual universes far from equilibrium. And it is not just a question of a formal rupture of equilibrium, but a radical ontological reversion.

Like hosts and guests establish new contracts according to new relations, and from those new positions come new stories, machines can at any time evolve into something else or nothing on the way of mutual parasiting with humans. They are, each time, singularised by a specific constellation of expressive intensities, delivering irreducibly heterogeneous ontological consistencies. While Guattari puts a greater value on the machine's functional ensemble rather than its material assemblage, Varela (Maturana and Varela 1980: 77-84) goes one step further to see that the organization of a machine has nothing to do with its materiality, characterizing a machine as "the ensemble of the *interrelations* of its components, independent of the components themselves." From that point of view Varela distinguishes two types of machines: allopoietic machines, which produce something besides themselves; and autopoietic machines, which continually engender and specify their own organization and their own limits. Autopoietic machines carry out an incessant process of replacing their components because they are subject to external perturbations for which they are constantly forced to compensate. In fact, Varela reserves the qualification of the "autopoietic" for the biological domain. But it seems that his conception of autopoiesis deserves to be rethought in relation to social systems and machines, which are evolutive and collective, and which sustain diverse kinds of relations of alterity, rather than being closed in upon themselves. Machines, which, in appearance, seem to depend on

allopoiesis, become ipso facto autopoietic when they are seen in the framework of machinic orderings that they constitute along with human beings. When a machine is in operation, there is no occasion without human intervention and it is inevitable to envision autopoiesis under the heading of an ontogenesis and phylogenesis specific to a mecosphere that superimposes itself on the biosphere.

The phylogenetic evolution of machines in the murky ground of parasiting on one another can also be understood by the fact that they arise by “generations.” They supersede each other as they become obsolete. The filiation of past generations is continued into the future by their implied genealogical descendancy. But their evolutive lineages are not a univocal or a chronological causality. They present themselves as rhizomes; datings are not synchronic but hetero-chronic. For example, there reside many types of thousands-year-old communicational human practices together with relatively new ones in current mobile phoning: keeping diaries on memo pads; sending messages, which is equivalent to sending letters; capturing and keeping transient moments, of which origin can be traced back to as early as those days of cave paintings, let alone recent invention of photography; and carrying hundreds of those images in your palm or shirt pocket to show them off at anytime anywhere, to name just a few. The list of rhizomic evolutions of machines appears to be inexhaustible throughout history. As Deleuze and Guattari (1987: 351-423) vividly illustrates, the ascendancy of steam engines in the age of the Industrial Revolution took place centuries after the Chinese empire had used them as children’s toys. Technological mutations can happen in long periods of stagnation or regression, but it is rare for it not to resurface at a later time. The evolution of machines is singularised at the crossroads of heterogeneous machinic universes, of differing dimensions and of foreign ontological textures, with radical innovations or with benchmarks of old machinisms previously forgotten and then reactivated. For instance, the Neolithic machine—the machine of spoken language, the machines of cut stone, and the agrarian machines, among others—founded on the selection of seeds and a proto-village economy. The scriptural machine, on the other hand, saw its emergence only with the birth of urban mega-machines correlated to the implantation of archaic empires. In a parallel fashion, the nomadic machines were constituted from the collusion between the metallurgical machine and new war machines. And, as for the capitalistic machines, according to Deleuze and Guattari, their basic machinisms were proliferative: first urban, then royal state machines, commercial and banking machines, navigational machines, monotheistic religious machines,

deterritorialized musical and plastic machines, scientific and technical machines, and so on.

The evolution and the operation of machines are therefore not linear, programmed repetitions. Their rhythms of rupture and fusion, which disconnect its model from all grounding, introduce a certain difference that is as ontogenetic as it is phylogenetic. On the occasion of these phases of transformation, from simple constructions *partes extra partes* into abstract and disincarnated machines, a certain part of the nexus of a machine is granted its difference relative to simple material agglomerate. This diagrammatic virtuality leads us away from Varela's characterization of machinic autopoiesis as unitary individuation in the biological domain, and prompts us to emphasize a more collective machinism. Collective machinism is based on the machines without delimited unity and whose autonomy meshes with diverse bases for alterity. The operation of the technological machine, unlike that of living beings, does not rely upon rigidly circumscribed sequences of coding in a territorialized genome. Each technological machine does have its own plans of conception and assemblage, but, at the same time, those plans are being sent from one machine to another so as to constitute a diagrammatic rhizome that tends to cover an ever bigger machinic sphere.

This bigger sphere is nothing other than where remediation among various media takes place (Bolter and Grusin 1999), where so-called medial ecology (Hayles 2002) takes a form, and where humans and machines are parasiting on each other. There does not exist, for the various machine registers, a univocal subjectivity in this place of appropriating and re-appropriating, of changing places, and of endless undergoings of partial transformations while in part remaining themselves. Based on rupture, loss, lack, and suture, machines exist as heterogeneous modes of subjectivity, constellations of incorporeal universes of reference that take a position of a partial enunciator in domains of multiple alterity. In those domains of "alterification," their ontological modalities seem infinite and those forms are organized by constellations of reference universes whose combinatories and creativity are unlimited. Among those modalities certain discursive segments of the machine also play a game that is no longer only functional or signification, but assumes an existentializing effect. Far from revealing a universal truth of Being through *techne*, as Heideggerian ontology would have it, it is as multitudes that machines come to us as we acquire immanent access to them. Without transcendent coding and even without semiological mediation, machines often manifest themselves directly as "given-to-being," as multitudes of ontological components. They

have a place of eminence in the orderings of subjectification and call themselves upon to relay other machines, social and cultural, with all the efflorescence of machinities.

The dynamics of mobile communication technology, which had primarily to do with emergent calls among police, now demonstrate that its way of evolution no longer concerns the single matter of emergency. Its energy flows into more and more diverse corners of humans' everyday life. In the current sphere of collective machinism, the mobile phone seems to have no univocal subjectivity. Its ontological modality varies, depending on users and on different occasions, even for the single user. With its expressive intensities mobile phoning revises patterns of our everyday life, bringing about new relationships between a machine and a human, among humans, and a human's intra-relationship to the self. The mobile phone's ontological conversions are prolific; here and there it becomes a watch, a mirror, a torch, a recording machine for the evidence, a logbook for a patient, a remote control machine for old mommy's medication, and so on. As it ceaselessly deterritorializes and re-territorializes its machinic sphere, to predict what to come is a wide open question. Its machinic sphere is ontogenetic, while being partially phylogenetic as well, because it is still a "phone" which serves emergency far better than any other current communication media. But it seems clear that the mobile phone is pregnant with alterity more than any other media, thanks to the digital and wireless communication technology. In the machinic universe of the twenty-first century communication technology, it creates various profitable diagrammatic assemblages and the users make their own rhizomic enunciations along their everyday moments. The enunciations, born out of constellations of potential combinatories, may seem noisy, but the noise serves for the possibility of the technology of mobile phoning. Within its innumerable functional ensembles, each of specific enunciations of mobile phone technology gives rise to emergent human practice and effect. While they are living on their mobiles, individuals are immanently engaged with technological-experimental configurations, and instilled by their mobiles' existential effects. Without semiological mediations, not to mention transcendent codings, the effects come immanently as multitudes.

7.3. Expressions and Experiments

Maybe it is the last thing that the founding fathers of the mobile phone technology might have had in mind—mobile phones are being transformed, partly, but

more largely for younger people, into a kind of expressive and experimental interface. For them the mobile phone is not only a medium for making and receiving calls, but also that of self-expression and self-experimentation. Moreover, those self-expressions and self-experiments are meant to be open and to be shared among groups of various sizes from the beginning, in most cases. It is in virtue of the fact that mobile phones have a remarkable digital fluidity more than any other contemporary media. Images, texts, voices, signs, sounds, and whatever it carries are interchangeable, more and more depending on mobile sources. Ways of displaying, storing, and distributing are evolving continuously and all of them are inclined to a greater human sensitivity.

7.3.1. A mobile charm

Ringtones, colorings, wallpapers, covers, and ornaments like straps are ever-sought-after ways of self-expression. Once found and applied to mobiles, those various expressions are then displayed and shared. To clothe one's mobile with some delightful or attractive qualities has become very popular, and it is not only to amuse oneself, but to impress others and to share those qualities with people close to oneself. It is a kind of personification of one's mobile, as the mobile speaks of the individual who owns and adorns it, working like a charm.

I spend quite a lot of money on my mobile. I mean, it's not just for phone calls. I like to use color schemes, different ringtones, wall papers, and many other features. I also love to accessorize my phone. I have lots of stickers and charms on it. You see, I always liked to cover my pocket diary with hundreds of little mascots, pictures and photos. Now I do the same with my mobile. I buy a plain cover and stick such things on the cover, and change them whenever I feel like it, and if I get bored with all those things, I just throw the whole cover away. Then I get a new plain cover, and put new things on it. What kind of things do I have? Mostly pictures of cute girl's faces, photos of friends and pets. I also swap stickers with my friends and we like to comment on the stickers on each other's phones. (Kim 3, 16)

Kim says that when she first put a nice cover on her mobile it was to protect it from scratches and damages in case she dropped it. But soon she found another use for it. As she loves putting stickers on her diaries and bags and likes to change or add new ones to them, she thought, in order to do the same to her mobile, she needed a plain cover. It is because if she puts stickers directly onto the handset then the stickers would leave sticky marks behind and the handset would look scruffy. Plain covers are perfect

for her, Kim says, as they allow her a freedom to change stickers without worrying about ugly marks on her mobile, while also being inexpensive compared to the ones with luxury patterns. One more important point is that those inexpensive plain covers are easily disposable when she feels like “Well, maybe I need a new one.” Rather than keeping expensive covers or straps for a long time, it is far more exciting for her to find new cute images or charms and to change them from time to time. Moreover, it is also a great pleasure for her to display recent changes on her mobile among friends, as well as to exchange information—how and where to find them.

While Kim as such indulges in accessorizing the outer part of her mobile, Myoung and Hwang take pleasures from personalizing the inner part of theirs.

I’m always interested in new products and new services. I change handsets every year or so. I really exploit my handset. For what? Well, I don’t really enjoy games or doing mobile banking and that kind of stuff. I call friends and college buddies, or send messages. I also like the camera function a lot. But what I like to do most is searching for and downloading songs, wallpapers and ringtones from mobile Internet sites. I do it from the Internet via my computer as well. I download five or six tones at a time. To download and to listen to music is especially important to me. When I am out, I always have earphones in my ears to listen to the music I keep on my mobile. I like ballads. You know, when I am on the move with friends, they always ask me what music I have on my mobile at the moment. And they ask if they can share it. I am, sort of, quite well-known for this. (Myoung, 4)

I’m very keen on the newest models and new services around. I often exchange information on hot stuff with friends. I frequently hunt online for new color schemes, wall papers and ringtones to add to my mobile phone. When I find a special one I let all my friends know about it quickly. I often find the images of my favorite singers and movie stars from the Internet and use them as wallpaper on my mobile. I particularly like the fact that now more and more hit songs are coming out with a version as coloring for mobiles. (Hwang, 10)

Similar to the case of Kim, Myoung and Hwang like to share their “labored” personalization of their mobiles with others close to them. They build their own character on their mobile phones and are delighted to show it off and willing to share it. Images, music, and adornments on their mobile phones constitute their subjectivity; those are the statements of character which have been made by the owners, and conversely, those are also something always flowing back into their selves. Their mobiles are something whose qualities exalt their subjectivities in a way they have

arranged according to their desire. Their mobiles are thus the entities which have been incorporated into their subjectivities, converging upon them and serving them with the greatest of ease. It seems that nothing can be both “personalized” and “utilized” as easily as the mobile phone. Moreover, the availability of the ways of subjective qualification for it is amusingly diverse, thanks to the almost inexhaustible sources on the Internet and the vigorous competition among mobile service providers to upgrade their contents.

For those who like to personify their mobiles, the mobile phone is a machinic “object,” if we recall its etymological meaning, as the word object comes from medieval Latin *objectum*, which denotes a “thing presented to the mind.” In fact many machines in human’s everyday life exist in this mode, endowed with emotional investments, and in some cases engaging passionate involvement. Apart from practical uses to which individuals put them at any particular moment, objects in this case have another aspect which is intimately bound up with the users. They are no longer simply material bodies offering a certain service; they become mental precincts over which the individual holds sway, and evolve into things by which people express themselves and by which others can get a sense of what kind of person they are.

As seen in the above cases, mobile phones can provide a mental space for people’s dreams and desires. The desire to turn the mobile phone into a charm seems to lead towards a construction of singularity which puts the mobile phone on a par with oneself. To personalize one’s mobile phone with ornaments, ringtones, wallpapers, colorings, music, or with anything else means, as its literal sense of *person-alize* reveals, to make it into another self, so that it can speak as its owner and its owner can live on it. A personalized mobile phone refers its owner to others, and it is the moment when the mobile phone has been abstracted from its function and brought into direct relationship with the owner’s subjectivity. The mobile phone constitutes a world which its owner, a subject, wants to construct. Thus Kim, Myoung, and Hwang are building up a private totality with their mobiles. Filled with qualifications they have invested in, their mobiles send back images of what they want to be. Precisely because the image, which Kim, Myoung, and Hwang get from their mobiles, is exactly what they liked, their mobiles are consistent with them, and therefore the construction of a private totality for each of them becomes a complete one.

Their mobiles as such have two functions—to be put to use and to be charged with subjectivity. But in reality these two functions, functionality and subjectivity, in

other words, practical use and abstraction, are forever collapsing onto each other in a private totality constructed by the mobile phone as an object and its owner as a subject. Not unlike the one between the host and the guest, the relationship between the mobile phone and its owner, that is, between an object and a subject, is not a fixed or permanent one. The mobile phone, as an object, defines and presents its owner, who is a subject, as much as its owner, as a subject, characterizes and displays the mobile phone. Always entangled with each other, the two exchange places in a space to be defined in its every singularity. Just as the system, in Serres' theory (1982a), passes from a simple to a more complex stage by experiencing and subsequently integrating the perturbations and turbulences caused by noise, the sphere of mobile phoning gets a momentum of multiple forms and rhizomic developments from these seemingly chaotic combinatories.

Kim's emotional involvement with her mobile seems passionate; she endeavors to make it unique, attractive and pleasant. She charges her mobile with her desired subjectivity. As Kim enjoys playful substitution, decorating her mobile with rather cheap and easily-found items than with pricy or rare ones, her construction of singularity seems always incomplete, with endless possibilities of the ways of qualifications ready to replace previous ones. What makes Kim more excited is to find out new images or charms and to change them from time to time, rather than to keep them for a long time. She also likes to display them, to exchange information about them, and to swap or give them away to friends. Thus Kim's subjective qualification of her mobile seems at first sight "schizzing," being ever partial, transient, and fragmentary. But, considering that it is open to comments, discussion, and transfers to or from others, this process does not look like anything related to a defect of her personality. It rather appears that Kim likes to construct her private totality together with her mobile, by making choices and enjoying communications and endless possibilities.

