

The Freudian unconscious in the context of the cognitive orientation

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Academic dissertation to be publicly discussed, by due
permission of the Faculty of Behavioural Sciences at the University
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Acknowledgments

When I studied psychology at the University of Helsinki in the late 1980s and early 1990s, Professor Risto Vuorinen headed up a group of students and researchers interested in psychoanalysis. This group focused on the fundamental aspects of psychoanalysis and my involvement with the group enabled me to become acquainted with psychoanalytic concepts and perspectives on the human mind/brain. When I confronted the (sometimes quite critical) psychoanalytic reviewers of the articles which comprise this Thesis a decade later, I came to appreciate how much I had benefitted from my introduction to psychoanalytic concepts in Professor Vuorinen's group.

I remember that in the beginnings of my studies in psychology, I had a strong dislike towards terms such as "artificial intelligence." Howard Gardner's *The Mind's New Science: A History of the Cognitive Revolution* helped to broaden my perspectives and finally understand why computer science (and the computer metaphor) is such an important part of cognitive science. In 1992, I bought *Consciousness and Contemporary Science* (edited by Anthony Marcel and Edoardo Bisiach), which also had a great impact upon me. I then realized that the topic of consciousness and the unconscious might serve as a lens through which the relationship between psychoanalytic and cognitive perspectives could be examined.

That same year (1992) was also the year that Professor Vuorinen's *Persoonallisuus ja minuus* was published. In the discussions on this work in the journal *Psykologia*, Göte Nyman proposed that we should try to describe psychoanalytic ideas in cognitive terms. Göte's suggestion prompted a simple research strategy in my mind – take psychoanalytic findings and phenomena and try to find the best explanation possible for them in terms of cognitive science. I still see my studies in this way.

It is easy to see the influence of the philosopher Daniel Dennett when reading the articles which comprise this Thesis. Dennett is a creative thinker who has the ability to present very difficult concepts in a clear and even entertaining manner. Dennett's books have inspired me intellectually as well as continue to inspire me as a writer.

After receiving my Master's Degree in Psychology, it took several years before I formally began my doctoral studies. In fact, I never really undertook the task of writing a doctoral thesis. When asked about writing a thesis, I used to say, "It depends on getting my articles published." On the one hand, I was uncertain if I would ever be able to publish an article in English. On the other hand, I was certain that if I ever took up writing a doctoral thesis that it would consist of published articles.

During my Master's studies I had participated in several of Juhani Ihanus's lectures

and seminars. It was clear to me from that time that I would eventually ask him to become my thesis advisor. After he agreed and I worked with him for a year or two, I thought that I might begin to try writing some articles. I realized that it was one thing to come up with more or less original ideas yet it is another thing entirely to get referees to accept them as a manuscript.

With Hannu Tiitinen we were fellow students in our Master's studies at the University of Helsinki. Although he went on to obtain his doctorate shortly thereafter, we continued to meet together from time to time. I was rather surprised when Hannu graciously asked after one such meeting (he was already a successful brain scientist at that time) whether or not he could read some of my articles. I had never heard of any Finnish brain scientists who would have shown an interest towards Freudian” perspectives. Hannu graciously agreed to become an advisor as well.

Meetings and discussions with Juhani and Hannu were always very informal and this style suited me well. Since researchers like Juhani and Hannu are always so busy and have so much to read, I am very grateful that they always had the time and the interest to help with my writing.

In the beginning, my manuscripts were rather muddled but it helped when I was able to collaborate with Juhani and Hannu. I then found that it was not just my writing that was muddled but that the process of writing helped me to clarify my ideas and eventually arrive at my intellectual destination. Because of this, I’m not sure if Juhani and Hannu did more to teach me to write or to teach me to think. Either way, they have taught me to be more precise and careful with my thinking as well as with my writing. Communicating with editors and journal referees is an extraordinary form of human interaction. A doctoral student would probably lose his mind without the help and support of his advisors. In addition to being fun, it has also been very instructive and helpful to collaborate with these two highly respected researchers from two very different fields.

For 20 years I have spent hundreds of hours talking about the topics of my Thesis (among many others) with Olli Louhimo. The wide range of Olli’s knowledge is astonishing and his constructive criticism and cleverness has helped me immensely. It is customary to say in an acknowledgment that the study at hand would not have been possible without certain people. I can say with certainty that without Juhani, Hannu, and Olli that this Thesis would never have been finished by the autumn of 2006.

Olli Louhimo, Simo Korkee, Petri Meronen, and I established that most profound of intellectual organizations, Totuuskomissio (Commission of Truth), at the turn of the millennium. This involved having some very nice times on and around the sea but we

also found time to study each others' writings. I am not entirely sure that the Truth has necessarily revealed itself to any of us but our meetings together helped me to write better papers and I am grateful to them for this..

