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# Causality in science and psychoanalysis

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"Il n'y a pas de science de l'homme, parce que l'homme de la science n'existe pas, mais seulement son sujet"

Lacan, 1966:859

## *Introduction: The cleft between two sciences*

Every academic is familiar with the cleft that runs through the university campus: on the one hand we have the "true" science; on the other hand we have the social science, its little brother. This cleft goes back to the birth of the human quest for knowledge, and has been the subject of discussion ever since. The contemporary form of this discussion entails a number of oppositions: objectivity, predictability, laws, explanation go for "hard" science; subjectivity, absence of prediction and laws, and description are supposed to be the epithets of "soft" social sciences. No wonder that the latter strive to prove their genuine scientific character by modeling themselves as much as possible on their bigger brother. Freud was not immune to this, and even Lacan for a certain period hoped to join the real thing. Freud ended up with an impossible profession, and Lacan took his psychoanalytic bearings from science.

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With this chapter I aim to show that the subject of science is the same subject entering analysis, that is: a subject who apparently wants to know, but whose hidden aim is to bridge its inner gap, to delete the / which bars its supposedly inner self. In Lacanian terms, their common goal is the *"suturage du sujet"*. Both hard and soft sciences share the same deadlock: the impossibility of handling the lack, and the consequent appeal to an external guarantee in whom one has to believe. The goal of an analysis, on the contrary, is the creation of a neo-subject through an identification with the real of the symptom and a separation from the Other. The cleft that is supposed to run between two sciences concerns first of all the cleft in the same subject.

In order to demonstrate this, I will present the reader firstly with the problem science has with causality; secondly, with Lacan's answer to this problem; thirdly, with the implications this has for our conceptualization of the subject.

## *Causality as the nightmare of science*

In contemporary science, the question of causality has almost disappeared. Instead of causality, the prudent scientist talks about correlation: "There is indeed a

high correlation between smoking and lungcancer". As we will see, there is a precise reason for this disappearance. The question as such is age-old, and one of the eldest theories addressing this question is to be found in Aristotele's work. He discusses four different causes: material, formal, efficient and final causality. The last two will be the most important ones for this chapter.

It can be said that until the beginning of the 20th century, i.e. the time of Freud, science focused almost exclusively on the efficient cause. The goal of science in this respect was the discovery of the operational, serial cause of things. This search delivered a restricted and massive determinism into the field of scientific research. This orientation can be found within neurobiology, for example, where attention is focused on the cell membrane as causal factor within the system of neurotransmission (i.e. restricted field of research).

This tallies perfectly with the so-called *automaton*-model: science wants to discover the deterministic laws at work in its object of study, in order to predict and to control its object. Scientists become technicians oriented by the question "How?" - how does it work, and how can we intervene, control, manipulate? Within this mechanical-deterministic paradigm, the question of chance, *tuché*, does not fit. Either it is considered as something that happens by pure coincidence, independently of the systematically determined sequence, and thus it is reduced to something unimportant. Or it is regarded as something that did not happen by coincidence, something that has to be taken seriously, literally and etymologically *series-ly*, in order to absorb it into the already discovered chain of systematic determination. The all-embracing scientific dream is the discovery of the Complete Causal System, in which everything can be accounted for, i.e. everything has a causally justified place.<sup>1</sup>

This dream, however, turns into a nightmare once one asks the question concerning the cause of the cause. From this perspective, *tuché*, chance, functions as the trauma underlying this nightmare.

Indeed, the question about the cause of the cause has become insoluble for contemporary science. This was not the case for Aristoteles with his theory of the final cause, the ultimate cause of everything. Yet, within the boundaries of contemporary *automaton-science*, there is virtually no place for this idea. According to Aristotle, nature - *physis* - is goal-directed and contains right from the start an end goal that causes and directs each particular change. This is the final cause: everything carries an ultimate goal within itself, and everything that happens, has to be considered as mere steps towards this goal. He interprets this as the *entelechie*: the aim of each change is the realisation of being. A seed, for example, contains certain characteristics causing a number of things to happen, with a particular tree as final goal, the tree being the *entelechie* of the seed. Thus considered, the final cause answers the question of the "why?" or "what for?". Within the "hard" *automaton-science*, such teleological reasoning and questioning is out of bounds, for causality is there restricted to a step by step determinism, avoiding as much as possible both the first and the last step.

At first sight, the major difference between contemporary *automaton-science* and Aristotle's more global theory is that his idea of final cause avoids the necessity of an external cause. Aristotle's final causality can be interpreted as an *internal* one, within each object itself. Indeed, this avoids a major problem, namely, the division, relied upon by *automaton-science*, between an "animated" object and an "animator". The

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traditional example of this comes from Descartes, for his *res extensa* and *res cogitans* effectively entrenches the body-soul problematic. It seems, therefore, that such a division is superfluous with Aristotle. Alas, this difference does not hold: closer scrutiny reveals that he needs an external starting-point too. In his theory, nature is continuously moving, and different causes explain the different movements. However, the thing that ultimately starts the first movement, cannot be moved in itself. In the cosmic theory of Aristotle, this is the "unmovable primal mover". Needless to say that it didn't take the medieval catholic interpreters long to recognize God in this primal cause. In the wake of that interpretation, a number of philosophical systems will assume a sort of mysterious primal source of power at the base of everything. And the latest form embodying this primary force within contemporary science is of course the Big Bang.

At the turn of the 19<sup>th</sup> century, this problem was not so obvious, and thus, the dream of science at that time remained an all-embracing determinism. Today, at the next turn, this dream has faded away, mainly because it contains a number of important implications demonstrating its fundamental incompleteness and/or impossibility.

First, this line of thought implies a necessary division between on the one hand Science, with capital "S" and, on the other hand, ethics. This was already clear with Descartes, and has become all the more so ever since. Science amounts to *automaton*, predictability, technique, objectivity and is nomothetic; whereas ethics is linked to *tuché*, arbitrariness, morals, subjectivity and is ideographic. This division is of course in itself very arbitrary and a direct consequence of its starting point. Already in 1970, J. Monod demonstrated that such a division is impossible and that it goes back to a preceding arbitrary and thus ethical stance.<sup>2</sup> Indeed, modern science starts with a decision to *reject* the subject: the subject does not enter the scene of the scientific procedures as such. That is why Lacan considers the end point of science as a successful paranoia.<sup>3</sup>

This entails a second implication: the *automaton*-science goes back to the illusion of objectivity. Such a science appears to describe, predict, even understand nature in an objective way, i.e. independently of the subject. Heidegger was the one who exposed this as an illusion: "Modern physics is not experimental physics because it uses experimental devices in its questioning of nature. Rather the reverse is true. Because physics, already as pure theory, requests nature to manifest itself in terms of predictable forces, it sets up experiments precisely for the sole purpose of asking whether and how nature follows the scheme preconceived by science."<sup>4</sup> And Heidegger illustrates his point with his famous example of the hydraulic plant on the Rhine. It is this example that Lacan uses in his fourth seminar. For him, so-called objective science starts always with the desire, even the passion, of the researcher who imposes his desire on nature and tests if nature is prepared to follow this desire. Later, Lacan will apply this idea even to (the dogs of) Pavlov, through the application of the concept of transference.<sup>5</sup> Just as analysis operates only through the desire of the analyst, objective science yields results through the desire of the scientist. At the end of the day, science is nothing but the questioning of one's own desire, albeit in a non-recognized way. Hegel had already said as much: Science is the humanization of the world (Hegel, 1970:29-34).