The cases of Myoung and Hwang show a similar kind of process in the construction of singularity. For Myoung, who is always keen on finding new products or services and who changes his handset every year or so, the construction of singularity means to catch up with the hottest, and, of course, to show it off as well as to share it. To pursue new and hot qualifications and to invest them in his mobile means to construct a temporary singularity with a porous boundary rather than a sealed-tight permanent subjectivity. It also means that the process always involves partial loss of elements and a subsequent filling-in with other elements. In Myoung's case music plays an important role: he is very fond of searching and downloading songs, and his friends

see him through the music he has on his mobile at a specific moment. While Myoung personalizes his mobile with his favorite music, his mobile says who he is: the two exchange places, to construct a certain kind of totality. But, even individuals who have invested their own personality in their mobiles do not know why they have done it and what they mean by it. The drive beneath this process is, as seen in the above cases, an immanent desire to construct the mobile phone like “me,” to exalt my subjectivity, to show it off, and to share it with people close to me. This desire can be called “collective” and “affective”; it presupposes sharing and self-indulgence at the same time, and it is one of the main forces which bring about multifarious practices in the current landscape of mobile phoning.

7.3.2. We, creators

There are, on the other hand, people who think to personalize one’s mobile is all too simple, the least thing one can do. For them, adding charms or some of one’s own personal touch to the mobile phone is, in the end, just for oneself, even though those “personalizations” will be probably shared with others at later times. They rather aim to reach much further—towards more people with more diverse content. The phenomenon of the user-created-contents (UCC), which has been brought about by “pro-sumers” (producer-consumers) who are now omni-present, has deep implications. Thanks to ever-improving technologies, they don’t need to be “techno-freakish” to create various contents, which include photos, short stories, cartoons, comics, graphic images, short movies, and “emoticons.” The mobile phone has become a showcase for contemporary media convergence on the move, including digital photography, blogging, internet, and television, to name just a few. Eight out of ten respondents in their twenties manage their mobile home pages, uploading and sharing messages, photos, short stories, and images, on almost a daily basis. The virtual space of mobile phoning gets more and more populated by self-made contents.

The sphere of mobile phoning embodies emergent ways of expression in a topographic environment. It contains words but much else besides, hence focusing on the words alone misses the point. Only from a new perspective in which emerging components and their functionalities are taken into account, will it be possible to address this unprecedented practice of human communication. As seen in the following cases, the material specificity of mobile phone technology, its software functionalities, and the users’ creative tooling of them are now entwined in a complex interdependency

which functions as a multilayered machinity for the relation of the words, images, human perception of those signs, and the resulting subject formations.

I love image mail. It is much more expensive than messages, like 30 times, at most. But it's worth it for me. An image can tell you a thousand words, you know. I really like it. (Kwon, 27)

Why? I don't know. With the images, we feel something common, and it is very exciting to feel we are sharing something really cool. That's all. I feel embarrassed upon being asked the meaning of my emoticons, images, and weird words. It is just pointless to ask the reason, or meaning. (Kim 4, 6)

On my video diary I often post not only images, but also words that come to me on that day. The other day I had an image of a cute butterfly and a word "Fly" on my mobile's screen. I kept it for a couple of days. I think I was in that kind of mood ... something hard to say. Well, I am quite popular with that sort of thing. My colleagues and friends ask me to share them. I email them if they want. But I find once the images or words leave me or come from someone else—we are doing this a lot—they become different ... something other than the original one... something left at your disposal. (Park 2, 9)

I do the same, but I do it rather crazy. Mines are like the images of broken legs, a big open hole in a wall, a famous comedian's funny face which I copied from his web site, or a piece of advertisements which I find interesting, etc. I often take photos and copy texts, but sometimes I cook them up myself. I love to share mine and to copy others' as well. It's nothing serious, but, I do feel something while seeing them, obviously. What on earth that "something" is, well, I can't put it in words. You've got to feel it. It's up to you. (Hyeon, 15)

Considering all the components mentioned above, it seems like they are living in a culture that has developed a *visual language* which can be written and enacted but not spoken. Weird words improvised on the screen of their mobiles are to be seen only, rather than to be spoken. Instantly cooked-up images are also to be seen and felt, rather than interpreted into words. It envisions different connections emerging between language and vision, image and word, body movement and code, writing and sharing, and, the original and copies. As with Kwon and Park, a picture or an image can tell a lot more than a thousand words. It is aphorism, which bears a striking resemblance to confucianistic propositions, in which aphoristic images are condensed. Being figurative, suggestive, and implicative, confucianistic propositions are not predicative, explanatory,

nor explicative. They never try to make definitions, but, rather, provide humble guidelines. Still, they can be far more practical and rational when applied to a real situation, because reality is mostly not under human control, unlike the circumstances in a laboratory where definitions are produced. Confucian propositions are inherited from ancient wisdom that sees reality and nature as being in a constant making, always on the move to create a new whole. In a way Confucian wisdom enables us to realize that information can be in a quite different mode from that of positivist tradition.

A picture, a phrase, a couple of characters, or an emoticon can be a very good expression of one's feeling or situation, which goes beyond the limit of finite words. It is an open structure which always surrenders to the meanings to be made by recipients, and constantly waits for the return of the meanings from the recipients for its completion of meaning, though it is still always partial. At this point we can recall Derrida (1997) who emphasizes that writing is constructed by the audience as well as by the author, and that what is absent from the text is as significant as what is present. But it takes more than the Derridean approach to understand the above practice of mobile texting. Precisely because what Derrida wants to achieve stops at the deconstruction of the "text," it is necessary to bring in what Guattari (1995) calls "collective machinism," Guattarian concept of subject formation as a collective assemblage—a plural, polyphonic group phenomenon, generated through exchanges of affection.

Currently the most prominent cases of this Guattarian collective machinism can be seen as Google and YouTube. The spirit of communication, reciprocity, and participation is the basic philosophy of these collective phenomena. Google's service is based on extracting insight from collective intelligence: its software comes up with answers to visitors' queries by ranking web pages by the number of links that visitors have made to them—each link is counted like another vote for the page's significance. Google's software mines this collective intelligence. The same ethos enables YouTube: it is participatory, too—people can vote on whatever they like. As a result the most unlikely videos, for example, pensioners ranting about the state of the world, or a man losing his cool on the subway, become smash hits. On YouTube, there are ordinary people rather than stars and celebrities. Viewers are potential producers, participants, and actors as well. Another example can be Wikipedia, an online encyclopedia created and maintained almost entirely by amateurs. It reportedly attracts more visitors than The New York Times online, carries more content than almost all other encyclopedias combined and threatens to dwarf the services offered by large publishing companies.

The guiding ethos of this new culture is simple: participation. If the point of the industrial-era economy was mass production for mass consumption, in the world of collective intelligence, the point is to be a player in action, playing not to consume but to participate.

In this collective process of creation, circulation, and adaptation, the messages or the images on mobile phones are like links of a hypertext, rather than a finite destination. Individuals can read them in their own way, make connections of their own, link them to their own experience, and make further disseminations. Interestingly, Park points out that a message or an image, once moved to another mobile phone, seems to become different, removed from the original context and stripped off its initial meaning. Kwon, Kim, and Hyeon also recognize and even expect that different interpretations or unexpected distortions will occur on the way. They are not particularly concerned about it; they just let their creations go, and enjoy circulating them. They think that all the data in their mobiles are meant to be shared, from their very beginning, either among people or among various media, as long as they are based on digital technology. They also understand that once those images, letters, or words are put into the circulation process, they tend to become different. Jumping from one to another person or medium, those data often get stripped off their original context, to acquire a new one. In some cases, they can emerge beyond any meaning—as a pure intensity. In Hyeon’s case the images on his mobile—broken legs, a big open hole in a wall, and the funny face of a famous comedian—go into circulation independent of whatever Hyeon meant (or did not mean anything at all). Similarly, the word “fly” and the image of a butterfly on the screen of Park’s mobile may have meant his aspiration to reach beyond the stiffening routine of everyday life, but he finds that, once the word and the image leave him, they can mean anything, regardless of his original intention.

When transferred to another screen, an aphoristic image or word on one’s mobile phone can operate as a “pure machinic intensity”: it acquires its new expressive implication when placed in the new context. This is what Eisenstein calls “a naked transfer,” one of his ground-breaking cinema techniques. Taking the example of Eisenstein’s *Ivan the Terrible*, Zizek (2004: 3-8) gives a good explanation of this kind of process, in which images or letters become pure machinic intensities. In the cinema the motif of the thunderous explosion of rage is continuously morphed and thus assumes different guises from the thunderstorm itself to the explosions of uncontrolled fury. Yet Zizek sees that it should be interpreted not as an “allegory” with a fixed “deeper

meaning” but as a pure machinic intensity beyond meaning. The reason is that, although it may at first appear to be an expression of Ivan’s psyche, the sound of his explosive rage detaches itself from Ivan and starts to float around, passing from one person to another or to a state not attributable to any one person. According to Zizek, this is what Eisenstein aimed at in his unique use of the term “operational.” To be “operational,” such motives echo and reverse each other, jumping from one to another expressive medium. Far from “expressing” or “revealing” the meaning, such motives “sublate” or cancel it in the process and this “operational” process is precisely by which Eisenstien means “a naked transfer.” For example, the motif of a single eye in *Ivan* is a “floating motif,” in itself strictly meaningless, but once repeated, it can, according to context, acquire a range of expressive implications—joy, suspicion, surveillance, or quasi-godlike omniscience. In a similar way, the images and letters used on Kim, Park, and Hyeon’s mobile seem to become “operational,” as they are copied, exchanged, and repeated. The images and letters acquire a multitude of ambiguous meanings, once moved to other spaces. Every individual can feel them in their own singular way. Marking the individual’s specific moments and sentiments, they seem to float there, with every bit contributing to “collective machinism”—the formation of the individual’s machinic subjectivity.

My “phone-folder” is very popular among my friends. I upload the pictures I have taken with my camera-phone on my mobile homepage. I, kind of, speak through those pictures. When I felt down, the other day, I posted a withering flower. One of my friends found it cool, and copied it from me, soon the image became very popular among my pals. (Lee 1, 19)

I also like to have crazy pictures on my mobile. I don’t think I’m doing it for any specific reason ... anyway, this time I have a few images, which you may think a bit horrible. Garbages, left-overs, and some from horror books, Do you want to see them? I can email them to you if you like. (Lieu, 8)

Recently, showing off your boy- or girlfriend on your mobile home page has become very popular. You take a photo of yours and upload it on your mobile homeP and share it with anybody who wants to see it. Well, I thought it was a bit crazy initially, but now so many people are doing it, and I find myself copying them. Funny, isn’t it? I have a photo of me kissing my boyfriend on my mobile now. I often show it to my friends. It’s fun. (Kim 3, 16)

To express an individual’s feeling or to take and keep an image of a loved one

would seem to belong to a private realm. However, for Lee, Lieu, and Kim it is essentially an action of communication. They are well aware of the fact that the ubiquity and the immediacy of mobile phone technology will connect them to everybody and disseminate their creations everywhere, although perhaps diluting the authorship of their creations. The material properties of digital mobile communication technology work for the supposed possibility of dissemination and transformation of its contents. So the image of withering flower, pictures from horror books, and the photograph of someone's boy- or girlfriend lose intentionality, meaning, and privacy, once put into circulation. The origin or initial meaning does not matter for those images or words to become transformed into a collective means of expression and source of collective rejoicing.

This phenomenon of a collective joy, which means that people want to enjoy something, for example, a creation, a feeling, or certain moments of life, in groups rather than in solitude, is what Ehrenreich (2007) tries to find the historical genealogy of. Through her study of "dancing in the streets," she insists that participation in group dancing is what humans most deeply desire because it allows us to transcend our lonely individuality, and brings the sort of ecstatic happiness that no pill or creed can deliver. She then raises the question of why our culture is now so lacking in opportunities for this collective joy. She tackles this problem, offering a comprehensive account of cultural history that might be summed up as *The Decline and Fall of Dionysus*. According to Ehrenreich the Greek god of ecstatic dance was first shunned by the order-loving Romans, and afterwards demonized by the Judeo-Christian tradition. She sees that Dionysus survived to some extent in the form of the medieval carnival, but later to be banned by the Puritans, and eventually becoming subsumed to the dryness of modernity. She observes that this communal joy has made a partial return in the form of rock music and sporting festivity, although they lack full-scale popular participation.

While Ehrenreich focuses on group dancing to illuminate the human desire for a "collective joy," Burstein (2005) traces back the origin of "bloglike" phenomenon to zoom in on our bio-cultural need for "conversation." Through his studies of the magnificent caves in the southwest France, whose walls exhibit numerous engravings and paintings created fifteen to twenty thousand years ago at the dawn of modern human history, he observes that much of this art emerged as "part and parcel" of a long and highly compelling "conversation." He discovers that, in a number of places, the period of decoration of the cave walls went on for several generations—even, in some

cases, for several hundreds or thousands of years. The paintings were often first inspired by the physical forms of the caves and were a kind of commentary on those forms. The later painters and storytellers made subsequent commentaries about what they saw on the walls and what they had experienced in their lives. All of this was, of course, a very complex process, which he does not mean to oversimplify or trivialize, but he makes it clear that they were for nothing other than for conversation. One member of the tribe initiated others, one generation spoke to the next, one group of humans was inspired by and reacted to the ideas of those who came before—the conversation continued and was stored and archived for future access.

Burstein continues to point out that in the history of our civilization bloglike phenomena can be found everywhere. He finds the Talmudic tradition to be a form of proto-blogging as well: scholars and thinkers have been debating the meaning of text passages from earlier eras and creating commentaries, refinements, additions, and different shades of interpretation. Renaissance artists and thinkers were bloggers of a kind as well, commenting on what they found of interest and beauty from the cultures of Greece and Rome. The most recent form of this cultural phenomenon can be seen from Amazon.com reviews and Wikipedia. Therefore, although the word *weblog*, contracted into *blog*, may have first appeared in 1997, and there may have only been a few hundred blogs in 1999 around the time that Pyra Labs launched its Blogger software to make it easy for ordinary people to blog, Burstein believes that current forms of bloglike phenomenon, which have sprung out of the human desire for conversation, has ancient antecedents and deep cultural roots. For him, blogs, in the broadest sense, derive from the human urge to give voice to our ideas; to have our ideas understood, acted on, and remembered; and to engage in the quest for knowledge and understanding interactively and collaboratively. Blogs today are tools that allow us to engage in these processes.

Blogging is the “killer app” of the current generation of Web innovation, just as email and instant messaging were at the core of the last version. M-blogging is the mobile version of it, and it is not uncommon to set up and run a personal mobile home page, especially for young people in their late teens or twenties. Eight out of ten respondents in their twenties are managing their mobile home pages, in conjunction with their personal home pages on the computer. They have experiences in handling personal home pages on the computer before setting up a mobile version. Interestingly, some of them reveal that recently they have become negligent of their computer home pages, more and more in favor of the mobile version. Lee explains that, while he finds

far more resources which can be downloaded for his home page on his PC, he rather uses his mobile to “communicate,” because it allows him to exchange, comment, talk, and argue about anything, anytime anywhere, much more easily than via the computer. Lieu also tells that it is quite difficult for him and his friends to arrange a specific moment for instant messaging, and that is why they prefer m-blogs. Moreover, Lee and Lieu agree with each other that it is digital camera phones which have made mobile home pages even more popular and manageable. Camera phones are just perfect, according to them, because you can make something original by taking a picture of anything immediately at the very moment you spot it. Be it a withering flower, a garbage bin on the corner of a street, or an image from a horror book, you can “scoop” it up on the spot and display it right away on your mobile home page, together with your “seasoning,” if you like. Their term of seasoning means to adorn, transform, or supplement the image in any way you want, with your thoughts, impressions, and feelings.