I have had the pleasure to talk about my ideas with several Finnish psychoanalysts, including Henrik Enckell, Leena Klockars, Vesa Manninen, and Turo Reenkola. There are not very many people here in Finland who are at home with both psychoanalytic and cognitive perspectives. Thanks to modern technology, it has been possible to find such people abroad. I appreciate sharing the interest, friendship, and insights of Eric Gillett, Fred M. Levin, Alan T. Lloyd, Dan Lloyd, Harry Schlepperman, and David Livingstone Smith. These Finnish and non-Finnish fellows have been very important to me as they have enabled me to get past my solipsistic suspicions that the issues and problems on which I have concentrated so far perhaps exist only in my own mind.

I have several friends who have either completed or are preparing their doctoral dissertations. I have found that both the joy and despair of such intense study can only be shared in the company of fellow (mis)fortunates. I am also very grateful for the financial support of the Finnish Cultural Foundation which enabled me to work as a full-time researcher for six months. I also want to thank Professors Viljo Räkköläinen and Mikko Sams, the pre-examiners for this Thesis, for their constructive comments, and the artist Juhana Blomstedt for permission to reproduce *Painter and Model* on the cover.

This Thesis is dedicated to my son, Andreas – an original, insightful, and playful contributor at the ripe old age of 11 years.

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Original publications	

LIST OF ORIGINAL PUBLICATIONS

The thesis is based on the following publications which are referred to in the text by their Roman numerals **I-V**:

I Talvitie, V. & Ihanus, J. (2003) On The Nature of Repressed Contents – A Working Thorough of John Searle’s Critique. *Neuro-Psychoanalysis*, 5, 133–142.

II Talvitie, V. & Ihanus, J. (2002) The Repressed and Implicit Knowledge. *International Journal of Psychoanalysis*, 83, 1311–1323.

III Talvitie, V. & Tiitinen, H. (2006) From The Repression of Contents to The Rules of The (Narrative) Self: A present-day cognitive view to “The Freudian phenomenon” of repressed contents. *Psychology & Psychotherapy: Theory, Research and Practise*, 79 (june), 165–181.

IV Talvitie, V. & Ihanus, J. (2006) The Psychic Apparatus, Metapsychology and Neuroscience – Toward Biological (neuro)Psychoanalysis. *Neuro-Psychoanalysis*, 8, 85–98.

V Talvitie, V. & Ihanus, J. (2005) Biting The Bullet: The Nature of Unconscious Fantasy. *Theory & Psychology*, 5 (october), 659–678.

Abstract

For decades psychoanalysis was the discipline within which the unconscious was studied, and other branches lacked competence to take a stand on these issues. Since the 1980s, however, the cognitive orientation has increasingly interested in the unconscious, so that nowadays there is talk of both psychoanalytic and cognitive unconscious. The aim of this thesis is to integrate the psychoanalytic and the cognitive views.

The “Freudian” concept of the unconscious incorporates four entangled issues: 1) What is the unconscious like? 2) How does the unconscious give rise to psychic disorders? 3) Why and how are certain contents missing from consciousness (the repression of contents)? 4) How do these contents emerge (becoming conscious of the repressed)? The conventional psychoanalytic answer to the first question is “The unconscious is mental”. The other three questions depend on the answer given to the first one: “psychoanalytic” conceptualizations rest on the “cornerstone”.

This notion was challenged in Study I: it was argued that it has never been clear what it means that the unconscious is mental. Thus, it was suggested that psychoanalysis should drop the epithet “mental” before the term unconscious. This suggestion created the need to reappraise the conventional “psychoanalytic” answers to the other questions. Namely, if the unconscious is not mental, the exclusion of contents from consciousness (the repression of an idea) can no longer be explained by claiming that censorship prevented an idea from being brought from the unconscious into the domain of consciousness. Similarly, the logic of becoming conscious of the repressed collapses: there is no “place” (or domain) from which an idea could be brought into the domain of consciousness. Reappraisal of these issues was the aim of Studies II and III.

Study II approaches questions 2) and 4) in terms of implicit knowledge. Study III focuses on the mechanisms that determine which contents appear in the scope of consciousness, and which cause their exclusion (questions 3) and 4)): the main emphasis is on the distinctions between the processes occurring on the level of the brain, consciousness, self-consciousness, and narrative self-consciousness.