Third, each "*automaton*-science" must necessarily find its starting-point in

unexplained facts which function either as axioms or as so-called "constants". This can already be seen with Newton, the founder of this form of science. Indeed, as a starting-point, he had to assume a point of rest, in order to be able to develop his cosmic system. *Mutatis mutandis*, the same thing can be found with Einstein, who took the speed of light to be a constant. Less obviously but equally axiomatic as the previous examples is the assumption in biological psychiatry that every behaviour is biochemically determined and can thus be changed, at will, in the same biochemical way.

Fourth, an *automaton*-science must necessarily install an Other - a point of certainty outside itself as a guarantee for the truth of the system. Even Prigogine (1985:7) in his *Order out of chaos* produces this as a critical comment: "An *automaton* needs an external God", which evokes Einstein's famous answer when he was confronted with the unpredictability of certain systems (Heisenberg uncertainty principle): "God does not play with dice". This brings us back to Descartes, whose subject required an external God to guarantee the Truth. Ultimately, then, we return to Artistoteles' Primal Unmovable Mover. And the same kind of reasoning can very well be demonstrated at the level of the individual: if one considers a human being as an *automaton*, we end with the deadlock of the homunculus-theory. In his "La causalité psychique", Lacan sneers at this idea, remarking that if a man has a headache, this must be caused by the little man in his head who has a headache, which is caused by an even smaller man in the head of the latter little man, which, in its turn...<sup>6</sup>

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This fourth consequence leaves us with two alternatives: either one ends at the hysterical point where different theories, religions and ideologies meet and fight each other, in order to promote *their* big Other, its contemporary symptom being the omnipresent cleft in science between "Believers" and "Disbelievers". Or one ends with a caricature of religion, i.e. obsessional neurosis with endless repetitions of the Other in the mirror.

Thus considered, the whole question of causality becomes a deadlock. The final cause paradigm presupposes a complete determinism, based on an inevitable teleology and introduces theology in one way or another. The efficient cause paradigm presupposes a complete determinism as well, refusing at the same time the teleological implication but re-introducing it by the backdoor. For both, chance does not exist and man is confronted with a complete determinism in which there is no place for choice, freedom or responsibility. Moreover, this determinism is determined by a mysterious something, even someone outside ourselves. Specifically in our domain of human science and clinical practice, we have to face a generalised idea of fate neurosis (*Schicksalsneurose*): the fate of an individual is determined, the only thing we are not sure about is how it functions.

Determinism everywhere, that's the 19th century message. Nevertheless, the already mentioned consequences and implications of such an all embracing determinism were not without effect. It turned the scientific fairy tale and wish fulfilment dream into the nightmare of a necessary return to pre-scientific times. The final blow came from the philosophical-mathematical department. C.S. Peirce, founding father of pragmatism, demonstrated that universal determinism is logically impossible, because it would make change and diversity impossible. With this, he rewords the classical critique of Epicurus on Democritus. The former based his theory on the idea that atoms moved in a linear way at constant speed, and that every object came into being

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through the collisions of these atoms. Epicurus demonstrated that there must be what he called a "clinamen", sudden atomic swervings, which are not causally determined in themselves, thus generating the phenomenological diversity. Both Peirce and Epicurus are endorsed by the famous Gödel theorem: a complete theory cannot be consistent, a consistent theory cannot be complete. We can summarise these three theses with one central statement: *there has to be a lack in the determinism*. Somewhere, there must be an undetermined cause, a closed system of causality is in itself impossible.

It is no wonder that this mechanical-deterministic world-view broke down in the 20<sup>th</sup> century, mainly under the influence of quantum mechanics and thermodynamics. It is interesting to note the fact that the latter found its starting-point in things that were considered by the *automaton*-science as belonging to the *tuché*, e.g. the meaningless, "accidental" loss of energy through the moving and rubbing of mechanical parts. The analogy with Freud is striking, for as a starting-point, he also took meaningless, accidental psychological trivia: parapraxes, dreams, jokes... And in the second part of the previous century, the cutting edge of scientific development focuses again on chance events, and again, we are confronted with the same opposition between *tuché* and *automaton*, albeit in different guises: "nécessité - hasard" (necessity, chance; J. Monod), "ordre - bruit" (order, noise; H. Atlan), chaos - chance (Prigogine). As a side-effect, we meet with an interesting return to a combination of science and philosophy, at least in the top zone. Descartes inaugurated a gap between science and philosophy, but the science of the 21<sup>st</sup> century will probably erase the frontiers between these two and operate a return to the classical Greek combination between science and philosophy.

To conclude: science cannot stand the idea of a lack. Its aim is a complete body of knowledge. Such an aim makes it necessary to have an external guarantee and, as we will see, Lacan's theoretical development leads him away from this scientific ideal. For in the background lurks an inevitable cleft (body-soul, objective-subjective, internal-external).

### *Lacan and causality*

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The original French edition of the *Écrits* concludes with a paper entitled "La science et la vérité" (1966), which can be read as the inverse answer to the opening paper: "Le séminaire sur la lettre volée" (1957). Each paper holds a completely different viewpoint on causality and science and the place of psychoanalysis in relation to them.

The key to the understanding of this reversal lies in Seminar XI. Readers of Seminar XI will probably remember the two concepts that Lacan borrows from Aristotle: *tuché* and *automaton*. At first sight, their relevance is not that clear, and the link with previous and subsequent seminars is obscure. The concept of *automaton* will not be mentioned any more, *tuché* will be related to the theory on trauma.

However, a closer reading demonstrates that these concepts have everything to do with the core of science, i.e. determinism and causality. A classic critique of psychoanalysis concerns its supposed idea of determinism: everything is determined from before one is five year old, the human being is driven by dark forces arising from an almighty unconscious, there is no such a thing as chance, everything is written

beforehand in an unknown handwriting. The early Lacan will elaborate this determinism in a scientific way, by interpreting this dark unconscious as a linguistic system, governed by laws and thus predictable. The later Lacan concentrates on the drive and the real, thus making room for unpredictability and causality as such.