It seems that a human’s primal desire for conversation and collective joy has now been married with the material properties of digital mobile communication technology—ubiquity, immediacy, and multimedia functionality. As a result of this recent machinic assemblage, the human practice of m-blogging is characterized by far different features from those of dancing in the streets or the relatively simple forms of commentary. As if reflecting the complex mix of material properties of mobile phone technology, m-blogging is a hybrid human practice, in which multifarious communicative actions—speaking, writing, reading, watching, listening, photo-taking, and publishing or broadcasting—overlap, collide, and intermingle. Moreover, m-bloggers do not mind exposing themselves to the anonymous many. They seem to have no sense of shame at all in such self-exposure; rather, they take pride and find purpose in distributing and sharing themselves. In this contradictory and “noisy” practice, old notions are being tested and continually redefined; individual and collective, private and public, and, intimate and anonymous. For Lee, Lieu, and Kim m-blogging is all about expression, experience, and communication. In the same way that Guattari sees subject formation as a group phenomenon through the exchange of affection, m-bloggers construct their subjectivity through the expression and sharing of their living experience.

7.3.3. Self-experimentation

When some of respondents take photos of themselves, their self-expression

comes very close to self-experimentation. To indulge in “sel-ca,” as they call it to mean taking a photo of oneself, is very common not only for the younger respondents but also for the other age groups. When you get a new hair style or a cool outfit, Lieu (8), one of the respondents in his early twenties, asserts, you should take a photo of yourself, trying shots again and again until you’re really sure that you’ve got the best image, and, of course, you have to post it to your mobile home page right away. Moreover, he continues, you can send a terrific message using sel-ca, for example, when you are not in the mood to see anybody, you can take a picture of yourself with your eyes shut tight, and send it to your group. Being asked how the image can possibly make any sense, he explains that it does work because everybody around him knows what it means.

To be honest, most of the time I use my camera phone to take pictures of myself. I get snaps of my face this and that way ... for various images of myself. Sometimes I do it for hours... I erase those I don’t like, and store a few which I like. And of course I choose one image among them, in which I think I came out looking the most beautiful, and pose it onto my mobile screen. I like to show it off to my friends. And at times my friends copy the image and paste it onto their mini home pages. (Myoung, 4)

It’s the same for me, though I don’t do it for hours. I like to take pictures of my face, too. I have tried as many ways as I can and now I know the best angle from which I can get the coolest picture. (Hwang, 10)

For me it is not only for myself—to kill time or for a sort of narcissism, whatever—but it is for fun with my friends. When we go for a drink, we take pictures of one another, uh, of our drunk faces ... We often laugh ourselves sick, looking at the funny pictures, passing around our mobiles. (Chang, 5)

I was so glad when the PenTec company introduced a “Princess Phone.” They installed a camera in a very special way so as to give you the most beautiful picture of your face. I had great pleasure in using it. (Ahn, 2)

As it is shown in the above cases, sel-ca is more about self-experimentation than a simple act of self-expression. Lieu and Myoung disclose that they have tried several types of hair style and different kinds of make-up or clothing, all alone, often at midnight, taking their self-images with their camera phones. In that case, their camera phones allow them even greater privacy in those already private settings and moments.

It can be said that the camera phones operate as virtual intercessors, rather than mere functional machines. Intercession, which means the action of intervening on behalf of another, takes place virtually when a camera phone transports a person to a different plane in an instant.

When using the mobile phone for picture-taking, especially in sel-ca, the event is staged and the individual performs; it is constructed for future distribution and sharing, whether sooner or later. The event bears an acknowledgement of future witness and its infinite possibilities of circulation and reproduction in different contexts. In fact the event itself is influenced by that acknowledgement. But there could be no capture, distribution, or reproduction of the event without the technology. Mobile phone technology enables, or rather, “constructs” an event which is not simply transmitting an image of an individual. The mobile phone is a device for the event of production and distribution of impressions of oneself. It is a conduit for the show in which an individual performs, displays, and distributes his or her experimentation on the self.

The mobile phone becomes a topographic space, into which individuals can imaginatively project themselves, experiencing it as a space to “explore” rather than a line to “follow.” The individual’s capability for proprioceptive projection into the mobile phone space is strengthened by the high quality functionality of camera phone technology, and the act of picture-taking is transformed from a simple recording for future memory into a more complex activity which actualizes the space so that it is kinesthetically vibrant as well as psychologically resonant. The machinic quality of the space also has the effect of locating subjectivity ambiguously between the depth of interiority and the chance juncture of multiple try-outs produced by immanent desire of an individual as well as the technology of digital photography and mobile communication. As a result, subjectivity in the practice of sel-ca becomes not only a matter of interior desire but of interaction with a physically evocative technology. The technology of picture-taking, screen display, and further distribution manifests their machinity simultaneously. The linking structure in this event of self-experimentation does not work by a unilateral principle, but works through a combination of an individual’s desire and action, and the multiple layers of the technology. Thus the very act of “sel-ca” becomes a distributed function enacted partly by the individual and partly by the machine. The “sel-ca” image is a product of the individual’s desire and action, as well as of the machine itself. The practice of “sel-ca” is a performance of a machinic subjectivity jointly enacted by the mobile phone and its user.

Narcissus mistakes himself for an Other through the mediation of a reflective surface. But it is different for mobile phone users who are experimenting with their own images. While creating a mediated representation of themselves and trying it in a variety of ways, the two selves—the originating and the simulative—collapse and collate to form another self, a machinic subject. What this machinic subject wants most is to achieve the greatest “intra-macy.” For example Ahn’s “sel-ca-ing” is based on her desire to capture what she *wants to be*, rather than what she *is*. She tries to get the image which she feels “closest” to her wish. In this process the original is not opposed to the simulation and there is no longer an ontological distinction between me and my image; what matters is to create a connective and conductive space in between for another self—a machinic subject.

Hwang, Myoung, Ahn, and Chang say that it’s just for fun or for time-killing. They add that it is also a great fun to put themselves on stage and to be this and that different. In most cases weird images are erased instantly, but some “enjoyable” ones survive to be shared among friends or family members. In fact they take photos of themselves not to keep them private but to share them open from the beginning, and the possibility of this sharing entertains them as well as promoting their relationships. In this sense, they seem “saturated” with virtual relations between one and others, and, between one and oneself. But they are different from those observed by Turkle (1997: 11-16), seen as immersed in virtual relations in MUDs, which stand for Multi-User Domains, or Multi-User Dungeons, for greater historical accuracy, because of their genealogy from Dungeons and Dragons, the fantasy role-playing games that swept high schools and colleges in the late 1970s and early 1980s. Turkle makes use of this term to refer to all of multi-user computer games, though each of them is based on different kinds of software. Participants join a MUD through a command that links their computer to the computer on which the MUD program resides. In MUDs, participants are “players”; they “play” a character, or if they wish, can play multiple characters. In some MUDs, players are represented by graphical icons, while some other MUDs are purely text-based. Turkle finds that MUDs are a new kind of virtual parlor game and a new form of community, and text-based MUDs are a new form of collaboratively written literature. The players are authors, creators, and, at the same time, consumers of media content.

More importantly, as players participate, they become authors not only of text but of themselves, constructing new selves through interactions. While playing, you are

who you pretend to be. MUDs provide worlds for anonymous social interaction in which one can play a role as close to or as far away from one's real self as one chooses. The anonymity gives participants the chance to express multiple and often unexplored aspects of the self, to play with their identity and to try out new ones. In MUDs one person can be many, and one doesn't even need to be oneself at all. People are even frequently connected to several MUDs at a time, while doing assignments or getting real-time messages coming in. This kind of travelling or cycling through MUDs and real life is made possible by the existence of those boxed-off areas on the screen, commonly called windows. Windows provide a way for a computer to place a user in several contexts at the same time. Even though you are attentive to only one of the windows on the screen at any given moment, but in a sense you are present in all of them at all times. You navigate through your distributed presence, turning pieces of yourself on and off.

The development of windows for computer interfaces was a technical innovation motivated by the desire to get people working more efficiently by cycling through different applications. But in the daily practice of many computer users, windows have become a powerful machine which transforms an individual into a multiple and distributed system; he or she is no longer simply playing different roles in different settings at different times, as somebody who makes breakfast as a parent, drives to work as a teacher, and enjoys dinner as a lover. The experience of windows is that of a decentered self which exists in many worlds and plays many roles at the "same" time, and this machinity extends itself to the experiences on the Internet, and in the games like MUDs. It offers parallel lives, and this experience of parallelism encourages people to treat their on-screen and off-screen lives with a surprising degree of equality, blurring the distinction between the two lives. MUDs are one of the dramatic examples of how communication media can serve as a place for the construction and reconstruction of identity. There are other cases, for example, real-time chatting services widely used by a great span of age groups, in which any user can open a channel and attract guests to it, all of whom speak to each other as if in the same room. Online chat rooms have much of the appeal of MUDs, as they combine real time interaction with other people, anonymity, and the ability to assume a role as close to or as far from one's real self as one chooses.

Playing with the image of oneself on a mobile home page is very different from playing with anonymity and multiplicity of oneself in MUDs on the computer. In a group interview, while being encouraged to share their experiences with their mobiles,

five college students express how they have fun and experiment with their own images taken on their mobiles. All of them acknowledge that the images taken by mobiles are totally different from the ones taken in studios by professionals, or the ones they take with “proper” cameras. They enjoy the instantaneity, ephemerality, erasability, and the casual and fragmentary qualities of those pictures and of the very act of picture-taking. But none of them show interest in playing with multiple selves or in disguising their identity. Moreover, for them, the images on their mobile home pages or eventually discarded ones are not the Lacanian mirror image, which serves for a split establishment of a subjectivity. Replacing Cartesian cogito with the split-subject, Lacan (2007: 75-81) regards that the psyche behind the mirror image is a form of compensation, resulted from a subject’s “prematurity of birth,” or an anatomical incompleteness. He presents subjectivity as originating with the infant’s attempts to identify with his or her reflection; by recognizing him or her in the reflected image, the infant develops an awareness of his or her individuality. Because this awareness runs contrary to a clear-cut understanding of self and other, the individual exists in a state of unrest as a result of an unresolved encounter with alterity and is forever split between an internal and external notion of the self. For Lacan, it is this schism that provides the dynamism that governs human experience. Lacan’s model of subjectivity thus seems parallel to or mirrors that of the Cartesian subject. While Descartes’ model provides a place of affirmation, Lacan’s suggests uncertainty. While Descartes uses “methodological doubt” to arrive at a place of certainty, Lacan uses a congruent methodology that situates subjectivity in a place of doubt. The split-subject, Lacan’s alternative to the cogito, is also the result of a blinding principle of self-will, but one that foregoes any pretensions of self-transparency and self-certainty.

Rather than that of a mirror, Žižek (2004: 111-48) re-examines the implication of the conceptions of a screen, surface, and interface for the formation of a subjectivity. When we communicate with another subject we get signals from that person, observing his or her face as a “screen,” but we never get to know what lies “behind” the screen. For Žižek subjectivity is therefore a surface screen that produces the effect of “depth,” of a dimension beneath it. And yet, the dimension is accessible only from the standpoint of the surface, as a kind of surface-effect: if we effectively reach behind the screen, the very effect of the “depth of a person” dissolves. What we are left with is just a set of meaningless processes that are neuronal, biochemical, and so forth. For that reason, Žižek argues, the usual polemics about the respective roles of “genes versus

environment” in the formation of the subject misses the key dimension, namely, that of the interface that both connects and distinguishes the two. He points out that the subject “emerges” when the surface, which delimits the Inside from the Outside, starts to function as their active mediator, instead of being just a passive medium of their interaction. What makes us “unique” is for Žižek neither our genetic formula nor the way our dispositions were developed due to the influence of the environment but the unique self-relationship emerging out of the interaction between the two. In other words, the way I “see myself,” the imaginary and symbolic features that constitute my “self-image” is neither in the genes nor imposed by the environment but in the unique way I relate to myself, “choose myself,” in relationship to my environs, in a surface effect. The subject is, he concludes, thus a surface screen, a third mediating agency, which emerges as a purely “performative” function that has no positive substantial Being.

Even though at times it comes out of narcissism, the desire of a subject involved in the practice of sel-ca is not towards the Thanatos, as in Freud, nor a form of compensation for split subjectivity, as in Lacan. The practice “constitutes” a machinic subjectivity which can be regarded as a surface screen or an interface, as in Žižek, because it produces the effect of machinic desire of an individual, performing as a mediating agent which relates the desire to one’s self. Furthermore, it not only produces a self-image at the level of an individual, but also extends itself towards that of Guattarian Group Eros. Being close to a Guattarian experimentation towards assemblages of a machinic subjectivity (Guattari 2008: 15-45), it is a performative and self-referent practice to build a subjectivity; it is not a self-enclosure, nor as autopoiesis in a retro-active loop. Guattari discusses two forms of group organization of subjectivity, though it is of course true that the oppositions between the two modalities of group formation are not always so clear-cut. The former is its personological triangulation in the I-YOU-ME/Father-Mother-Child mode; and the latter is its constitution in the forms of subject-groups open to the broader spectrum of the socius and the cosmos. In the first case, the ego and other are constructed through a set of standard identifications and imitations; while in the second case, identificatory systems are replaced by features of diagrammatic efficiency. The second case, which Guattari names Group Eros, allows the subject to escape semiologies of iconic modeling, and to engage instead with processual semiologies. It is characterized by a diagrammatic, rather than iconic, feature, and by its degree of deterritorialization, with its capacity to transcend itself and to constitute its own discursive chains.

In fact, from the beginning of the conception, the word Group Eros has a strong sense of political implication. Yet the more proper conception of it can be sought by incorporating the conception with those of machinic Eros, machinic subjectivity, and collective machinism, which Guattari himself defines as always “open,” though fragmentary, and meshing with diverse bases of alterity. Guattari sees subjectivity as a group phenomenon, and regards Group Eros as an organization of group subjectivity through features of diagrammatic efficiency, while being on an endless process of self-experimentation and deterritorialization in a broader spectrum of socius. As such, those self-images taken by college students on their mobiles seem to be a joyful, collective experimentation on their own subjectivities. They admit and play with their many “selves.” They are sharing one another’s process of self-referential and existential assemblages, to borrow Guattari’s term. And this process is an intense, evolutive movement in which they are setting themselves into “being” and instituting themselves by subsets of expressive ensembles. Their pictures, as fragmentary images, certainly take risks, causing violent deterritorialization and de-structuring already-existing assemblages of subjectification. At times there can be more gradual forms of deterritorialization, which may produce a more constructive, processual evolution of subjective assemblages. Still radical images raise an a-signifying rupture, in a context in which the catalysts of already-existing images are present but lack expressive support from the enunciative assemblage which frames them. Those catalysts remain inactive and tend towards inconsistency, producing anxiety, until expressive processes of creative assemblages forge new relationships. Their practices are always *partial* enunciators towards their subjectivity formations.