Studies I-III set “psychoanalytic” topics in the framework of the cognitive view. The picture emerging from them is not especially useful to the clinician (psychotherapist), however, and Studies IV and V thus focused on that issue. Study IV is a rather serious critique of neuropsychanalysis. It is claimed that repressive functions of conscious states are at the core of clinical psychoanalysis, and functions in general cannot be reduced to neurophysiological terminology. Thus, the limits of neuropsychanalysis are more confined than has been realized: crucial clinical issues remain beyond its scope. Study V focused on the confusing reality that, although unconscious fantasies do not exist, the idea that they do has been an important conceptual tool for clinicians. In a broader context, the aim of Study V was similar to that of Study IV: to determine the relation between psychotherapist and neuroscientist terminology. Studies III, IV and V apply the philosopher Daniel Dennett's model on different levels of explanation.

1. INTRODUCTION

What, in fact, is this “unconscious” but a high-sounding name to veil our own ignorance?

James Sully 1878

1.1. HOW MANY UNCONSCIOUSSES? DEMYSTIFYING THE FREUDIAN UNCONSCIOUS

Is Freud’s view on the unconscious, “the cornerstone” of psychoanalysis, correct? For decades psychoanalysis was *the* discipline that was exclusively associated with studying the unconscious, and others lacked the competence to take a stand on the issue. Since the 1980s, however, intensive study of the unconscious has been taken place in the scope of cognitive orientation. Thus, nowadays the issue meets with considerable applause in academic circles, too.

The question and various popular and more general alternatives (“Is Freud dead?”, “Was Freud, after all, right?”) often attracts short answers, but from the academic perspective it is misleading in at least two ways. In the first place, it is trivial because serious scientists are seldom either completely right or completely misled, and in the second, apart from the perspective of the history of ideas, the issue of who is wrong and who is right is a minor one: the fundamental aim of science is to develop the explanations and models that best suit the phenomena under scrutiny.

Nevertheless, it is common knowledge that, in the case of psychoanalysis, it is difficult to avoid polarizations and personification: Freud was suggestive by nature and in his writings, and discussions easily slip from the factual to debate on what he really said/meant, and whether or not present-day studies support or contradict his ideas. The aim in Studies I-V of this doctoral dissertation was to consider the (Freudian) unconscious without being driven to such contradictions. The starting point was the *phenomena* that Freud and other psychoanalysts have discovered, or the *observations* and *notions* that have come to light in the context of psychoanalysis. The next step was to create the (best possible) explanations, reflecting the current state of the art in the relevant domains of study.

The implication in adopting this strategy was that psychoanalytic observations were taken as read: questions concerning the reliability of the psychoanalytic method are so broad, and extra-clinical studies on psychoanalytic presuppositions so

extensive, that it is impossible to incorporate them into this kind of study. In addition to this, in practice, “the current state of the art in the relevant domains of study” implies the *cognitive orientation*, or certain branches of *cognitive science*: the philosophy of the mind, (empirical) psychology, neurophysiology, and computer science.

However, it turned out to be impossible to avoid leaning on Freud’s writings. When developing the framework for a scientific article offering an up-to-date explanation of a phenomenon identified in the context of psychoanalysis, one first needs to introduce the predominant view. Jung, Melanie Klein, Lacan, and the advocates of narrative psychoanalysis have joined Freud in presenting their conceptualizations of the unconscious, but it is Freud’s view that still predominates. Because of his background in biology and neurophysiology, the “*Freudian unconscious*” is also the least difficult to comprehend from the cognitive perspective. Thus, Studies I-V focus on the “Freudian” unconscious in particular.

The heading of this section presupposes that the psychoanalytic view(s) of the unconscious is mystifying in some way. In his earlier psychoanalytic writings Freud boldly emphasized the fact that the unconscious were mental: In *The Unconscious* he stated that “...the conventional equation of the psychical with the conscious is totally inexpedient” (Freud 1915a, 167-168). In *Introductory Lectures on Psycho-Analysis* he held (Freud 1916-1917, 21) that “The first of these unpopular assertions made by psychoanalysis declares that mental processes are in themselves unconscious and that of all mental life it is only certain individual acts and portions that are conscious.” On the next page he is quite solemn: “... yet I can assure you that the hypothesis of there being unconscious mental processes paves the way to a decisive new orientation in the world and in science.” (Freud 1916-1917, 22) In *Ego and the Id* we found the following statement: “The division of the psychical into what is conscious and what is unconscious is the fundamental premise of psycho-analysis; and it alone makes it possible for psycho-analysis to understand the pathological processes in mental life... and to find a place for them in the framework of science.” (Freud 1923, 13)

However, in *An Outline of Psycho-Analysis*, one of his last works, the tone had become more cautious: “We know two kinds of things about what we call our psyche (or mental life): firstly, its bodily organ and scene of action, the brain (or nervous system) and, on the other hand, our acts of consciousness... Everything that lies between is unknown to us, and the data do not include any direct relation between these two terminal points of our knowledge. If it existed, it would at the most afford an exact localization of the processes of consciousness and would give us no help

towards understanding them.” (Freud 1940, 145-146)

Thus, from this citation it is understandable that Freud’s followers might have felt confused or even suspicious about the existence and essence of the unconscious. However, these words are not at all indicative of post-Freudian psychoanalysis. Quite the contrary: the mental unconscious has been, and still is, the “cornerstone” of Freud’s legacy. It is difficult to find a psychoanalytic text from the past six decades that challenges the idea that the unconscious is mental. It is equally difficult to find a text that explains what the term mental means when placed in front of “unconscious”.