Seminar XI is difficult to study in this respect, because it contains both. On the one hand, Lacan elaborates the determinism he finds in the human psyche, which leads to a deterministic psychoanalytic practice as well; on the other hand, he confronts us with causality beyond determinism, entailing a less optimistic appraisal of psychoanalytic practice.

*Automaton* stands for the deterministic part, whilst *tuché* resides beyond the *automaton* and is the name for the ever-missed meeting with the real.<sup>7</sup> The *automaton* concerns the network, the chain, the procession of signifiers. Both in these denominations and in Lacan's elaboration, the accent is on this aspect of "chain", which means that the linear ordering shapes the idea of network. This chain contains two kinds of laws. The first kind comes down to the linguistic mechanisms of metaphor and metonymy, whose elaboration goes back to an older paper, "L'instance de la lettre". The second kind has everything to do with mathematical laws. Their elaboration took place in Seminar II and the accompanying paper, "La lettre volée" (especially its addendum). As mentioned above, Lacan's decision to put this paper at the beginning of his *Écrits* (and thus breaking the otherwise chronological order) says a lot about the importance he attributed to it at that time. More specifically, it expresses his hope with respect to these lawful determinations and psychoanalytical practice. It is the period where Lacan believes in the possibility of both a complete analysis (finding, constructing the last signifier) and a predictable subject (computation).

If we study these mathematical laws, there is one thing that stands out right from the start: they concern solely the *formal* aspect of the signifier, independently of the signified. Hence the fact that Lacan could replace the chain of signifiers by a series of pluses and minuses obtained by pure chance (coin flipping). He designates this formal aspect as the *materiality* of the signifier, the *letter* - which explains the titles of the two papers already referred to. This material chain of signifiers, obtained by a chance sequence of pluses and minuses, is governed by laws which determine the possibilities of circulation and production of these signifiers. In the addendum, he demonstrates that a chance series of pluses and minuses contains predictable sequences, on condition that one groups them by three. Again, this concerns a purely formal elaboration. In the actual paper "La lettre volée" itself, Lacan presents us with a meaningful elaboration focusing on Poe's story on *The Purloined Letter*. A signifier, "letter", deviates in a certain way from its path and determines thereby a number of effects on those who hold it. The meaningful content of the letter is supposed but never exposed, thus reducing this letter to its material character.

The background of these ideas is probably to be found in Shannon's theory, although Lacan does not refer to it. In collaboration with Weaver, Shannon elaborated in 1949 a mathematical theory in the field of informatics.<sup>8</sup> Their theory presents a formula expressing the probability of the appearance of a certain sign at a certain place in the message, and this without taking into account the content or meaning of the message. This probability is then used in a second formula which calculates how much information the said sign contains. The greater the probability of appearance of that sign in a particular place, the smaller its information value, and *vice versa*: the

smaller its probability of appearance at a particular place, the greater its information value. This theory had an enormous impact not only in the field of informatics but also in the wider field of communication and discourse theory.

Thus, mathematical laws present us with a deterministic effect in which the original chance event (coin flipping) is surpassed: the chain produces "spontaneously" its own determination, and that is the *automaton*, literally, something that moves by itself. Of course this idea tallies perfectly with the process of free association, which is here exposed as an *automatic* association. Such an inherent determinism of the chain of signifiers does not only open the possibility of interpretation, it makes this interpretation "automatic" as well. At a certain point, Lacan will even introduce the idea of the computation of the interpretation.<sup>9</sup>

This mathematical determination, however, must be linked to the linguistic mechanisms. Their combination presents us with the divided subject as a determined effect of the chain of signifiers. It is this combination that explains the well-known sayings: "The unconscious is structured like a language" and "The signifier represents the subject for another signifier". Lacanian reinterpretations of a number of Freudian analyses in this respect are very instructive. In the case of the Rat man, for example, the chain of signifiers produces the signifier "rat" in a very determined way: *Rat, heiraten, Hofrat, Rate...* With the Wolf man, the same goes for "Wolf" and for the letter "V". Probably the most instructive case is to be found with Anna O who, under hypnosis, had to reproduce the entire chain of signifiers between symptom and cause, in order to make this symptom disappear. The determinism inherent in this chain is so obvious for Freud, that he keeps referring to it in his last chapter of the *Studies on Hysteria*.<sup>10</sup>

Hence, the *automaton* contains no chance event. On the contrary, it displays a systematic, lawful determination. Even if one starts with groupings of two elements, something in the chain functions as a memory, remembering which grouping can follow another grouping and which can't. In his talk at the occasion of his "Doctorate Honoris Causa", J.-A. Miller compared this to cybernetics, which equip washing machines with a "program" operating with a "memory".<sup>11</sup>

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It is obvious that this theory entails a complete determinism and opens up the possibility of a complete analysis, meaning that the last signifier that represents the subject can either be found or constructed. If this is the case, psychoanalysis would join hard science. For a certain period, Lacan had high hopes in this direction. For had he not discovered a scientific determinism underlying Freud's "free" association? At least one of his pupils, S. Leclaire, managed to produce a case-study in which the final signifier, summarizing the core of that particular analysis and its determination, could be constructed.<sup>12</sup> This hope can be found in the very same seminar where Lacan felt compelled to abandon it, i.e. Seminar XI, which does not make it any easier to read...

This brings us to the second concept. The automatically functioning chain of signifiers does not only determine the sequence of these signifiers. From time to time it meets with an impossibility, with something that can NOT appear in the chain and lies beyond it. In Lacan's first theory, this idea of a lack was already present, but at that time the impression was that this lack was nothing but a lacking signifier, i.e. something that could be found or constructed through the very process of analysis itself. This changes when Lacan recoins this lack as the *tuché*.

This idea of *tuché* is one of the cornerstones on which Seminar XI is built. As a

matter of fact, it goes back to Freud's startingpoint as well, i.e. the real of the trauma. Already for Freud, the trauma came down to something where normal representation failed: the traumatic experience could never find an appropriate expression. Proper signifiers were lacking, and Freud would discover an analogous process at the base of "normal" neurosis. He describes this as the primal repression, meaning that something remains fixated at a non-verbal level, making it forever impossible to turn it into words, and thus constituting the kernel of the unconscious. Lacan will coin this as an ever-missed encounter with the real and link it to the drive. The so-called secondary repression (usually named "repression") concerns the psychological representations and determines a lack that can be filled in during the analytic treatment. Freud had put all the accent on this secondary repression, whilst the theory of primal repression remained rather vague.

Again in the first chapter of Seminar XI, Lacan elaborates the difference between law and cause. In itself, this implies the shift from the early Lacan to the later Lacan. With the first one, everything was understood in terms of the systematic determination coming from the symbolic (cf. the juridical meaning of the word: "to signify"). The notion of "cause" introduces something completely different. Ultimately, this cause has to be looked for in something *un*-determined, something that is not lawfully, systematically determined: "In short, there is cause only in something that doesn't work" (Lacan, 1979:22).