Subjectivity shoots with every bit of mobile phoning, gaining *a* form through intense and repetitive interactions. Though seemingly fragmentary, bits of mobile phoning constitute subjectivity, and, at the same time, subjectivity performs—gives a form—to the machinity of mobile phoning. Modes of imaginary follow modes of technological evolution. And technological evolution takes in changing modes of human imaginary. They are parasiting on each other. They are translating each other. The machine and the subject are interdependent; they are creating each other. This perspective consists a part of “new” humanism, different from “old” humanism which always places humans at the center. This new humanism appreciates the symbiogenetic relationship between humans and machines. What accounts for reality in this approach is the ways in which human practices affect machines, and, at the same time, the ways

in which machines affect human practices; a machine's functionality forever collapses into the process of subjectification, and in practice subjectification always finds a concrete expression of that functionality.

Chapter 7

Conclusion

The scene of mobile phoning is noisy. The mobile phone has no finality in itself; it only obtains a specific machinic quality at a particular juncture of interactions with its user. It is in a complicated metastability; its present phase of becoming comprises the dynamics of its elements—mobile radio technology and digital technology, and the materialist concreteness of enacted experience. Its formal finitude in our palm is deceptive, because what individuates it as it is is always mobile, always making new assemblages out of supersaturated potentials in the third space between the mobile phone and its user. As a medium carried closest to the human body, the mobile phone makes us to re-conceive the correlation between our bodily experience and the media in a profound manner. It is not simply that the mobile phone provides us with a tool or an environment as an instrument or an interface; but rather that it has itself become a process, and, as such, has become irreducibly bound up with the activity of our body. The mobile phone is not simply instantiating its privileged technical form; it demarcates the very process through which our body, in conjunction with its various functionalities for rendering information perceptible, gives form to—*in-forms*—information. Mobile phoning is no longer restricted to the level of the surface of the interface, for example, exchanges of conversations or texts, but being extended to encompass far wider process by which our embodied experience takes place. Mobile phoning has a *processual* relationality.

The scene of mobile phoning tells us that passage (process) is primary in relation to position (product), and processual indeterminacy is primary in relation to social determination. But it does not mean that grids do not happen. Indeterminacy and determination, movement and stasis, go together and always actually coincide while remaining disjunctive in their modes of becoming. They are *transduced* in the process of individuation. Even if they are exactly the same products, it has been revealed in this study that there are no two mobile phones used in the same way. This specificity arises from the user's creative tooling, which lays bare the Bergsonist conception of image technology, that is, the origin of the perceivable image in the selective function of the body as a center of "indetermination" (Simondon 1992). No matter how advanced, sophisticated, and various its technical form may be, mobile phoning is always an embodied experience of users. Continuous updating of digital technology reinforces this

Bergson's theorization of the process of embodied selection; rather than doing a selection of pre-existing information, the user now filters information directly and, through this process, creates information. In other words, the user can undergo a certain empowerment, since he or she deploys his or her own constitutive singularity—affection and memory, not to filter the sea of pre-given information, but actually to *enframe* something out of the possibilities. Moreover, this originary act of enframing information feeds back to become the source of the technical forms of the mobile phone, because the industry is always extremely keen on how the users make use of it. Mobile phoning has a *transversal* relationality.

To see the mobile phone's subjectivity as a processual and transversal relationality means a fundamental shift in the model of human experience from the one dominated by a closed, self-sufficient object to the one focused on the intensities of embodied affectivity and this shift can be directly attributed to the characteristics of digitization. As digital technology foregrounds the processual framing of data by the individual, what it ultimately yields is less a framed object than an embodied, subjective experience of an individual. When the individual's body acts to enframe digital information, or to forge relationships, what it frames is in effect his or her own affectively experienced sensation, which comes into contact with the digital. A variety of emerging practices of mobile phoning is itself the act of enframing information, to give a "body" to digital stream, to transform something in the air that is unframed, disembodied, and formless into concrete embodied experience intrinsically imbued with the user's specific meaning. The experiment with the possibility of the mobile phone involves a co-evolution of digital technology and the affective dimensions of experience, which is being *instantiated*, rather than *perceived*. It is far from involving a disembodiment of the human in the service of computer command.

Rather than channeling the user through the narrow frame of pre-constituted software options, this affective interfacing opens itself to the richness of creative tooling. This potential stems from the bodily dimension of affectivity that has been theorized by Simondon (1992) who correlates affectivity with the heterogenesis of the body. He elaborates "pre-individual" "affective" and "emotive" capacities of individuals in the transductive process of their becoming. Compared to an emotion or a feeling, which can be regarded as a "recognized" affect or an "identified" intensity, what Simondon means by an affective or emotive capacity is incipience or intensity—a potential for the possibility of emergence. Considering that the mobile phone technology potentializes

possibilities of everyday life with its immanent immediacy, the conception of pre-individual capacities, and, affective and emotive individuation provides an insightful perspective to the study of mobile phoning. The focus on “affect” draws attention to the body and sensation, and it also introduces an important shift. The challenge of the perspective of the affect resides primarily in the syntheses it requires, because affect refers equally to the body and the mind, involving both reason and passions, but in any sense cannot be reduced to the combination of the two. Affect thus requires us to enter the realm of complex and transductive relationship between body and mind, and, between sensation and mediation.

The conceptualization of affect can also be drawn on the line of thought from Deleuze and Guattari back through Spinoza and Bergson. They treat affect as a substrate of potential bodily responses, often autonomic responses, in excess of consciousness. For them affect refers generally to bodily capacities to affect and be affected or the augmentation or diminution of a body’s capacity to act, to engage, and to connect. Rather than a transcendence or suspension of individuation, what is at stake in the experimental experiences with the mobile phone is the catalysis of an individuation that utilizes affectivity to engage with the processes of information production. What is critical in the emergent practices of mobile phoning is the forging of “contact” with the inhuman universe of information it materializes. The medium serves as the catalyst for a new individuation, a virtualization of the body that “responds” to the problematic which occurred on the course of everyday life of its user and posed by the digital technology itself.

Beyond simply imposing an autonomous operation, the experience with the mobile phone carries out a virtualization of the body through the “medium” of affectivity; it reveals affectivity to be a potential bodily capacity for a rich source for the production of new individuations beyond contracted habits. Far from being a mere component of perception, then, affectivity deployed in the emergent practices of mobile phoning is a separate experiential modality which correlates with a specific form of virtuality of the body that differs in fundamental ways from Deleuze’s (1994) development of the virtual as a transcendental force. The enacted interactivity in this experience seems to bring the Deleuzian understanding of the virtual to “material fruition,” with the interactional process through which the user and the mobile phone become dynamically coupled with each other. The experimental experience thereby becomes a catalyst for the user’s own virtualization. The possibility of digital

technology comes from its enhanced zone of interactivity through which the users' entry into the circuit of presentation simulates or projects their own virtualizations, fantasies, and memories. Rather than a transcendental condition for thought, the virtual becomes instead the quasi- or infra-empirical catalyst for the "real genesis" of a bodily becoming.

Guattari (1995: 9; 25) incorporates this embodied conception of the virtual specifically with the domain of affectivity, which he thinks the "non-human, pre-personal part of subjectivity" from which "heterogenesis can develop." Guattari credits Bergson as his source for this thought: "We can trace this intuition to Bergson, who shed light on the non-discursive experience of duration by opposing it to a time cut up into present, past and future, according to spatial schemas." The ethico-aesthetic paradigm Guattari develops in his work is itself directly responsive to the phenomenon of digital media. He argues that, if technological machines of information and communication operate at the heart of human subjectivity within its sensibility, affect, and unconscious fantasms, the existential singularization catalyzed by digital media opens human body to machinic heterogenesis (1995: 4). By placing the body into interactive coupling with technically expanded virtual domains, digital media not only extend perception, but, more importantly, they catalyze the production of new affects—new affective *relations*.

This processual and transversal relationality also constitutes an important part in Ascott's (2007: 85) art theory. His notion of telematic embrace is based on the new understanding of the relationships among an artist, observer, artwork, and its environment. He seems to have gained insights from second-wave cybernetics: whereas early cybernetics considered a system as an autonomous entity, second-order cybernetics, as theorized by Heinz von Foerster (2002), raises the question of reflexivity, that is, how to account for the role of the observer with respect to the behavior of a system. This new cybernetic perspective understands a system as contingent on observers and their means of measurement, which influence the observation of behavior both because of the subjectivity of interpretation and through the physical alteration of matter at the quantum level. With this move, the universe has become a "participatory" universe (Wheeler and Zurek 1983: 6). Appropriating this new perspective, Ascott argues that art has to be a participatory process as opposed to a discrete object or event, and should be defined not by formal parameters but by concrete relationships in which an artist, observer, and environment, including global telematic networks, are inextricably integrated into a distributed, interactive, and emergent system.

In second-wave cybernetics the role of the observer can be seen as "framing"

because information requires a frame to be constituted as information, and that frame is provided by the active constitution and assembly of human embodiment. In other words, information requires a translator, which is the material human body grounded in the wetware of our sensorimotor systems. It is the crucial point of the Bergsonism; the affective body is the “glue” that underpins consciousness and connects it with sub-perceptual sensorimotor processes. Recent work in the neurosciences provides the material link to this argument. Varela (1999: 272-301) in particular makes a powerful argument that all forms of cognitive act arise from dynamic self-organizing patterns of widely distributed regions of the brain rather than organized as sequential arrangements as the computer metaphor would model it. In other words, cognition requires a “frame” or “window” of simultaneity that corresponds to the duration of the lived present; the constant stream of sensory activation and motor consequence is incorporated within the framework of an endogenous dynamics (not an information-computational one), which gives it its depth or incompressibility.

In the practice of mobile phoning, it is the user’s embodied enaction that operates as a kind of *converter* of the technological forms of framing into a rich, singular experience. Hence, each user’s affection and memory render perception constitutively *impure*, to borrow from Bergson (1988: 35-38). As perception is a *diminution* or *subtraction* from the universe of images, the user perceives of a material object or matter by isolating certain of its aspect, leaving the rest aside. This is what Bergson means by his deduction of the body as a center of indetermination and at the same time what endows the body with strongly creative capacities. Indeed, it is the user’s perception as an act of subtraction which installs the affectivity in the center of the interactions with the machine. The interactive corporeal experience becomes a source of action; hence the body’s indeterminacy is not “incorporeal” as in Massumi’s (2002: 1) account of it. Rather, the indeterminacy of the body is directly related with its concrete embodiment, and it is precisely what Bergson means by saying that indetermination forms a correlate of the complexity of nervous system.

Affectivity is thus the capacity of the body to experience itself as “more than itself” which deploys its sensorimotor power to create the unpredictable, the experimental, the new. It is a capacity to experience its own intensity and its own margin of indeterminacy; it comprises a power of the body that cannot be assimilated to the habit-driven, associational logic-governing perception. This Bergsonist theme appears as its most forceful expression in Simondon’s account of the process of

individuation. Simondon theorizes affectivity as a mediating mode of bodily experience which indicates and comprises the relation between the individualized being and pre-individual reality. Affectivity is thus to a certain extent heterogeneous in relation to individualized reality, and appears to bring it something from the exterior, indicating to the individualized being that it is not a complete and closed set—ensemble—of reality.

Affectivity, as the bodily capacity of an individual, is specific to every other individual and that is why everybody uses his or her mobile phone in different ways. Individual toolings of the mobile phone are kind of a process of resolution. Resolution of potentials among supersaturated potentials, as Simondon calls it (1992: 301). It is always a partial and relative resolution that contains latent potentials and a certain incompatibility with itself. Incompatibility or impossibility of interaction at the moment creates forces in tension, which become potentials for further action. This can be due to technical constraints, personal or cultural inadequacy, and other indescribable causes. This incompatibility or impossibility has been diminishing rapidly thanks mainly to ever-getting smarter digital technology. The accelerating media convergence or fusion into the mobile phone increases the centrality of the user as framer of information: as it loses its material specificity as a “phone,” the user takes on a more prominent role as a selective processor and creator of its functions. The medium becomes processual; it is highly dynamic, capable of performing in many ways according to the user’s resolutions. By nurturing and supporting the interactivity of its users, the mobile phone operates as one of the most intimate spaces of becoming (or individuation)—both psychic and collective.

Mobile diaries in this study support the claim that concrete media find their most “originary” functions not as technological artifacts but via their participation in human techno-genesis, that is, human’s co-evolution with technics. Following Leroi-Gourhan (1993), Stiegler (1998) argues for the co-originary of technics and the human, which means that the moment of breaking, which gave rise to the human as a distinct species, is simply the invention of technics. From the fact that the earliest fossil remains of proto-humans are contemporaneous with the earliest remains of primitive flint tools, he finds important empirical support for his own theorization of the human as an originarily prosthetic being. Humans are “essentially” technical and have been so from their very “origin”: human evolution is thus irreducibly both biological and cultural; it occurs as a process that he dubs “epiphylogenesis,” evolution through “means” other than “life.” Stiegler’s theoretical standpoint concurs with Serres’, who repeatedly argues

that there would not be a human if not there for objects. In comparison to Serres, Stiegler's conceptualization draws more on the implications of works in biological autopoiesis, which demonstrates that embodied life necessarily involves a "structural coupling" of an organism and an environment. But Stiegler opens a door to technics, by saying that the logic of the living is inseparable from the concrete operation of technics. Serres and Stiegler enable us to see a communication medium, as a kind of tool, always *transduces* the condition of life between the organism and the environment, selectively actualizing the elements of environment. A medium is not simply and specifically a technical entity; it necessarily involves the operation of the living. Seen from this understanding, the works of Hayles (1999) and Kittler (1999) seem to address only one side of a bi-directional circuit that has only become more complex, more mutually imbricated, and more productive as the evolution of technology has accelerated to a disorienting speed.

Stiegler's notion of epiphylogenesis, the intermingling of the living basis of technology and the technological basis of human evolution is itself "techno-genesis," a parasitic symbiogenesis of humans and technologies. Digital technology comprises the most recent, and certainly the most complex, stage of the ongoing evolution of technology, and as such, it impacts the human not from the outside, but rather as an expansion of the possibilities of actualization that lies at the innermost core of the human as a form of the living. Digital media facilitate individual enaction over the flux of time and the flux of networks and databases. Digital media empower the users to reassert "some" control over the production of new *presencings*. In other words, they restore some of the agency that personal lived experience has apparently lost over the past two centuries of rapidly accelerated technological evolution. They exemplify a way that technologies can function as correlates of embodied life, helping personal bodily affectivity intervene creatively and substantively in the production of presencings that constitute lived reality itself, including the lived reality of the individual.