In all this, the body occupies a completely new place. As cause it calls for "an appointment with a real that eludes us",<sup>13</sup> the real that lies beyond the *automaton*, and that comes down to what cannot be assimilated, in the sense of not mediated, not represented.<sup>14</sup> Hence, the idea of cause implies the idea of failure, a failure of the symbolic to cover something of the real: something that does not happen, thus causing something else to fill the scene.

The implication of this is that the body, through the drive, has a central causal impact on the unconscious as such: "For what the unconscious does, is to show us the gap through which neurosis associates with a real - a real that may well not be determined".<sup>15</sup> This in itself non-determined real is the drive in its status of non-representability. Hence the association with trauma.<sup>16</sup> Its aspect of failure appears in the negative denominations used by Lacan: "the not-realised", "the un-born", thus permitting him to make explicit a direct connection with the "un" of the un-conscious.<sup>17</sup> The very same negative idea is to be found in the becoming of the subject as well., which is always a failed process. This leaves us with the idea of a structural homology in which a gap, a primal lack, causes a never ending process that tries to cope with it, but that for one reason or another, never succeeds.

This theory on causality implies nothing less than an expansion of the previous determination with its exact reversal.<sup>18</sup> Previously, Lacan thought in terms of "law" and omnipresent determination by the Symbolic<sup>19</sup>; now, a different causality enters the game, arising from the real of the body. From this point onwards, it is the interaction between those two orders that has to be studied. *Tuché* puts the accent on the unconscious as a cause, *automaton* on the productions and the effects of the unconscious which are determined in a systematic way. Moreover, both of them are intrinsically interwoven and determine each other in a mutual causality, which is circular but not complementary (cf. *infra*).

As stated above, Lacan's theory about the *automaton* in Seminar XI is not new. In

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his second seminar, he had already demonstrated that the appearance of any arbitrary signifier is determined by law, i.e. there is a system determining which signifier can appear at a given point in the chain of signifiers and which cannot. This is important, because it provides us with the scientific base of Freud's free association. During the analytic treatment, free association is governed by an underlying determination, resulting in a kind of automatic memory. A number of lost signifiers can be retrieved and worked through during the treatment. Clinical practice demonstrates that this process of rememoration succeeds only up to a point, after which the chain stalls and stops.

It is there where the second line starts: this "full stop" of the symbolic, the point of causality "where it doesn't work" concerns the not-realized, the un-born in the chain of signifiers, the non-verbal rest that remains, even when desire has been expressed in the words of a demand. At that point, Freud had already met repetition compulsion rather than rememoration, and this repetition has everything to do with the real. The point where the chain stalls, is the very point where the real makes its appearance. The "meeting" with the real is an ever missed meeting, because there is no appropriate signifier. Lacan formulates this idea by paraphrasing Spinoza: "*cogitatio adaequata semper vitat eandem rem*": an adequate thought avoids always the same thing.<sup>20</sup>

As a consequence, there is no final analysis possible, nor a definite computation of the subject. Repressed signifiers are determined, and can be found up to a certain point. Beyond that, we meet with something different, where the signifier is lacking and the real insists, acting as a primal cause for the chain of signifiers. Psychoanalysis as a practice has to redefine its goal. It will take Lacan another 10 years to come up with a new answer: identification with the *sinthôme*.

In the later parts of Seminar XI, the whole question of *tuché* and *automaton* is treated again, although this time with the accent on their inner relationship. The concepts as such are not used any more. Instead, Lacan studies what he coins as a structural homology. It is my thesis that this particular homology provides us with Lacan's answer to the problem of causality and determinism and that this thesis permits us to delimit science from psychoanalysis. This particular relationship can be understood as follows: it amounts to an attempt at answering a lack or loss coming from a previous level by installing something that concerns the lack or loss of the next level, with as a result of which the original loss or lack is endorsed, giving rise thereby to a never-ending flywheel movement.

In this view, there are two different levels, each operating through what Lacan designates as a border structure. Both levels can be characterised by lack or loss. However, while the primary one concerns causality, the second implies determinism. While the primary level, being the first, is a mythical one, the second level must be understood in the plural, meaning that its development is a never satisfactory answer to the first one. Both science and psychoanalysis, being symbolic systems, can thus be understood as different answers to a primary mythical loss.

This primary level is described by Lacan in Seminar XI, thus bringing a radical innovation to his theory, and providing his previous elaborations with an underlying rationale. The lack in the chain of signifiers, i.e. the unknown desire of the (m)Other, was already well-known to his public, together with all the hysterical peripatetics it gave rise to. At this point, Lacan introduces us to another lack, another loss which is anterior

to the lack of the signifying chain between mother and child.<sup>21</sup> This lack has to do with the real of the body and will operate as cause.

The real of the organism functions as cause, in the sense that it contains a primordial loss, which precedes the loss in the chain of signifiers. Which loss? The loss of eternal life, which paradoxically enough is lost at the moment of birth, i.e. birth as a being with a gender.<sup>22</sup> In order to explain this, Lacan constructs the myth of the "lamella", which is nothing but object (a) in its pure form, the life instinct, the primordial form of the libido.<sup>23</sup> As an idea, it goes back to a biological fact: non-sexual reproduction implies in principle the possibility of eternal life (cf. single-celled organisms and clones), sexual reproduction implies in principle the death of the individual. In the latter case, each organism tries to undo this loss, tries to return to the former state of being. This was already with Freud the basic characteristic of the drive, here to be read as the life and death drive. With Lacan, the aspect of death in this death drive is easier to grasp: indeed, the return to eternal life implies inevitably the death of the sexed individual. It is important to remark that at this stage, we are talking about THE drive, which precedes any form of "sexuation", and the accompanying reversal into PARTIAL drives, meaning phallic drives.

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Thus considered, the first level concerns the mythical and real appearance of individual life, "the advent of the living", and the loss of eternal life. This is the opening and closing of life at birth. The advent of the sexually differentiated forms of life takes place through the loss of eternal life as such; the attempt to return takes place through sexual reproduction, which means that as a return, it has to be a failure.<sup>24</sup> This kind of non-reciprocal although circular relationship will continue on different levels, each time with the same effect: the process doesn't succeed to reach its final destination.<sup>25</sup> This is the structural homology between drive, unconscious and subject.<sup>26</sup>

This primal loss inaugurates a never ending attempt at remediation, albeit each time on another, incommensurable level. Even more: every answer endorses the primal lack. This is the fundamental meaning of Lacan's "*Il n'y a pas de rapport*", there is no relationship. The best example is the subject that tries to answer the desire, i.e. the lack of the Other, by producing signifiers. Instead of producing a satisfactory answer, these signifiers will endorse the loss of the real and will necessarily be beside the point. That's why the only answer to this lack is the subject itself, meaning that it presents itself as an answer and disappears.<sup>27</sup> Ultimately, the same relationship can be found between man and woman: in relation to the female lack, the masculine phallic-symbolic approach is beside the point, as the former is grounded in the real.

All human efforts are caused by this primal loss. The basic teleology aims at an – always impossible – return to the previous state of being, i.e. before this loss. This state of being is one of un-dividedness, of wholeness, which is described already by Plato with his myth of the originally complete, double-sexed human being in his *Symposium*. This annulment of the lack would delete the bar on the subject and put an end to all inner doubts. Lacan coined this with a beautiful equivocation: "*m'être à moi-même*", to belong to myself, meaning also: "*maître à moi-même*", master of myself.<sup>28</sup> This is the basic drive/motivation of all symbolic productions and activities of the subject, including science and psychoanalysis: *la suture du sujet*, stitching up the inner cleft.<sup>29</sup>

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This leaves us with a very important conclusion. The core of the subject is symbolically undetermined, and consists of a lack from which it flees. The very way in

which it tries to close this gap, endorses it. In his “La science et la vérité”, Lacan will think of four different ways of coping with this unbearable lightness of being, of which science and psychoanalysis are two; the other two being religion and magic. The goals of the first two are, respectively: “suturage” of the subject (science), and the creation of a neo-subject (psychoanalysis).

### *Conclusion: the suture of the subject versus subjectivation of the lack*

The meeting ground between psychoanalysis and science is both the problem of causality and the position of the subject. Lacan's theory has the advantage of demonstrating the inner relationship between these two. Science and psychoanalysis do concern the very same subject, i.e. the subject of the unconscious. They concern the same problem as well: the division of the subject and the attempt to cope with the underlying lack. As we have seen, this leads to what Lacan designates as a structural homology between the unconscious and the subject.<sup>30</sup> The difference resides in the way they try to cope with this problem.

The actual usage of the term "subject" is rather loose. More often than not, it could be replaced by "ego" or "patient". This is all the more strange, because it is a typically Lacanian concept, developed against post-Freudian ego-psychology.<sup>31</sup> So the accent has to be put on the division: the subject is divided by and over the signifiers, which results in a never ending process of alienation. The normal, i.e. neurotic, aim of this divided subject is to answer the desire of the Other, but this can never be done, due to the structural lack between the signifiers. The ultimate answer to the lack of the Other would be to offer oneself, meaning that one disappears (see the already mentioned “*Veut-il me perdre?*” in note 27). That is why the subject sticks to the signifier and alienates itself in an endless chain of them: in order to avoid the primary lack. Hence the never-ending aspect of this process: “*Ce qui ne cesse pas de ne pas s'écrire*” (What never stops not being written).<sup>32</sup> This dynamic is precisely what lies at the core of both psychoanalysis and science.

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In order to understand this, we have to make the link between signifiers and knowledge. Signifiers determine the symbolic reality in which we live. They do not only contain the knowledge about our world, they *are* our world. The symbolic apparatus – be it a private phantasm or a scientific theory – is our royal road to the real. Taking its distance from the primary lack and the accompanying anxiety, the subject acquires more and more signifiers, i.e. more and more knowledge. The symbolic wrappings around the real are ever-defensive ones and permit the subject to cope with it. Clinically, this can be studied in its ontogenetic form, in M. Klein's case-study of the little Dick and Lacan's commentaries thereon. Confronted with a child who has no signifiers at his disposal, Klein introduces him to the basic anxiety and obliges him to take the defensive road of the signifier. The result is that the child starts to develop a never-ending series of signifiers, thus coping with his anxiety. The very same process implies a development of his intelligence and a reality through which he becomes a subject.<sup>33</sup>

The subject's need, even greed, for this symbolic wrapping, leaves us with a faulty impression: it seems as if the subject wants to gather knowledge. This is the meeting ground between the subject of science and the subject entering analysis: both want to

know.<sup>34</sup> This is fairly typical with the subject entering analysis: he or she is in search for a lost knowledge and that is why he or she comes to the analyst. The Dora case study is a standard illustration and demonstrates immediately the particular character of this knowledge. Through her dreams and symptoms, she continually asks what it means to be a woman and a daughter in relation to the desire of a man. It is the same field of interest that haunts the child, more particularly on three specific points: what is the difference between boys and girls, where do babies (I) come from, what is it that connects my father to my mother? The child, says Freud, proceeds like a scientist and will forge genuinely explanatory theories. That is why he calls them infantile sexual *researches* and infantile sexual *theories*.<sup>35</sup> As a matter of fact, Freud himself is a perfect example of a subject that wants to know, leading to the invention of psychoanalysis. Indeed; the first version of his invention can be clearly linked to the problem of knowledge: people become neurotic because they have repressed a number of things, so that they don't know them any more. The psychoanalytic treatment enables them to undo these repressions and to retrieve this lost knowledge. Unfortunately, Freud had to discover that there is a resistance to this knowledge as well and that even where he succeeded in lifting these resistances, he met with a more fundamental obstacle, something that could not be put into words, something beyond representation. Moreover, this whole search for knowledge took place within a transference relationship, meaning that the analyst was placed in the position of the Other who is supposed to know.

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Lacan will return to these ideas from a structural point of view. The subject wants to know, but at the same time, this wanting to know covers "*la passion de l'ignorance*", the passion of not wanting to know. There are a number of things each subject flees from, because he or she is not prepared to face them. This is only one part of the truth. Psychoanalytic treatment may succeed in confronting the subject with his or her "personal" truth. Personal is put between quotes, because this kind of truth comes always from the Other, owing to the fundamental process of alienation in becoming a subject. Psychoanalytic treatment may succeed in this, but it will necessarily fail in confronting the subject with the real part of the truth, the part beyond the signifier and thus beyond knowledge. The recoverable parts belong to the signifying chain, the non-recoverable part to the real. At this point, the Freudian analytic process becomes interminable – it has to go on producing signifiers. And that is where Lacan looked for another solution.

The analysant addresses the analyst as the Other, the one-who-is-supposed-to-know (but is always suspect of not knowing enough). The scientist looks for knowledge as well, that's why he or she addresses nature: in order to filch its knowledge. Even minimal clinical practice demonstrates that this wanting-to-know of the analysand is very ambiguous: he or she wants to know something in order not to know. One would expect a different attitude from the subject of science, i.e. an undivided quest for knowledge. According to Lacan, however, this is not the case. Descartes' approach demonstrates the basic goal of modern science: Descartes is willing to sacrifice knowledge, on condition that he gains certainty. With his famous "*Cogito, ergo sum*", he meets with this certainty only in the real of being.<sup>36</sup> The dimension of truth remains outside the system. Descartes has to rely on God for that. This need for the Other of the Other as the ultimate guarantee, will remain the hallmark of science, from Newton to Einstein ("God does not play with dice").