It is important to note that the possibilities of digital media, including the mobile phone, are resistant to any type of utopian hope, not to mention pessimistic blame. The point is to acknowledge the most profound dimension of the transductive coupling of the living and technology, which means that human life is essentially technical, as epiphylogenesis. It is to value creative couplings as well as the singularity of embodied experience. As "subjectivity is polyphonic," with no dominant or determining factor (Guattari 1995), intersections of "existential refrains" play a

dominant role in the production of subjectivity. In what Guattari calls “heterogenesis of subjectivity” what matters are machinic transformations of subjectivity. He speaks of the singularizing potential of digital media, and specifically its actualization of living affects. Therefore, the newness of new media does not simply reside in their technical specificity; Manovich’s (2001; 2006) illustrious account of new media needs other half to be an appropriate analysis of media. A new medium designates a new *phase* of human techno-genesis, one that is perhaps catalyzed first and foremost by new technical elements, but nevertheless cannot be the one at all without mixing with humans.

The so-called posthuman theories are also a partial view which is unable to provide a proper account on this symbiogenetic technogenesis. Hayles (1999: 3; 52) writes that the posthuman view configures human being so that it can be seamlessly articulated with intelligent machines. In the posthuman, there are no essential differences or absolute demarcations between bodily existence and computer simulation, cybernetic mechanism and biological organism, robot teleology and human goals. A central conception fuelling this version of posthuman theory is the notion of information as disembodied, a view that Hayles locates precisely in the Shannon-Weaver theory of information, which sees information stochastically or probabilistically. But Hayles does not abandon the importance of human agency all together. She mentions that alternative models of information were available in the development of cybernetics but American cyberneticists dropped the idea of the mutual constitution of message and receiver because it seemed too subjective and difficult to measure. It was also due to historical contingencies related to the situation of allies and the availability of quantitative techniques associated with the Shannon model.

As an effort to resolve this problematic, Hayles develops a more “transductive” approach in her later works (2002; 2005) which views that the materiality of digital texts undoes the distinction between computation and signification. She argues that, as a “distributed cognitive environments,” the Regime of Computation does not allow static opposition between analogue and digital and in fact they have never existed apart from each other. Her point is that we attend to the “mutual interpenetration” of physicalities and signifying strategies and therefore only by acknowledging the interpenetration do we become active in the complex dynamics that connect “what we make” and “what (we think) we are” (2005: 211; 242). Incorporating embodied experience with her rigorous theory of media, Hayles complements the works of Kittler (1999) and Manovich (2001) that could be called *technesis*, rather than *technogenesis*.

What an individual encounters on his or her mobile phone is millions of bits of electronic mathematical data, situated on an electromagnetic terrain in which sounds, visuals, and linguistic elements are circulated, exchanged, and consumed. Digital data on the mobile phone is at heart polymorphous; it is fundamentally antithetical to the form of the “frame,” because it instantiates an action for the user, containing within itself potentials to follow. What makes a mobile phone work is not “framed” information; it is rather its potentials for affective everyday experience. Furthermore, it is not only pre-figured functionalities that comprise the user’s mobile phoning. Its potential from technological specificity also instantiates the user’s affective action. For instance, the shiny surface, camera, or its great portability are the parts of triggering elements of the mobile phone which have been found as bringing about unexpected consequences.

The practices of mobile phoning remind us of what Woodward (1983) calls the second myth of technological change. Conventional understanding of a myth is that it is a construct we invent to explain the unknown world to ourselves and, conversely, ourselves to the unknown world. It is also a reading of history in which we expect the shape of things to come. Woodward tells that, while the first myth of the informational society has dealt with the relationship of technology to the nature of production, the second one concerns the relationship of technology to the human body. Now, beyond the logocentric and anthropocentric bias, what has been found from the mobile diaries in this study is that realities are snowballing with the individuals’ experiential excesses. Rather than from a grand desire to create a revolutionary medium, a simple, playful “mix” individuates the machine and the user all by chance. Just as an instant casual offer of the food by the host to the passer-by brings about the relationship between the two in a totally unexpected way, there, in the third space of parasiting, emerges something new, which goes beyond “intention.”

All software packed into the mobile phone con-fuse not only with one another to become a new machinic assemblage, but also with individuals using them to initiate another machinic assemblage. Users’ non-purposive, spontaneous mobile phoning is also being inserted into the industry’s purposiveness, which then would be reinserted into further experiential excesses. In this topological space of parasiting, a specific mode of relationality—either for the user or for the machine—is always individuated by the process of transduction of elements. The flux and flow of embodied experiences become discreet, concretized, or singularized in the networks of relations into *an*

individual, and it is the mobile phone in your palm, and you. Mobile phoning has a *symbiogenetic* relationality.

Bibliography

- Abbas, N. (ed.) *Mapping Michel Serres*. The University of Michigan, 2005.
- Ahn, D. K. "On the Relationship of Lifestyle and the Selection of the Mobile Phone for College Students." Paper presented to the Autumn Convention, Korean Association for Broadcasting & Telecommunication Studies, 2006.
- Agar, J. *Constant Touch: A Global History of the Mobile Phone*. Icon Books, 2004.
- Allison, D. (ed.) *The New Nietzsche*. New York: Dell, 1977.
- Ansell Pearson, K. *Germinal Life: The Difference and Repetition of Deleuze*. New York: Routledge, 1999.
- Appadurai, A. (ed.) *The Social Life of Things: Commodities in Cultural Perspective*. Cambridge University Press, 2000.
- Ascher, M. and R. Ascher. *The Code of the Quipu*. The University of Michigan Press, 1981.
- Ascott, R. *Telematic Embrace: Visionary Theories of Art, Technology, and Consciousness*. University of California Press, 2007.
- Assad, M. L. *Reading with Michel Serres: An Encounter with Time*. State University of New York, 1999.
- Atlan, H. "On a Formal Definition of Organization." *Journal of Theoretical Biology*. 45: 295-304, 1974.
- Bachelard, G. *The Formation of the Scientific Mind: A Contribution to a Psychoanalysis of Objective Knowledge*. Clinamen Press Ltd., 2001.
- Bae, J. H. "Uses and Gratifications of the Mobile Phone and its Suitability for Interpersonal Communication." *Korean Journal of Journalism & Communication Studies*. 45(4): 221-49, 2001.
- _____. "Korean People's Value System on the Practice of Communication and Their Recognition of the Mobile Phone as a Medium for Interpersonal Communication." *Korean Journal of Communication and Information*. 21: 87-113, 2003.
- _____. "A Study on Factors Influencing Mobile Phone Uses in Public Places." in *Mobile Communication and Social Change*. The Korean Association of Broadcasting Studies, 2004.
- Bakalis, N. *Handbook of Greek Philosophy: From Thales to the Stoics Analysis and Fragments*. Trafford Publishing, 2005.

- Ban, H. "Usage of Digital Mobile Communication and Change in a Traditional Media Use." in *Mobile communication and Social Change*. The Korean Association of Broadcasting Studies, 2004.
- Baron, N. S. *Always On: Language in an Online and Mobile World*. Oxford: Oxford University Press, 2008.
- Baron, N. S. and Y. Hard af Segerstad. "Cross-cultural Patterns in Mobile Phone Use: Public Space and Reachability in Sweden, the USA, and Japan." *New Media & Society* 12(1): 13-34, 2010.
- Baudrillard, J. *The Vital Illusion*. Columbia University Press, 2001.
- _____. *Symbolic Exchange and Death*. Sage, 2002.
- Bauman, Z. *Modernity and Ambivalence*. Cambridge: Polity Press, 1991.
- _____. *Postmodern Ethics*. Oxford: Blackwell, 1993.
- _____. *Life in Fragments*. Oxford: Blackwell, 1995.
- Beck, U. *What is Globalization?* Cambridge: Polity, 1999.
- Beniger, J. R. *The Control Revolution: Technological and Economic Origins of the Information Society*. Cambridge, Mass.: Harvard University Press, 1986.
- Benjamin, W. *Illuminations*. New York: Schocken Books, 1969.
- _____. *The Arcade Project*. Belknap Press, 2002.
- Berg, S., A. S. Taylor and R. Harper. "Gift of the Gab." in R. Harper, L. Palen and A. S. Taylor (eds.) *The Inside Text: Social, cultural and design perspectives on SMS*. Springer, 2005.
- Berger, P. and T. Luckmann. *The Social Construction of Reality*. Middlesex: Penguin, 1966.
- Berger, P. L., B. Berger and H. Kellner. *The Homeless Mind*. Harmondsworth: Penguin, 1974.
- Bergson, H. *Matter and Memory*. New York: Zone Books, 1988.
- _____. *Creative Evolution*. New York: Dover, 1998.
- Berressem, H. " 'Incerto tempore Incertisque Locis': the Logic of the Clinamen and the Birth of Physics." in N. Abbas (ed.) *Mapping Michel Serres*. The University of Michigan Press, 2005.
- Bloom, A. H. *The Linguistic Shaping of Thought: A Study in the Impact of Language on Thinking in China and the West*. Hillsdale, NJ: Lawrence Erlbaum Associates, Pub., 1981.
- Bloomfield, L. *Language*. University of Chicago Press, 1984.

- Bodde, D. "Dominant Ideas in the Formation of Chinese Culture." in H. F. MacNair (ed). *China*. University of California Press, 1946.
- Bohm, D. *The Undivided Universe: Ontological Interpretation of Quantum Theory*. Routledge, 1995.
- Bolter, J. D. *Turing's Man: Western Culture in the Computer Age*. The University of North Carolina Press, 1984.
- _____. *Writing Space: Computers, Hypertext, and the Remediation of Print*. Hillsdale, NJ: Lawrence Erlbaum Associates, Publishers, 2001.
- Bolter, J. D. and R. Grusin. *Remediation: Understanding New Media*. Cambridge, Mass.: The MIT Press, 1999.
- Bourdieu, P. *Outline of a Theory of Practice*. Cambridge: Cambridge University Press, 1977.
- Brecht, B. "The Radio as an Apparatus of Communication." 1932.
www.medienkunstnetz.de/source-text/8/
- Brown, S. D. "Michel Serres: Science, Translation and the Logic of the Parasite." *Theory, Culture & Society* 19(3): 1-27, 2002.
- Burawoy, M., A. Burton, A. A. Ferguson and K. J. Fox. *Ethnography Unbound*. Berkeley: University of California Press, 1991.
- Burgess, A. *Cellular Phones, Public Fears, and a Culture of Precaution*. Cambridge University Press, 2004.
- Burstein, D. and D. Kline. *blog! how the newest media revolution is changing politics, business, and culture*. CDS Books, 2005.
- Callon, M. "Society in the Making: The Study of Technology as a Tool for Sociological Analysis." in W. Bijker, T. Hughes, and T. J. Pinch (eds.) *The Social Construction of Technological Systems: New Directions in the Sociology and History of Technology*. Cambridge, Mass.: MIT Press, 1987a.
- _____. "Some Elements of a Sociology of Translation: Domestication of the Scallops and Fishermen of St Brieuc Bay." in J. Law (ed) *Power, Action, Belief: A New Sociology of Knowledge?* London: Routledge and Kegan Paul, 1987b.
- Canguilhem, G. "Machine and Organism." in J. Crary and S. Kiwnter (eds.) *Incorporations*. New York: Zone Books, 1992.
- Capra, F. *The Web of Life*. London: Harper Collins, 1996.
- _____. "Complexity and Life." *Theory, Culture and Society*. 22(5): 33-44, 2005.
- Carey, J. *Communication as Culture: Essays on Media and Society*. Boston & London:

- Unwin Hyman, 1989.
- Carlsson, Y. and S. H. Decker. "Gang and Youth Violence Prevention and Intervention." in S. H. Decker and F. M. Weermen (eds.) *European Street Gangs and Troublesome Youth Groups*. Lanham, MD: Rowman Altamira, 2005.
- Castells, M. *The Information Age: Economy, Society, and Culture*. Oxford: Blackwell, 1996.
- _____. *The Rise of the Network Society*. Blackwell, 2000.
- Castells, M., M. Fernandex-Ardevol, J. L. Qui and A. Sey. *Mobile Communication and Society: A Global Perspective*. Cambridge, MA: MIT Press, 2006.
- Castells, M. and J. E. Katz. *Handbook of Mobile Communication Studies*. The MIT Press, 2008.
- Caygill, H. *Walter Benjamin: The Colour of Experience*. London & New York: Routledge, 1998.
- Chapman, S. and W. N. Schofield. "Lifesavers and cellular Samaritans: emergency use of cellular (mobile) phones in Australia." Department of Public Health and Community. Medicine University of Sydney, 1998.
- <http://www.amta.org.au/files/issues/pdfs/emergency.pdf>
- Chaput, T. "From Socrates to Intel: The Chaos of Microaesthetics." in J. Thackara (ed.) *Design after Modernism: Beyond the Object*. New York: Thames & Hudson, 1988.
- Cheng, T. C. *Symbiosis: Organisms Living Together*. New York: Pegasus, 1970.
- Chesley, N. "Blurring Boundaries? Linking Technology Use, Spill-over, Individual Distress, and Family Satisfaction." *Journal of Marriage and Family*. 67: 1237-48, 2005.
- Chuang Tzu. *Chuang Tzu: Basic Writings*. Columbia University Press, 1996.
- Chung, Y. C. "Chinese Philosophy: A Characterization." in A. Naess & A. Hannay (eds.) *Invitation to Chinese Philosophy: Eight Studies*. Oslo: Universitetsforlaget, 1972.
- Clough, P. T. "The New Empiricism: Affect and Sociological Method." *European Journal of Social Theory*. 12(1): 43-61, 2009.
- Clough, P. T. and J. Halley. *The Affective Turn: Theorizing the Social*. Durham & London: Duke University Press, 2007.
- Cohen, A. A. and D. Lemish. "When Bombs Go Off the Mobiles Ring: The Aftermath of Terrorist Attacks." in K. Nyiri (ed.) *A Sense of Place: The Global and the Local in Mobile Communication*. Vienna: Passagen Verlag, 2005.
- Cohen, F. "Computer Viruses—Theory and Experiments." DOD/NBS 7th Conference on

- Computer Security, 1984. <http://www.all.net/books/virus/index.html>.
- Confucius. *The Analects*. Berkeley: Counterpoint, 1998.
- Conley, V. A. "Chaosmopolis." *Theory, Culture & Society*. 19(1/2): 127-38, 2002.
- Corti, L. "Using Diaries in Social Research." *Social Research Update*. University of Surrey, 1993. www.sru.soc.surrey.ac.uk/SRU2.html
- Crowley, D. and P. Heyer. (eds.) *Communication in History: Technology, Culture, Society*. New York & London: Longman, 1999.
- Cumming-Bruce, N. "Wireless: in Thailand, on the Trail of Cellphone Terrorists." *International Herald Tribune*. May 2, 2005.
www.iht.com/articles/2005/05/01/business/wireless02.php.
- Dalio-Bul, M. "Japan's Mobile Technoculture: The Production of a Cellular Playscape and Its Cultural Implications." *Media, Culture & Society*. 29(6): 954-71, 2007.
- de Certeau, M. *The Practice of Everyday Life*. Berkeley: University of California Press, 1984.
- Dawkins, R. *The Selfish Gene*. Oxford University Press, 2006a.
_____. *Unweaving the Rainbow*. Penguin Books, 2006b.
- de Landa, M. "Nonorganic Life." in J. Crary and S. Kwinter (eds.) *Incorporations*. New York: Zone Books, 1992.
_____. *A Thousand Years of Nonlinear History*. Zone Books, 2003.
- Deleuze, G. *Bergsonism*. New York: Zone Books, 1988a.
_____. *Foucault*. Minneapolis: University of Minnesota Press, 1988b.
_____. *Spinoza: Practical Philosophy*. San Francisco: City Lights, 1988c.
_____. *Cinema 2: The Time-Image*. London: Athlone, 1989.
_____. "Postscript on the Societies of Control." *October*. 59 (Winter), 1992a.
_____. "Ethology: Spinoza and Us." in J. Crary and S. Kwinter (eds.) *Incorporations*. New York: Zone Books, 1992b.
_____. *The Fold: Leibniz and the Baroque*. Minneapolis: University of Minnesota Press, 1993.
_____. *What is Philosophy?* London: Verso, 1994.
_____. *Negotiations 1972-1990*. New York: Columbia University Press, 1995.
_____. *Pure Immanence: Essays on A Life*. Zone Books, 2002.
_____. *The Logic of Sense*. London & New York: Continuum, 2003.
_____. *Desert Islands and Other Texts: 1953-1974*. Los Angeles & New York: Semiotext(e), 2004.