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Hence, even for science, knowledge as such is secondary, as long as the Cartesian scientist acquires certainty. The ultimate goal of the scientist is not to construct an objective knowledge of reality; it is to produce signifiers in such a way that they will bridge the inner division of the subject. The so-called objectivity or desubjectivation is not a means, but an aim in itself, obliterating the truth of the division of the subject. That is why science does not want to compromise itself with truth and causality.

The goal of science is described by Lacan in his "La science et la vérité" as "la suture du sujet", the suturing or stitching of the subject. This is the goal that drives every subject right from the start: "*m'être à moi-même/maître-à-moi-même*": to belong to myself, to be master of myself, to be myself. It is nothing but the desire for a complete Other, a finally closed symbolic system which has retrieved the lost *object a* and solved - "sutured" - the division of the subject. This process is endless, interminable as Freud said, because every new signifier endorses the original loss. That's why the subject in analysis has to keep producing new signifiers, that's why the subject of science has to keep secreting new knowledge – this is the very same process, coming down to "*Ce qui ne cesse pas de ne pas s'écrire*": What does not stop not being written. The subject of science believes that nature will reveal him the final meaning. In this respect, he is the same subject as the analysand believing that psychoanalysis will present him with the final meaning of his symptom. He or she desires that the analyst, as a subject-who-is-supposed-to-know, will produce the master signifier that will bridge his or her inner division. The discourse of the hysteric demands a master discourse that produces the ultimate S2. If analysis operates in the same way as science, this implies that the analyst has to take the position of the Cartesian God, functioning as guarantee.

For Lacan, every subject lies divided between knowledge and truth.<sup>37</sup> This very same division can be traced back to Freud's double theory on the ego. On the one hand, Freud describes the ego as the "system Pcpt.-Consciousness", with reality testing as its main function - this is the level of knowledge; on the other hand, he describes the ego as the censor, with negation as its main function - this is the level of truth.<sup>38</sup> The truth concerns the primary lack, foreshadowing the disappearance of the subject.

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Science and psychoanalysis meet only in the first part of analysis, where the chain of signifiers is determined by the Other. Beyond this, there is the confrontation with the real of the drive and the lack in the core of the subject. The homologous structure is caused by a loss and determines its own continuity by determining the reproduction of its very cause. The last instantiation of it is the divided subject. Science, headed by Descartes, evacuates the subject and leaves its truth to God, finding security and certainty in a mechanical, desubjectivised world. Psychoanalysis has the ambition of confronting this division in its very causality, thus betting on the subjectivation of an originally alienating process. This "subjectivation" was repeatedly described and elaborated by Lacan, thus demonstrating its particularly difficult nature: symbolic castration, separation, traversal of the phantasy, "*la passe*" and identification with the "*sinthôme*"

In the end, both are an impossible attempt to cope with "*la condition humaine*".

## Notes

1. This idea has not disappeared today. Quite the contrary. It constitutes, for example, the baseline of E.O.Wilson's book, *Consilience. The Unity of Knowledge* (1998).
2. See Monod, 1970:188.
3. See Lacan, 1966:874.
4. See Heidegger, 1977:20.
5. Lacan, 1979:228, and Lacan's Seminar X (unpublished).
6. Lacan, *Propos sur la causalité psychique*, in Lacan, 1966:160 ff.
7. Lacan, 1979:53-54.
8. Shannon & Weaver, 1949.
9. Lacan, 1979:20-21.
10. "All these consequences of the pressure give one a deceptive impression that there is a superior intelligence outside the patient's consciousness which keeps a large amount of psychical material arranged for particular purposes and has fixed a planned order for its return to consciousness." S.E. II:272; see also S.E. II:275-76, 286-87.
11. See Miller, 1986:23-42.
12. See Leclaire, 1968:97-117.
13. Lacan, 1979:53.
14. *Ibid.* 53-55.
15. Lacan, 1979:22 my translation. In the official translation, the French "la béance par où la névrose se raccorde à un réel" is translated by "the gap through which neurosis *recreates a harmony* with the real". The whole point of Seminar XI comes down to the demonstration that any harmony with the real is lost forever, so the official translation is wrong.

With this idea, Lacan associates himself with an almost forgotten part of Freudian theory, i.e. the fixation of the drive, implying the body in a decision-making instance. See Verhaeghe, 2001:65-97.
16. Lacan, 1979:60.

Again, this part of Lacanian theory can very well be understood from a freudian point of view. In Freud's theory, the pleasure principle functions also "within the signifier", i.e. with representations (*Vorstellungen*) to which a "bound" energy is associated within the so-called secondary process. What lies beyond the pleasure principle cannot be expressed by representations and functions with a "free" energy within the primary process. The latter has a traumatic impact on the ego (S.E., 18, 67ff). The Lacanian real is Freud's nucleus of the unconscious, the primally repressed which stays behind because of a kind of fixation; "staying behind" means: not transferred into signifiers, into language (Freud, letters to Fliess, dated May 30, 1896 and November 2, 1896).
17. Lacan, 1979:22-23, 26, 32.
18. If one studies Lacan's work in this respect, it becomes obvious that he struggles with this new idea of causality, and that he has great difficulties in abandoning the previous unidimensional determination by the symbolic. This struggle can very well be illustrated with one lesson of Seminar X (9 January 63). He starts with repeating the reason why the subject is first of all and originally unconscious: "*qu'il nous faut d'abord tenir pour antérieure à cette constitution [du sujet] une certaine incidence qui est celle du signifiant*" (my translation: "that we need first of all to consider a certain incidence, the one of the signifier, as anterior to this constitution [of the subject]"). Based on this, one could infer that the signifier can be interpreted as primordial. The next sentence offers a different story: "*Le problème est de l'entrée du signifiant dans le réel et de voir comment de ceci naît le sujet.*" (my translation: "The problem concerns the entry of the signifier into the real and *the way in which the subject is born from this*"). In this, the real acquires greater eloquence and the relation with the body is clear from the very beginning. Indeed, the signifiers do not appear out of thin air, on the contrary: "*Ce qui permet justement à ce signifiant de s'incarner, c'est bien entendu ce que nous avons là pour nous présenter les uns aux autres notre corps.*" (my translation: "What precisely permits this signifier to incarnate itself, is of course that what we have to present one to another, that is, our body"). This was already acknowledged in Seminar II: "*Les premiers symboles, les symboles naturels, sont issus d'un certain nombre d'images prévalentes - l'image du corps humain, l'image d'un certain nombre d'objets évidents*

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*comme le soleil, la lune et quelques autres.*" (Lacan, 1978:352; my translation: "The first symbols, the natural symbols have come forward from a certain number of prevalent images - the image of the human body, the image of a certain number of evident objects, such as the sun, the moon and some other").

This introduces us to a second theme, in itself also an expression of Lacan's difficulties with this second form of determination, i.e. causality arising from the real of the body. As long as he hadn't recognised this causality, he could avoid the underlying difficulty with expressions such as "signifiers furnished by nature". This is a very strange expression indeed in the light of his theory concerning the supremacy of the symbolic. There are a number of analogous expressions, which prepare the field for his later theory on the body and the real as cause. I have quoted a few of them below:

- "*Le Es dont il s'agit dans l'analyse, c'est du signifiant qui est là déjà dans le réel, du signifiant incompris.*" (Lacan, 1994:49; my translation: "The Id which is what analysis is about, concerns the signifier, the incomprehensible signifier which is already there in the real");

- "*Quand nous abordons le sujet, nous savons qu'il y a déjà dans la nature quelque chose qui est son Es, et qui est structuré selon le mode d'une articulation signifiante marquant tout de ce qui s'exerce chez ce sujet de ses empreintes, de ses contradictions, de sa profonde différence d'avec les coaptations naturelles*" (Lacan, 1994:50; my translation: "When we start with the subject, we know that there is already in nature something which is his Id, and which is structured following the way of a signifying articulation that marks everything of this subject by its imprints, by its contradictions, by its profound difference with natural cooptation").

On the next page, Lacan states that the signifier borrows - in matters of signified - a lot of the human body, with the erected phallus as most prominent feature (Lacan, 1994:51, 189). I remember having read the expression "*le phallus, un signifiant donné par la nature*", but didn't manage to find it again. In Seminar VII we find the analogous expression for the female genital (Lacan, 1986:199).

A more extensive elaboration can be found in the opening chapter of Seminar XI: "Nature provides signifiers, and these signifiers organize inaugurally human relations in a creative way, providing them with structures and shaping them." (Lacan, 1979:20). In this quote, the signifiers precede the subject, but nature furnishes them. A few months later, this "primary classificatory function" will be associated with the biological difference between male and female around which the "combinatory" comes into being and is developed. The conclusion of this reasoning is: "What would make it legitimate to maintain that it is through sexual reality that the signifier came into the world" (Lacan, 1979:151). In the next paragraph, Lacan combines this "combinatory" with the one at work in genetics, including the loss in the process of meiosis. Eventually in Seminar XI, it becomes clear that, according to Lacan, nature saddles us with an essential loss, that of eternal life in itself, and subjectivity is an effect of this loss.

19. "Thus the symbol manifests itself first of all as the murder of the thing, (...)", (Lacan, 1977:109). This determination by the symbolic gave rise to one of the central ideas in the wake of the Bonneval Colloquium (Lacan, 1966:829ff.): that the interpretation can be calculated. Lacan will stick to this idea for a number of years, and Seminar XI contains several references to it, amongst others his reference to Leclaire's casestudy on "poordjeli". From a conceptual point of view, this implies that, at the time of Seminar XI, Lacan still believed in the possibility of ending an analysis with the final word, the ultimate signifier, though adding even then that this signifier must be an "irreducible" one, and that interpretation ultimately focusses on the "non-sens" (Lacan, 1979:248-49). After Seminar XI, he will understand object a as the not-understandable, the unrepresentable. His optimism concerning the range of interpretation disappears at the same time, forcing him to reconsider the end of an analysis. The question then is how to operate on the real if one has to start from the imaginary of the body image and the symbolic of the subject: "*Comment, à partir de là, nous nous imaginons toucher à un réel qui soit un troisième cercle (...)*" (Lacan, 1976b:54-55). Still later he will talk of the "real kernel" of the symptom, which is "le noeud de l'interprétable", the knot of uninterpretability ("*La méprise du sujet supposé savoir*, Lacan, 1968:40). Finally, Lacan will elaborate this idea of an identification with the real of the symptom – *le sinthôme* – as the goal of psychoanalysis.

20. Lacan, 1979:48-51.

21. It is not by accident that this crucial innovation is introduced in the lesson on alienation (Lacan,

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- 1979:204-205). The doubling of the lack implies that all previous concepts have to be doubled as well, each time in a logical first and second one. As an innovation, it has been prepared a long time before, the last one being the previous seminar, in which the same doubling can be recognised in the differentiation between privation (real) and castration (symbolic), even though both of them are preoccupied with the phallus (X, lesson of 30 January 1963). In Seminar XI, the doubling introduces an object beyond and logically preceding the phallus: *object a*, lamella, libido. It is very interesting to note the analogy with Freud's theory. At a certain point of his evolution, Freud also needed to double all his previous concepts (repression and primal repression, fantasy and primal fantasy, father and primal father), but he missed the final point: from castration to "primal castration" which is not a castration any more, but something different. (For a more elaborate version of this, see Verhaeghe, *Does the Woman exist?*, 1999). In this respect, again, Lacan presents us not with a mere "return" to Freud, but with something new.
22. Lacan, 1979:205.
  23. "Imagine that, each time when at birth the membranes are broken, something - the lamella - flies away and is lost forever. This loss is nothing less than the loss of pure life in itself, of immortality." (Lacan, 1979:103-104, 197-98).
  24. "It is the speaking body in-so-far as it can only manage to reproduce thanks to a misunderstanding regarding its *jouissance*." (Lacan, 1975:109).
  25. Lacan 1979 :207. The next level ushers in the I ("l'avènement du Je"), i.e. the opening and closing of the body. This is the primary alienation of the mirror stage. The organism acquires a first mastery, a first identity through the externally imposed unified image of the body. This unified body will be translated in the master signifier I, to be understood as "*m'être à moi-même*"/"*maître à moi-même*" (to be myself, to belong to myself, to be master of myself), the "I" which *has* a body and has lost its *being*). The next level ushers in the subject ("l'avènement du sujet"), i.e. the opening and closing of the signifiers. The ever divided subject appears and disappears under the signifiers of the Other, aiming at answering the desire of that Other. From a structural point of view, this has to end in failure, because the answer will be given in terms of signifiers, whilst *object a* belongs to a different order and is precisely lacking due to the introduction of the signifier. See Verhaeghe, 2001:99-132.
  26. Lacan, 1979:181.
  27. This concerns the fantasy of one's own death in relation to the Other: "*Veut-il me perdre?*". See Lacan, 1979:214-215.
  28. See Lacan, 1991:178.
  29. Lacan mentions this as the goal of science in his "La science et la vérité" paper (1966:861). See also Seminar XII, lesson of 16 Dec. 1964 and Seminar XXIII, lesson of 13 Jan. 1976. (Lacan, 1976).
  30. His theory on causality permits Lacan to elaborate a status of the unconscious, *status which is homologous to what takes place at the level of the subject*. "on the level of the unconscious, there is something that is homologous on all points to what happens at the level of the subject" (X,27 my translation; original: "(...) qu'au niveau de l'inconscient, il y a quelque chose en tous points homologue à ce qui se passe au niveau du sujet (...); see also Lacan, 1979:20-23, 181). This homology has everything to do with what he calls the pulsating movement of the unconscious, the opening and closing of the gap in which something fails to realise. A typical example is a slip of the tongue, but this can very well be applied to transference as well (Lacan, 1979:130-131); ultimately, this goes for every production of the unconscious, the subject as such included. This movement is exactly the same as the one concerning the chain of signifiers, in which the automatically produced series determines in a systematic way (Law) their own failure, i.e. the gap, which in its turn causes the necessary progress of the chain.
  31. See Verhaeghe, 1998:164-189.
  32. See Lacan, 1975:17.
  33. See Klein (1930) and Lacan (1988:63-73).
  34. Lacan, 1966:863.
  35. Freud, 1905:194-197.
  36. Lacan, 1979:36-37. As a matter of fact, Lacan fights Descartes throughout his work, and can be considered a constant theme. His disagreement with Descartes can be summarized by opposing the "*Cogito, ergo sum*" with the Freudian "*Wo es war, soll ich werden*". Whereas Descartes endorses unknowingly the division of the subject in his attempt to join his "true being", Freud and