- Deleuze, G. and F. Guattari. *A Thousand Plateaus: Capitalism and Schizophrenia*. Minneapolis: University of Minnesota Press, 1987.
- _____. *Anti-Oedipus: Capitalism and Schizophrenia*. London: Athlone, 2000.
- Denzin, N. K. *Interpretive Biography: Qualitative Research Methods*. Sage, 1989.
- Derrida, J. *Dissemination*. The University of Chicago Press, 1981.
- _____. *Of Grammatology*. The Johns Hopkins University Press, 1997.
- _____. "And Say the Animal Responded?" in C. Wolfe (ed.) *Zoontologies: The Question of the Animal*. University of Minnesota Press, 2003.
- Descartes, R. *Principles of Philosophy*. Kluwer Academic Publishers, 1991.
- Dobson, K., D. Grace and D. R. Lovett. *Physics*. Collins Educational, 1997.
- Dyens, O. *Metal and Flesh: The Evolution of Man: Technology Takes Over*. Cambridge, Mass.: The MIT Press, 2001.
- Ehrenreich, B. *Dancing in the Streets: A History of Collective Joy*. Granta, 2007.
- Eisenstein, E. *The Printing Revolution in Early Modern Europe*. Cambridge University Press, 2005.
- Fischer, C. S. *America Calling: A Social History of the Telephone to 1940*. University of California Press, 1992.
- Flew, A. *Introduction to Western Philosophy: Ideas and Arguments from Plato to Popper*. Thames & Hudson, 1989.
- Fortunati, L. *The Mobile Phone: New Social Categories and Relations*. University of Trieste, 2000.
- _____. "Italy: Stereotypes, True and False." in J. E. Katz and M. A. Aakhus (eds.) *Perpetual Contact: Mobile Communication, Private Talk, Public Performance*. Cambridge: Cambridge University Press, 2002.
- Foucault, M. "The Discourse on Language." in *The Archaeology of Knowledge*. New York: Pantheon, 1972.
- _____. "What is Enlightenment?" in P. Rabinow (ed.) *The Foucault Reader*. Penguin, 1984.
- _____. "Technologies of the Self." in L. H. Martin, H. Gutman and P. H. Hutton (eds.) *Technologies of the Self: A Seminar with Michel Foucault*. University of Massachusetts Press, 1988.
- _____. *Power / Knowledge: Selected Interviews and Other Writings, 1972-77*. Longman, 1995.
- _____. "What is Critique?" in *The Politics of Truth*. New York: Semiotext (e), 1997.

- _____. *The History of Sexuality: Will to Knowledge (v. 1)*. Penguin Books, 1998.
- _____. *The Order of Things: Archaeology of Human Sciences*. Routledge, 2001.
- Fox, K. "Evolution, Alienation and Gossip: The Role of Mobile Telecommunications in the 21st Century." Oxford: Social Issues Research Centre, 2001.
<http://www.sirc.org/publik/gossip.shtml>
- Freeman, C. *The Closing of the Western Mind: The Rise of Faith and the Fall of Reason*. Pimlico, 2003.
- _____. *AD 381: Heretics, Pagans, and the Christian State*. Pimlico, 2008.
- Fuller, M. *Media Ecologies: Materialist Energies in Art and Technoculture*. The MIT Press, 2005.
- Fung, Yu-Lan. *A Short History of Chinese Philosophy*. New York: The Macmillan Co., 1958.
- Furst, R. T., C. Herrmann, R. Leung, J. Galea, and K. Hunt. "Heroin Diffusion in the Mid-Hudson Region of New York State." *Addiction*. 99(4): 431-41, 2004.
- Gabriel, T. H. "Thoughts on Nomadic Aesthetics and the Black Independent Cinema." in R. Ferguson (ed.) *Out There: Marginalization and Contemporary Culture*. Cambridge, MA: MIT Press, 1990.
- Gatlin, L. *Information Theory and the Living System*. New York & London: Columbia University Press, 1972.
- Geertz, C. *The Interpretation of Cultures: Selected Essays*. New York: Basic Books, 1973.
- Gelb, I. J. *A Study of Writing*. Chicago: University of Chicago Press, 1974.
- Gergen, K. J. *The Saturated Self: Dilemmas of Identity in Contemporary Life*. New York: Basic Books, 1991.
- _____. "The challenge of absent presence." in J. E. Katz and M. A. Aakhus (eds.) *Perpetual Contact: Mobile Communication, Private Talk, Public Performance*. Cambridge: Cambridge University Press, 2002.
- Gernet, J. *A History of Chinese Civilization*. Cambridge University Press, 1996.
- Geser, H. "On the Functions and Consequences of the Internet for Social Movements and Voluntary Associations." (2nd release). Zurich, 2001.
http://socio.ch/movpar/t_hgeser3a.htm
- Gibson, W. *Neuromancer*. An Ace Book, 2000.
- Girard, R. "From Ritual to Science." in N. Abbas (ed.) *Mapping Michel Serres*. The University of Michigan, 2005.

- Gleick, J. *Chaos: Making a New Science*. Penguin Books, 1988.
- Glottz, P., S. Bertschi, and C. Locke (eds.) *Thumb Culture: The Meaning of Mobile Phones for Society*. Transcript, 2005.
- Goggin, G. *Cell Phone Culture: Mobile Technology in Everyday Life*. London & New York: Routledge, 2006.
- Goldberg, V. *The Power of Photography*. Abbeville Press, 1991.
- Goodwin, B. *How the Leopard Changed Its Spots: Evolution of Complexity*. Phoenix, 1997.
- Gould, S. J. *Wonderful Life: Burgess Shale and the Nature of History*. Penguin Books Ltd, 1991.
- Grant, D. and S. Kiesler. "Blurring the boundaries: cell phones, mobility and the line between work and personal life." in B. Brown, N. Green, and R. Harper (eds.) *Wireless World: Social and Interactional Aspects of the Mobile Age*. London: Springer-Verlag, 2001.
- Greco, M. "On the Vitality of Vitalism." *Theory, Culture & Society*. 22 (1): 15-27, 2005.
- Green, N. "Who's Watching Who: Monitoring and Accountability in Mobile Relations." in B. Brown, N. Green and R. Harper (eds.) *Wireless World: Social and Interactional Aspects of the Mobile Age*. Springer Verlag, 2001.
- Guattari, F. "Regimes, Pathways, Subjects." in J. Crary and S. Kiewnter (eds.) *Incorporations*. New York: Zone Books, 1992.
- _____. *Chaosmosis: an Ethico-Aesthetic Paradigm*. Bloomington and Indianapolis: Indiana University Press, 1995.
- _____. *Three Ecologies*. Continuum, 2008.
- Habuchi, I. "Accelerating Reflexivity." in M. Ito et al. (eds.) *Personal, Portable, Pedestrian: Mobile Phones in Japanese Life*. Cambridge, Mass. & London: The MIT Press, 2005.
- Haddon, L. and S. D. Kim. "Mobile Phones and Web-based Social Networking—Emerging Practices in Korea with Cyworld." *Journal of the Communications Network*. 6(1): 5-12, 2007.
- Hall, D. "Modern China and the Postmodern West." in L. Cahoone (ed.) *From Modernism to Postmodernism*. Blackwell, 1996.
- Han, J. R. and K. H. Huh. "How to Measure Mobile Phone Addiction." *Korean Journal of Journalism & Communication Studies*. 48(6): 150-75, 2004.
- Hansen, C. *A Daoist Theory of Chinese Thought: A Philosophical Interpretation*.

- Oxford University Press, 1992.
- Hansen, M. *New Philosophy for New Media*. MIT Press, 2004.
- _____. "Media Theory." *Theory, Culture & Society*. 23 (2-3): 297-306, 2006.
- Haraway, D. *Simians, Cyborgs and Women: The Reinvention of Nature*. London: Free Association Books, 1991.
- _____. *Modest Witness @ Second Millennium*. London: Routledge, 1997.
- _____. *The Companion Species Manifesto: Dogs, People, and Significant Otherness*. Prickly Paradigm Press, 2007.
- Harper, R. "The Mobile Interface: Old Technologies and New Arguments." in B. Brown, N. Green, and R. Harper (eds.) *Wireless World: Social and Interactional Aspects of the Mobile Age*. London: Springer-Verlag, 2001.
- Harvey, D. *Spaces of Global Capitalism: Towards a Theory of Uneven Geographical Development*. London: Verso, 2006.
- Havelock, E. A. *Origins of Western Literacy*. The Ontario Institute for Studies in Education, 1976.
- Hayles, N. K. *The Cosmic Web: Scientific Field Models and Literary Strategies in the Twentieth Century*. Ithaca, N.Y.: Cornell University Press, 1984.
- _____. "Two Voices, One Channel: Equivocation in Michel Serres." *Substance* 57: 3-12, 1988.
- _____. *Chaos Bound: Orderly Disorder in Contemporary Literature and Science*. Ithaca, NY: Cornell University Press, 1990.
- _____. *How We Became Posthuman: Virtual Bodies in Cybernetics, Literature, and Informatics*. The University of Chicago Press, 1999.
- _____. *Writing Machines*. The MIT Press, 2002.
- _____. *My Mother Was a Computer: Digital Subjects and Literary Texts*. Chicago: University of Chicago Press, 2005.
- _____. "RFID: Human Agency and Meaning in Information-Intensive Environments." *Theory, Culture & Society*. 26(2-3): 47-72, 2009.
- Heidegger, M. *The Question Concerning Technology and Other Essays*. New York: Harper Torchbooks, 1977.
- _____. *Being and Time*. Blackwell, 1978.
- Hemment, D. "The Mobile Effect." *Convergence*. 11: 32-39, 2005.
- Ho, J. E. *East Asian Philosophy: With Historical Background and Present Influence*. New York: Peter Lang, 1992.

- Hochschild, A. R. *The Time Bind: When Work Becomes Home and Home Becomes Work: The Cultural Study of Work*. New York: Henry Holt and Co., 2003.
- Hume, D. *An Enquiry Concerning Human Understanding*. Oxford University Press, 2008.
- Hyvönen, K. and P. Repo. "The Use of Mobile Services in Finland: Adoption Challenges Diffusion Theory." *GESTS Int'l Trans. Computer Science and Engr.* 20(1): 166-78, 2005. www.gests.org/download/2517.pdf
- Ingold, T. "An Anthropologist Look at Biology." *Man* (NS). 25: 208-29, 1990.
- Innis, H. *The Bias of Communication*. University of Toronto Press, 1995.
- International Telecommunication Union (ITU). *Measuring the Informaiton Society: The ICT Development Index*. Geneva: International Telecommunication Union, 2009.
- Ishii, K. "Implications of Mobility: The Uses of Personal Communication Media in Everyday Life." *Journal of Communication*. 56: 346-65, 2006.
- Ito, M. and D. Okabe. "Techno-social Situations: Emergent Structuring of Mobile Email Use." in M. Ito, D. Okabe, and M. Matsuda (eds.) *Personal, Portable, Pedestrian: Mobile Phones in Japanese Life*. Cambridge, MA: MIT Press, 2005.
- Ito, M., D. Okabe, and M. Matsuda (eds.). *Personal, Portable, Pedestrian: Mobile Phones in Japanese Life*. Cambridge, MA: The MIT Press, 2005.
- Jacob, F. *The Possible and the Actual*. New York: Pantheon, 1982.
- James, W. *Pragmatism and The Meaning of Truth*. Cambridge: Harvard University Press, 1978.
- _____. *Essays in Radical Empiricism*. Lincoln: University of Nebraska Press, 1996.
- Jameson, F. "The Cultural Logic of Late Capitalism." in *Postmodernism, or, The Cultural Logic of Late Capitalism*. Durham, N.C.: Duke University Press, 1991.
- Jones, H. *The Epicurian Tradition*. Routledge, 1989.
- Joo, J. M. "Privatizations of Public Space with Mobile Phones." *Korean Journal of Broadcasting & Telecommunication Studies*. 18(4): 117-47, 2004.
- Jullien, F. *Detour and Access: Strategies of Meaning in China and Greece*. Zone Books, 2000.
- Kang, J. S. and S. H. Park. *The New Communication and Culture in Mobile Space: Homo Cell-Phonicus' Communication, Play and Desire*. KT Culture Institute, 2005.
- Kang, Y. "Online Communities on the Move: Mobile Play in Korea." in Katz, J. (ed.) *Handbook of Mobile Communication*. Cambridge, MA: MIT Press, 2008.

- Kant, I. *Ethical Philosophy: The Complete Texts of Grounding for the Metaphysics of Morals and Metaphysical Principles of Virtue*. Indianapolis: Hackett, 1983.
- Katz, J. E. *Magic in the Air: Mobile Communication and the Transformation of Social Life*. New Brunswick & London: Transaction Publishers, 2006.
- _____. (ed.) *Handbook of Mobile Communication*. Cambridge, MA: MIT Press, 2008a.
- _____. "Mainstreamed Mobiles in Daily Life: Perspectives and Prospects." in J. Katz (ed.) *Handbook of Mobile Communication*. Cambridge, MA: MIT Press, 2008b.
- Katz, J. E. and M. Aakhus (eds.) *Perpetual Contact: Mobile Communication, Private Talk, Public Performance*. Cambridge University Press, 2002.
- Kim, E. M. "Social Context of the Use of Mobile Media: Mobile Messaging in Young Generation." D. H. Kim (ed.) *Mobile Media*. Seoul: Communication Books, 2006.
- Kim, H. J. "Telephone's Socio-cultural Influence." *Korean Journal of Journalism & Communication Studies*. 46(2): 65-92, 2002.
- Kim, J. H., and B. R. Jin. "Strategic Uses of Mobile and Interpersonal Media in Maintaining Interpersonal Relations." in *Mobile communication and Social Change*. The Korean Association of Broadcasting Studies, 2004.
- Kim, J. K. "An Examination of Mobile Phone Use by Adolescents and Adults in Korea." in *Mobile communication and Social Change*. The Korean Association of Broadcasting Studies, 2004.
- Kim, K. O. "Mobile, Body, and Space." Paper presented to the Autumn Convention, Korean Association for Broadcasting & Telecommunication Studies, 2006.
- Kim, K. S., H. J. Park and I. G. Song. "Mobile Communication—Its Value and Result." *Korean Journal of Journalism & Communication Studies*. 50(1): 60-63, 2006.
- Kim, S. C. "Space, Technology and Mobilities." in *Mobile communication and Social Change*. The Korean Association of Broadcasting Studies, 2004.
- Kim, S. D. "Korea: personal meanings." in J. E. Katz and M. A. Aakhus. (eds.) *Perpetual Contact: Mobile Communication, Private Talk, Public Performance*. Cambridge: Cambridge University Press, 2002.
- _____. "Mobility, Communication and Generation." in *Mobile communication and Social Change*. The Korean Association of Broadcasting Studies, 2004.
- Kim, W. S. *Homo Mobilians: Open the World with Mobile Phones*. Jiseung-sa, 2008.
- Kittler, F. *Gramophone, Film, Typewriter*. Stanford, Calif.: Stanford University Press, 1999.
- _____. "Towards an Ontology of Media." *Theory, Culture & Society*. 26(2–3): 23–31,

- 2009.
- Kohn, L. *Daoism and Chinese Culture*. Three Pines Press, 2001.
- Koolhaas, L. *Delirious New York: A Retroactive Manifesto for Manhattan*. Monacelli, 1997.
- Koskinen, I. K. *Mobile Multimedia in Action*. New Brunswick & London: Transaction Publishers, 2007.
- Kriem, M. S. "Mobile Telephony in Morocco: a Changing Sociality." *Media, Culture & Society*. 31(4): 617-32, 2009.
- Kristeva, J. *Strangers to Ourselves*. Columbia University Press, 1994.
- Kuhn, T. S. *The Structure of Scientific Revolutions*. University of Chicago Press, 1996.
- Kupperman, J. *Classic Asian Philosophy*. Oxford University Press, 2001.
- Kwok, D. and R. J. Smith. *Cosmology, Ontology, and Human Efficacy: Essays in Chinese Thought*. Honolulu: University of Hawaii Press, 1993.
- Lacan, J. "The Subversion of the Subject and the Dialectic of Desire in the Freudian Unconscious." in *Ecrits: A Selection*. New York: Norton, 1977.
- _____. *Ecrits: The First Complete Edition in English*. New York: Norton, 2007.
- Lai, K. L. *An Introduction to Chinese Philosophy*. Cambridge University Press, 2008.
- Landon, B. *The Aesthetics of Ambivalence: Rethinking Science Fiction Film in the Age of Electronic (Re)Production*. Westport, Conn.: Greenwood Press, 1992.
- Lanham, R. A. *The Electronic Word: Democracy, Technology, and the Arts*. The University of Chicago Press, 1994.
- Lao Tzu. *Tao Te Chinng: A New English Version*. Harper Perennial Modern Classics, 2006.
- Lasen, A. "The Social Shaping of Fixed and Mobile Networks: A Historical Comparison." Digital World Research Centre: University of Surrey, 2002a.
- _____. "A comparative Study of Mobile Phone Use in Public Places in London, Madrid and Paris." Digital World Research Centre: University of Surrey, 2002b.
- Lash, S. *Critique of Information*. Sage, 2002.
- _____. "Life (Vitalism)" *Theory, Culture & Society*. 23 (2-3): 323-49, 2006.
- _____. "Capitalism and Metaphysics." *Theory, Culture & Society*. 24 (5): 1-26, 2007.
- _____. "Afterword: In Praise of the A Posteriori: Sociology and the Empirical." *European Journal of Social Theory*. 12(1): 175-87, 2009.
- Lash S. and J. Urry. *Economics of Signs and Space*. Sage, 1994.
- Latour, B. *Science in Action: How to Follow Scientists and Engineers through Society*.

- Cambridge: Harvard University Press, 1987.
- _____. *The Pasteurization of France*. Cambridge: Harvard University Press, 1988a.
- _____. "The Politics of Explanation: An Alternative." in S. Woolgar (ed.) *Knowledge and Reflexivity: New Frontiers in the Sociology of Knowledge*. Beverly Hills: Sage, 1988b.
- _____. "The Enlightenment without the Critique: A Word on Michel Serres' Philosophy." in A. P. Griffiths (ed.) *Contemporary French Philosophy*. Cambridge University Press, 1989.
- _____. "Technology is Society Made Durable." in J. Law (ed.) *A Sociology of Monsters: Essays on Power, Technology, and Domination*. Routledge, 1991.
- _____. "Morality and Technology: The End of the Means." *Theory, Culture & Society*. 19(5/6): 247-60, 2002.
- Latour, B., and S. Woolgar. *Laboratory Life: The Construction of Scientific Facts*. Princeton: Princeton University Press, 1986.
- Law, J. "Technology and Heterogeneous Engineering: The Case of Portuguese Expansion." in W. Bijker, T. Hughes, and T. J. Pinch (eds.) *The Social Construction of Technological Systems: New Directions in the Sociology and History of Technology*. Cambridge: MIT Press, 1987.
- _____. *Modernity, Myth, and Materialism*. Oxford: Blackwell, 1993.
- _____. "Objects and Spaces." *Theory, Culture & Society*. 19(5/6): 91-105, 2002.
- Leavitt, N. "Mobile Phones: the Next Frontier for Hackers?" *Computer*. 38 (4 April): 20-23, 2005.
- Lee, D. H., and S. H. Son. "Gender Difference in the Use of Mobile Phones." *Korean Journal of Broadcasting & Telecommunication Studies*. 20(1): 249-84, 2004.
- Lee, I. H. "Why College Students Are Using Mobile Phones?" *Korean Journal of Broadcasting & Telecommunication Studies*. 15(3): 261-93, 2001.
- Lee, J. H., S. K. Ahn, and Y. J. Jeong. "A Socio-psychological Approach towards High-teens' Mobile Phone Use." *Korean Journal of Communication and Information*. 27: 247-328, 2004.
- Lee, M. K. *A Study for the Efficient Supply of News Contents for Smartphones*. Korea Press Foundation, 2010.
- Lee, S. H. and S. J. Kim *Smart Revolution: Digital Media*. MSD Media, 2011.
- Lee, S. W. "New and Old Interpersonal Communication Media in Competiiton: Cell Phone, E-mail, and Telephone." in *Mobile communication and Social Change*.

- The Korean Association of Broadcasting Studies, 2004.
- Lee, S. Y. "A Study on the Use of the Mobile Phone." *Korean Journal of Journalism & Communication Studies*. 47(5): 87-114, 2003.
- Lee, Y. S., T. L. Smith- Jackson, and G. H. Kwon. "Domestication of Technology Theory: Conceptual Framework of User Experience." 2009.
goodgestreet.com/CHI09/submissions/YS_Lee
- Lem, S. *The Cyberiad: Fables for the Cybernetic Age*. N.Y.: Harcourt Brace Jovanovich, 1974.
- Leroi-Gourhan, A. *Gesture and Speech*. The MIT Press, 1993.
- Levinas, E. *Totality and Infinity*. Duquesne University Press, 1999.
- Levinson, P. *The Soft Edge*. Routledge, 1997.
- _____. *Cellphone: The Story of the World's Most Mobile Medium and How It Has Transformed Everything*. New York: Palgrave Macmillan, 2004.
- Levi-Strauss, C. *Tristes Tropiques*. Penguin, 1992.
- Lewin, R. *Complexity: Life on the Edge of Chaos*. London: Dent, 1993.
- Licklider, J. C. "Man-Machine Symbiosis." in N. Wardrip-Fruin & N. Montfort (eds.) *New Media Reader*. The MIT Press, 2003.
- Licoppe, C. and J-P. Heurtin. "France: preserving the image." in J. Katz and M. A. Aakhus. (eds.) *Perpetual Contact: Mobile Communication, Private Talk, Public Performance*. Cambridge: Cambridge University Press, 2002.
- Licoppe, C. and Z. Smoreda. "Rhythms and Ties: Toward a Pragmatics of Technologically Mediated Sociability." in Kraut, R., M. Brynin & S. Kiesler (eds.) *Computers, Phones and the Internet: Domesticating Information Technology*. New York: Oxford University Press, 2006.
- Ling, R. *The Mobile Connection: The Cell Phone's Impact on Society*. Morgan Kaufmann Publishers, 2004.
- _____. "Children, Youth, and Mobile Communication." *Journal of Children and Media*. 1(1): 60-67, 2007.
- _____. *New Tech, New Ties: How Mobile Communication is Reshaping Social Cohesion*. Cambridge, MA: MIT Press, 2008.
- Ling, R. and J. Donner. *Mobile Communication*. Polity, 2009.
- Ling, R. and P. E. Pedersen (eds.). *Mobile Communications: Re-negotiation of the Social Sphere*. London: Springer, 2005.
- Ling, R. and B. Yttri. "Hyper-coordination via Mobile Phones in Norway." in J. Katz

- and M. A. Aakhus. (eds.) *Perpetual Contact: Mobile Communication, Private Talk, Public Performance*. Cambridge: Cambridge University Press, 2002.
- Livingston, S. *Making Sense of Television*. Routledge, 1998.
- Logan, R. K. *The Alphabet Effect: The Impact of the Phonetic Alphabet on the Development of Western Civilization*. New York: William Morrow and Co., Inc., 1986.
- Lorenz, E. *The Essence of Chaos*. Routledge, 1998.
- Lyotard, J-F. *The Postmodern Condition: A Report on Knowledge*. University of Minnesota Press, 1984.
- _____. *The Inhuman: Reflections on Time*. Cambridge: Polity, 1991.
- Mackenzie, A. *Transductions: Bodies and Machines at Speed*. London: Continuum, 2002.
- Malik, S., J. Aitken, and J. K. Waalen. "Communicating Emotion with Animated Text." *Visual Communication*. 8(4): 469-79, 2009.
- Manovich, L. *The Language of New Media*. Cambridge, Mass.: The MIT Press, 2001.
- _____. "After Effects, or Velvet Revolution in Modern Culture: Part 1 & 2." 2006.
www.manovich.net/DOCS/Remix
- Marchessault, J. "The Secret of Life: Informatics and the Popular Discourse of the Life Code." *New Formations*. 29: 120-29, 1996.
- Marchioni, M. "The Effect of the Third Screen on Business Applications." 2009.
www.tmcnet.com
- Margulis, L. *Symbiosis in Cell Evolution*. San Francisco: W. H. Freeman, 1981.
- _____. *Symbiotic Planet: A New Look at Evolution*. Basic Books, 1998.
- Margulis L. and D. Sagan. *Micro-cosmos: Four Billion Years of Evolution from Our Microbial Ancestors*. New York: Summit, 1986.
- Marshack, A. "The Art and Symbols of Ice Age Man." in D. Crowley and P. Heyer. (eds.) *Communication in History: Technology, Culture, Society*. New York & London: Longman, 1999.
- Marvin, C. *When Old Technologies Were New: Thinking About Electric Communication in the Late Nineteenth Century*. Oxford University Press, 1988.
- Mason, J. *Qualitative Researching*. London: Sage, 1996.
- Massumi, B. *A User's Guide to Capitalism and Schizophrenia: Deviations from Deleuze and Guattari*. Cambridge, Mass.: The MIT Press, 1992.
- _____. *Parables for the Virtual: Movement, Affect, Sensation*. Durham & London: Duke

- University Press, 2002.
- Maturana, H. R. "Autopoiesis." in M. Zeleny (ed.) *Autopoiesis: A Theory of Living Organization*. New York: North Holland, 1981.
- Maturana, H. R. and F. G. Varela. *Autopoiesis and Cognition: The Realization of the Living*. Boston: D. Reidel, 1980.
- Maxwell, J. C. *Theory of Heat*. Dover, 2001.
- McBride, N. "Actor-Network Theory and the Adoption of Mobile Communications." www.cse.dmu.ac.uk/~nkm/PAPERS/Geography%20Paper%20ANT
- McLuhan, H. M. *Understanding Media: The Extensions of Man*. London: Routledge, 2001.
- McLuhan, H. M. and R. K. Logan. "Alphabet, Mother of Invention." *Et Cetera* (December): 373-83, 1977.
- McLuhan, H. M. and E. McLuhan. *Laws of Media: The New Science*. University of Toronto Press, 1992.
- Mehrotra, A. *Cellular Radio: Analog and Digital Systems*. Artech House, 1994.
- Mencius. *Mencius*. Penguin Classics, 2005.
- Merleau-Ponty, M. "Eye and Mind." in J. M. Edie (ed.) *The Primacy of Perception*. Northwestern University Press, 1964.
- _____. *Phenomenology of Perception*. London: Routledge, 2002.
- Mitchell, J. C. "Case and Situation Analysis." *Sociological Review*. 31(2): 187-211, 1983.
- Mitchell, W. J. *City of Bits: Space, Place and the Infobahn*. Cambridge, Mass.: The MIT Press, 1996.
- Mol, A. and J. Law. "Regions, Networks, and Fluids: Anaemia and Social Topology." *Social Studies of Science*. 24(4): 641-72, 1994.
- Mumford, L. *Technics and Civilization*. Harvest Books, 1963.
- Myata, K., J. Boase, and B. Wellman. "The Social Effects of *keitai* and Personal Computer e-mail in Japan." in Katz, J. (ed.) *Handbook of Mobile Communication*. Cambridge, MA: MIT Press, 2008.
- Naess, A. and A. Hannay. (eds.) *Invitation to Chinese Philosophy: Eight Studies*. Scandinavian University Books, 1972.
- Nah, E. Y. "Generation Gap in Behaviors and Attitudes of Mobile Phone Use." *Korean Journal of Psychology*. 3(1): 17-32, 2002.
- _____. "High-teens' Attachment to the Mobile Phone and Their Communicative Self-

- Efficacy.” *Korean Journal of Journalism & Communication Studies*. 49(6): 198-232, 2005.
- Needham, J. *Science and Civilization in China*. London: Cambridge University Press, 1954.
- Nietzsche, F. *The Birth of Tragedy*. Oxford University Press, 2000.
- _____. *Ecce Homo: How One Becomes What One Is*. Penguin Books, Ltd., 2004.
- Northrop, F. S. C. “The Complementary Emphasis of Eastern Intuition Philosophy and Western Scientific Philosophy.” in C. A. Moore (ed.) *Philosophy, East and West*. Princeton University Press, 1946.
- Ong, W. J. *Orality and Literacy: The Technologizing of the Word*. London & N.Y.: Methuen, 1982.
- Palen, L., M. Salzman, and E. Youngs. “Going Wireless: Behaviour & Practice of New Mobile Phone Users.” Boulder CO., 2001.
- <http://www.cs.colorado.edu/%7Epalen/Papers/cscwPalen.pdf>
- Paracer, S. and V. Ahmadjian. *Symbiosis: An Introduction to Biological Associations*. Oxford University Press, 2000.
- Park, W. K. “Mobile Phone Addition—in the case of College Students.” *Korean Journal of Journalism & Communication Studies*. 47(2): 250-81, 2003.
- Patton, M. Q. *Qualitative Evaluation and Research Methods*. Sage, 1990.
- Pels, D. “Privileged Nomads: On the Strangeness of Intellectuals and the Intellectuality of Strangers.” *Theory, Culture & Society*. 16(1): 63-86, 1999.
- Pels, D., K. Hetherington and F. Vandenberghe. “The Status of the Object: Performances, Mediations, and Techniques.” *Theory, Culture & Society* 19(5/6): 2002.
- Pickering, A. *The Mangle of Practice: Time, Agency, and Science*. The University of Chicago Press, 1995.
- Plant, S. *On the Mobile: The Effects of Mobile Telephones on Social and Individual Life*. 2000. <http://www.motorola.com/mot/documents/0,1028,333,00.pdf>
- Polanyi, M. *The Tacit Dimension*. New York: Doubleday, 1966.
- Postman, N. *Amusing Ourselves to Death: Public Discourse in the Age of Show Business*. London: Methuen, 1987.
- Postman, N. and C. Paglia. “Two Cultures—Television versus Print.” in D. Crowley and P. Heyer (eds.) *Communication in History: Technology, Culture, Society*. Longman, 1999.
- Prigogine, I. *The End of Certainty*. New York: The Free Press, 1997.