Lacan acknowledge this division and try to proceed in such a way that the subject can handle it on a different level than the usual one, which is the level of "méconnaissance".

37. Lacan, 1966:856.

38. The idea of the ego as "system Pcpt.-Consciousness" is a constant in Freud's work, from the *Project for a scientific psychology* (1978) to *The Ego and the Id* (1923). The other idea concerning the function of denegation is a constant as well and becomes more pronounced towards the end of his work: *Loss of Reality in Neurosis and Psychosis* (1924), *Fetishism* (1927), *Splitting of the Ego in the Process of Defense* (1940).

## Bibliography

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Atlan, H. (1979). *Entre le crystal et la fume. Essai sur l'organisation du vivant*. Paris : du Seuil.

Freud, S. (1978[1892-1899]). *Extracts from the Fliess papers* (including *Project for a Scientific Psychology*). Standard Edition, 1. London: The Hogarth Press.

Freud, S. (1905). *Three Essays on the Theory of Sexuality*, *S.E.*, 7.

Freud, S. (1923). *The Ego and the Id*, *S.E.*, 19.

Freud, S. (1924). *The Loss of Reality in Neurosis and Psychosis*, *S.E.*, 19.

Freud, S. (1927). *Fetishism*, *SE.*, 21.

Freud, S. (1940). *Splitting of the Ego in the Process of Defense*, *S.E.*, 23.

Hegel, G. (1970). *Phänomenologie des Geistes*. Frankfurt am Main: Suhrkamp.

Heidegger, M. (1977). *The Question Concerning Technology*. New York: Harper and Row.

Klein, M. (1930). *The importance of symbol-formation in the development of the ego*. *International Journal of Psychoanalysis*, 11.

Lacan, J. (1966). *Écrits*. Paris: du Seuil.

Lacan, J. (1968). *La méprise du sujet supposé savoir*. *Scilicet*, 1, 1968 (reprinted in J. Lacan, 2001, *Autres Écrits*).

Lacan, J. (1973). *Introduction à l'édition allemande des Écrits*, Walter-Verlag 7/10/1973. *Scilicet*, 5 : 11-17, 1975.

Lacan, J. (1975[1972-73]). *Le Séminaire, livre XX: Encore* (texte établi par J.-A. Miller). Paris : Seuil.

Lacan, J. (1976[1975-76a]). *Le Séminaire, livre XXIII: Le Sinthôme* (texte établi par J.-A. Miller). *Ornicar?*, 6, 3-20.

Lacan, J. (1976[1975-76b]). *Le Séminaire, livre XXIII : Le Sinthôme* (texte établi par J.-A. Miller). *Ornicar?*, 7, 3-18.

Lacan, J. (1976b). *Conférences et entretiens dans des universités nord-américaines*. *Scilicet*, 6/7, 5-63.

Lacan, J. (1977). *Écrits-A Selection*. Translated from French by A. Sheridan. New York-London: Norton Company.

Lacan, J. (1978[1954-1955]). *Le Séminaire, Livre II: Le moi dans la théorie de Freud et dans la technique de la psychanalyse* (texte établi par J.-A. Miller). Paris: Seuil.

Lacan, J. (1979). *The four fundamental concepts of psycho-analysis*. J.-A. Miller (Ed.), A. Sheridan (Trans.), introduction by D. Macey. London: Penguin Books.

Lacan, J. (1986[1959-1960]). *Le Séminaire, Livre VII, L'éthique de la psychanalyse* (texte établi par J.-A. Miller). Paris: Seuil.

- Lacan, J. (1988). *Seminar I, Freud's Papers on Technique*. Cambridge University Press.
- Lacan, J. (1991). *Le Séminaire, Livre XVII, L'Envers de la Psychanalyse* (texte établi par J.-A. Miller). Paris: Seuil.
- Lacan, J. (1994[1956-1957]). *Le Séminaire, Livre IV, La relation d'object* (texte établi par J.-A. Miller). Paris: Seuil.
- Lacan, J. Seminar X, *On Anxiety*, unpublished.
- Leclaire, S. (1968). *Psychanalyse, un Essai sur l'Ordre de l'Inconscient et la Pratique de la Lettre*. Paris: Seuil.
- Miller, J.-A. (1986). Les structures quadripartites dans l'enseignement de J. Lacan. L.Jonckheere (Trans.). (De vierledige structuren in het onderwijs van J. Lacan). *Psychoanalytische Perspektieven*, 8.
- Monod, J. (1970). *Le Hasard et la Nécessité, Essai sur la Philosophie Naturelle de la Biologie Moderne*. Paris: Seuil.
- Prigogine, I., & Stengers, I. (1984). *Order Out of Chaos. Man's New Dialogue with Nature*. London: Fontana.
- Shannon, C.E., & Weaver, W. (1949). *The Mathematical Theory of Communication*. Urbana: University of Illinois Press.
- Verhaeghe, P. (1979). *Does The Woman Exist?* London-New York: Rebus Press/The Other Press.
- Verhaeghe, P. (1998). Causation and destitution of a pre-ontological non-entity: on the Lacanian subject. In: D. Nobus (Ed.), *Key Concepts of Lacanian Psychoanalysis*. London: Rebus Press.
- Verhaeghe, P. (2001). *Beyond Gender. From Subject to Drive*. New York: The Other Press.
- Wilson, E.O. (1998). *Consilience. The Unity of Knowledge*. Random House Inc.