- Prigogine, I. and I. Stengers. "POSTFACE: Dynamics from Leibniz to Lucretius." in M. Serres. *HERMES: Literature, Science, Philosophy*. The Johns Hopkins University Press, 1982.
- _____. *Order out of Chaos: Man's New Dialogue with Nature*. Heinemann, 1984.
- Puro, J.-P. "Finland: a Mobile Culture." in J. E. Katz and M. A. Aakhus. (eds.) *Perpetual Contact: Mobile Communication, Private Talk, Public Performance*. Cambridge: Cambridge University Press, 2002.
- Quintilian. *The Orator's Education, 1: Books 1-2*. Loeb Classical Library, 2002.
- Rabiner, L. R. and B. Gold. *Theory and Application of Digital Signal Processing*. Englewood Cliffs, 1975.
- Rabinow, P. and C. Caduff. "Life after Canguilhem." *Theory, Culture & Society*. 23 (2/3): 329-31, 2006.
- Rakow, L. F. and V. Navarro. "Remote Mothering and the Parallel Shift: Women Meet the Cellular Phone." *Critical Studies in Mass Communication*. 10 (2): 144-54, 1993.
- Ramsey, S. R. *The Languages of China*. Princeton University Press, 1989.
- Rapley, T. J. "The Art(fullness) of Open-ended Interviewing: Some Considerations on Analysing Interviews." *Qualitative Research*. 1(3): 303-23, 2001.
- Reid, D. and F. Reid. "Insights into the Social and Psychological Effects of SMS Text Messaging." *160 Characters*. 2004.
- www.160characters.org/documents/SocialEffectsOfTextMessaging.pdf
- Robinson, A. *The Story of Writing*. Thames & Hudson, 1999.
- Rousseau, J. J. "Essay on the Origin of Languages." *Essay on the Origin of Languages and Writings Related to Music: The Selected Writings of Rousseau*. (vol. 7) Hanover, NH: University Press of New England, 1998.
- _____. *The Social Contract*. Wordsworth Editions Ltd., 1998.
- _____. *Confessions*. Oxford University Press, 2008.
- Rule, J. "From Mass Society to Perpetual Contact: Models of Communication Technologies in Social Context." in Katz, J. and M. A. Aakhus (eds.) *Perpetual Contact: Mobile Communication, Private Talk, Public Performance*. Cambridge: Cambridge University Press, 2002.
- Rutsky, R. L. *High Techne: Art and Technology from the Machine Aesthetic to the Posthuman*. Minneapolis & London: University of Minnesota Press, 1999.
- Ryle, G. *The Concept of Mind*. University of Chicago Press, 2000.

- Saint-Amand, P. "Contingency and the Enlightenment." *Substance* 83 (26:2): 96-109, 1977.
- Sapp, J. *Evolution by Association: A History of Symbiosis*. Oxford University Press, 1994.
- Sartre, J-P. "From Existentialism and Humanism 1946." in C. Harrison and P. J. Wood (eds.) *Art in Theory 1900-2000: An Anthology of Changing Ideas*. Blackwell, 2002.
- Sassen, S. *The Global City: New York, London, Tokyo*. Princeton, N.J.: Princeton University Press, 1991.
- Saussure, F. de. *Course in General Linguistics*. LaSalle, Ill.: Open Court, 1986.
- Schilling, C. *The Body and Social Theory*. London: Sage, 1993.
- Schlecker, M. and E. Hirsch "Incomplete Knowledge: Ethnography and the Crisis of Context in Studies of Media, Science and Technology." *History of the Human Sciences*. 14(1): 69-87, 2001.
- Schrift, A. D. "Nietzsche's French Legacy." in B. Magnus and K. M. Turner (eds.) *The Cambridge Companion to Nietzsche*. Cambridge: Cambridge University Press, 1996.
- Schroeder, R. "Mobile Phones and the Inexorable Advance of Multimodal Connectedness." *New Media & Society*. 12(1): 75-90, 2010.
- Scott, A. *Los Angeles and Urban Theory at the End of the Twentieth Century*. University of California Press, 1997.
- Seong, D. K., and Y. K. Cho. "Group Difference in the Type of Mobile Phone Use." *Korean Journal of Journalism & Communication Studies*. 46(6): 153-90, 2002.
- Serres, M. *The Parasite*. The Johns Hopkins University Press, 1982a.
- _____. *HERMES: Literature, Science, Philosophy*. The Johns Hopkins University Press, 1982b.
- _____. *Rome: The Book of Foundations*. Stanford University Press, 1991.
- _____. *Genesis*. Ann Arbor: University of Michigan Press, 1995a.
- _____. "Introduction." in M. Serres (ed.) *A History of Scientific Thought: Elements of a History of Science*. Oxford: Blackwell, 1995b.
- _____. *The Natural Contract*. Ann Arbor: University of Michigan Press, 1995c.
- _____. *Angels: A Modern Myth*. Flammarion, 1995d.
- _____. "Paris 1800." in M. Serres (ed.) *A History of Scientific Thought: Elements of a History of Science*. Oxford: Blackwell, 1995e.

- _____. *The Troubadour of Knowledge*. Ann Arbor: University of Michigan Press, 1997.
- _____. *The Birth of Physics*. Clinamen Press Ltd., 2000.
- _____. *Origins of Geometry*. Clinamen Press Ltd., 2002.
- _____. *The System of Leibniz*. Clinamen Press Ltd., 2003.
- _____. *Five Senses: A Philosophy of Mingled Bodies*. Continuum, 2009.
- Serres, M. with B. Latour. *Conversations on Science, Culture, and Time*. Ann Arbor: University of Michigan Press, 1995.
- Shannon, C. E. and W. Weaver. *The Mathematical Theory of Communication*. Urbana: University of Illinois Press, 1963.
- Shristava, L. "The Mobile Makes Its Mark." in Katz, J. (ed.) *Handbook of Mobile Communication*. Cambridge, MA: MIT Press, 2008.
- Simmel, G. "The Metropolis and Mental Life." in G. Simmel and K. H. Wolff (eds.) *The Sociology of Georg Simmel*. Free Press, 1964.
- _____. "Bridge and Door." *Theory, Culture & Society*. 11(1): 5-10, 1994.
- Simondon, G. "The Genesis of the Individual." in J. Crary & S. Kwinter (eds.) *Incorporations*. New York: Zone Books, 1992.
- Small, M. L. "How Many Cases Do I Need?: On Science and the Logic of Case Selection in Field-based Research." *Ethnography*. 10(1): 5-38, 2009.
- Smith, J. A. "Semi-structured Interviewing and Qualitative Analysis." in J. A. Smith, R. Harre & L. K. Langenhove (eds.) *Rethinking Methods in Psychology*. London: Sage, 1995.
- Smith, J. and C. Jenks. "Complexity, Ecology, and the Materiality of Information." *Theory, Culture and Society*. 22 (5): 141-63, 2005.
- Song, J. H. "Mobile Phone and the Extension of Human Communication." *Korean Journal of Communication and Information*. 27: 183-212, 2004.
- Spinoza, B. *Ethics*. Penguin Classics, 2005.
- Springer, C. *Electronic Eros: Bodies and Desire in the Postindustrial Age*. Austin: University of Texas Press, 1996.
- Stengers, I. *Power and Invention*. Minneapolis: University of Minnesota Press, 1997.
- Stiegler, B. *Technics and Time, 1: The Fault of Epimetheus*. Stanford, CA: Stanford University Press, 1998.
- _____. "Individuation, Hypomnemata and Grammatization." 2007.
www.2nd.moscowbiennale.ru/en/stiegler_report_en/
- Stiegler, B. with J. Derrida. *Echographies of Television: Filmed Interviews*. Polity Press,

- 2002.
- Thacker, E. *Biomedica*. Minneapolis: University of Minnesota Press, 2004.
- _____. *The Global Genome: Biotechnology, Politics, and Culture*. Cambridge, MA: The MIT Press, 2005.
- Thrift, N. "The Place of Complexity." *Theory, Culture & Society*. 16(3): 31-69, 1999.
- _____. "Remembering the Technological Unconscious by Foregrounding the Knowledges of Position." *Environment and Planning D: Society and Space*. 22: 175-90, 2004.
- Tomas, D. "The Technophilic Body: On Technicity in William Gibson's Cyborg Culture." *New Formations*. 8: 113-29, 1989.
- Townsend, A M. "Life in the Real-Time City: Mobile Telephones and Urban Metabolism." *Journal of Urban Technology*. 7(2): 85-104, 2000.
- <http://urban.blogs.com/research/JUT-LifeRealTime.pdf>
- Trochim, W. M. K. *Research Methods Knowledge Base*. 2006.
- www.socialresearchmethods.net
- Turkle, S. *Life on the Screen: Identity in the Age of the Internet*. New York: Simon & Schuster, 1995.
- Tutton, R. "Beyond the Consensual Hallucination." *New Formations* 29: 135-40, 1996.
- Urry, J. *Sociology Beyond Societies: Mobilities for the Twenty-first Century*. Routledge, 2000a.
- _____. "Mobile Sociology." *British Journal of Sociology*. 51(1): 185-203, 2000b.
- _____. "The Complexity Turn." *Theory, Culture & Society*. 22(5): 10-14, 2005.
- _____. "Complexity." *Theory, Culture & Society*. 23 (2-3): 111-17, 2006.
- Varela, F. "The Re-enchantment of the Concrete." in J. Crary & S. Kwinter (eds.) *Incorporations*. New York: Zone Books, 1992.
- _____. *The Embodied Mind: Cognitive Science and Human Experience*. The MIT Press, 1993.
- _____. "The Specious Present: A Neurophenomenology of Time Consciousness." J. Petitot, F. Varela, B. Pachoud, and J-M.Roy (eds.) *Naturalizing Phenomenology: Issues in Contemporary Phenomenology and Cognitive Science*. Stanford, Calif.: Stanford University Press, 1999.
- Walby, S. "Complexity Theory, System Theory, and Multiple Intersecting Social Inequalities." *Philosophy of the Social Sciences*. 37 (4): 449-70, 2007.
- Wallace, R. A. and A. Wolf. *Contemporary Sociological Theory: Continuing the*

- Classical Tradition*. Englewood Cliffs, NJ: Prentice Hall, 1991.
- Wallin, I. E. *Symbionticism and the Origin of Species*. Nabu Press, 2011.
- Weber, M. *The Religion of China: Confucianism and Taoism*. The Free Press, 1968.
- _____. *The Sociology of Religion*. Beacon Press, 1993.
- _____. *The Protestant Ethic and the Spirit of Capitalism*. Routledge, 2001.
- Wei, R. and V.-H. Lo. "Staying Connected while on the Move: Cell Phone Use and Social Connectedness." *New Media & Society* 8(1): 53-72, 2006.
- Wellman, B. "The Network Community: An Introduction to Networks in the Global Village." 1999.
- <http://www.chass.utoronto.ca/~wellman/publications/globalvillage/in.htm>
- _____. "Physical Place and Cyber Place: The Rise of Personalized Networking." *International Journal of Urban and Regional Research*. 25, 2001.
- <http://www.chass.utoronto.ca/~wellman/publications/individualism/ijurr3a1.htm>
- Westlund, O. "From Mobile Phone to Mobile Device: News Consumption on the Go." *Canadian Journal of Communication*. 33: 443-64, 2008.
- Wheeler, J. A. and W. H. Zurek. *Quantum Theory and Measurement*. Princeton University Press, 1983.
- White, R. *Swarming and the Social Dynamics of Group Violence*. Canberra: Australian Institute of Criminology, 2006.
- Whitehead, A. N. *Science and the Modern World*. New York: Free Press, 1967.
- Whorf, B. L. "The Relation of Habitual Thought and Behavior to Language." in J. B. Carroll (ed.) *Language, Thought, and Reality: Selected Writings of Benjamin Lee Whorf*. Cambridge, Mass.: The MIT Press, 1966.
- Wiener, N. *Cybernetics or Control and Communication in the Animal and the Machine*. The MIT Press, 1965.
- Winston, B. *Media Technology and Society*. Routledge, 2000.
- _____. *Messages: Free Expression, Media and the West from Gutenberg to Google*. London and New York: Routledge, 2005.
- Wittel, A. "Toward a Network Sociality." *Theory, Culture & Society*. 18(6): 51-76, 2001.
- Wolfe, C. (ed.) *Zoontologies: The Question of the Animal*. University of Minnesota Press, 2003.
- Woods, P. *Qualitative Research*. University of Plymouth, 2006.
- www.edu.plymouth.ac.uk/resined/Qualitative%20methods%202/qualrshm.htm

- Woodward, K. *The Myths of Information: Technology and Postindustrial Culture*. Indiana University Press, 1983.
- Woolgar, S. "After Word? – On Some Dynamics of Duality Interrogation: Or: Why Bonfires Are Not Enough." *Theory, Culture & Society*. 19 (5/6): 261-70, 2002.
- World Internet Project (WIP). www.worldinternetproject.net
- World Telecommunication Development Report 2002.
<http://www.itu.int/newsroom/wtdc2002/backgroundunder.html>
- Wu, J. S. "Western Philosophy and the Search for Chinese Wisdom" in A. Naess & A. Hannay (eds.) *Invitation to Chinese Philosophy: Eight Studies*. Scandinavian University Books, 1972.
- Yoon, K. "Retraditionalizing the Mobile: Young People's Sociality and the Mobile Phone in Seoul, South Korea." *European Journal of Cultural Studies*. 6(3): 327-43, 2003.
- Yoon, S. O. and W. J. Park. "Attachment to the Mobile Phone and the User's Emotional Response." Paper presented to the Autumn Convention, Korean Association for Broadcasting & Telecommunication Studies, 2006.
- York, M. *Pagan Theology: Paganism as a World Religion*. New York University Press, 2005.
- Zhang, W-B. *Confucianism and Modernization: Industrialization and Democratization of the Confucian Regions*. New York: St. Martin's Press, 1999.
- Zielinski, S. *Deep Time of the Media: Toward an Archaeology of Hearing and Seeing by Technical Means*. Cambridge, Mass. & London: The MIT Press, 2006.
- Zizek, S. *The Fragile Absolute*. Verso, 2000.
- _____. *Organs without Bodies: On Deleuze and Consequences*. Routledge, 2004.
- <http://www.infosync.no/news>
- <http://www.cellular-news.com>