This issue was the central theme in the discussion between the authors of and the commentators on **Study I**. The commentators argued in favor of the mental essence of the unconscious, but were unable to determine it. The vagueness of the term mental is one reason why the Freudian unconscious needs “demystification” – i.e. more focused discussion on what it is and is not, and the status of unconscious fantasies in psychoanalysis is another.

For a non-psychoanalytic researcher the whole idea of unconscious fantasies is absurd: a fantasy is an entity that presupposes consciousness. We began **Study V** by acknowledging the fact that this idea – at least according to the theorists – has enjoyed a leading role in psychoanalytic practice, but as these theorists themselves note, nobody has ever explained how an unconscious fantasy (or *phantasy*) can exist.

The third reason for using the word “demystify” was that the unconscious is occasionally described in psychoanalytic writings in a rather poetic tone as a mystery. Things often happen in psychoanalysis and other psychotherapies that astonish both participants, and they may be experienced as mysterious. The concept (or presupposition) of “the unconscious” aims at *explaining such mysteries*, and it is weird when *it* is called a mystery. From the perspective of the history of science, mysteries have been resolved through discoveries such as magnetism and electricity. Thus, if there is mysteriousness surrounding the unconscious, it means only that our knowledge is impartial, and we should go more deeply into it. All in all, it could be said that the psychoanalytic community has tolerated considerable vagueness and confusion around the cornerstone of the unconscious – in psychoanalytic terms the idea of the mental unconscious serves as a totem or shibboleth.

Studies I-V are among the growing list of studies on the relation between the psychoanalytic and the cognitive views of the unconscious (see, for example, Kihlstrom 1987; Searle 1992, 151-173; Kandel 1999; O’Brien & Jureidini 2002; Pugh 2002), and the “psychoanalytic” and the “cognitive” unconscious in particular are under discussion. The origins of the psychoanalytic unconscious are clear (Freud’s writings at the end of the 19th century), and Kihlstrom, Barnhardt and

Tataryn (1992, 788) traced the concept of the “cognitive unconscious” to Paul Rozin and the year 1976. However, Jean Piaget (1973) had already studied the relation between “affective” (psychoanalytic) and “cognitive” unconscious in his article published in *The Journal of the American Psychoanalytic Association* in 1973.

According to Kihlstrom, Barnhardt and Tataryn, “... the psychological unconscious documented by latter-day scientific psychology is quite different from what Sigmund Freud and his psychoanalytic colleagues had in mind in fin de siècle Vienna. Their unconscious was hot and wet; it seethed with lust and anger; it was hallucinatory, primitive, and irrational. The unconscious of contemporary psychology is kinder and gentler than that and more reality bound and rational, even if it is not entirely cold and dry. In any event, the evidence for the [cognitive] unconscious discussed by Greenwald (1992) *in no way provides evidence for psychodynamic ideas.*” (Kihlstrom, Barnhardt & Tataryn 1992, 789; my italics)

Generally speaking, researchers on both sides agree with Kihlstrom, Barnhardt and Tataryn’s characterization in terms of the dichotomy hot & wet – cold & dry (for example Power & Brevin 1991, Woody & Phillips 1995). However, the last sentence of the citation is extremely controversial: the question concerning evidence in favor of the psychoanalytic concept is often given rapid and short answers on both sides. In general, the concept “harmony” does not characterize the relation between psychoanalysis and the cognitive orientation.

The debate on the status of the psychoanalytic view of the unconscious has not been resolved, and this suggests that behind the rather concrete issue lie more fundamental considerations, which could be formulated as follows:

- The term unconscious is logically dependent on the term consciousness. There are several terms in English with mental connotations (mind, psyche, consciousness), and each of them has several meanings and origins in many languages.
- We cannot make sense of the Freudian idea that the unconscious is of the mind before we have agreed on what the mind is.
- Freud wrote in German, and used both “Seele” and “Psyche” when stressing the mental essence of the unconscious.
- The biological basis of the mind and of consciousness is still a mystery in the context of both science and philosophy. (When I was writing this part of the dissertation, the journal *Science* ranked that question as one of the most challenging as-yet-unanswered ones in science). This fact is probably also reflected in the study of the unconscious.
- Could the “Freudian” unconscious be studied by using equipment developed for

present-day neuroscience, and if not, why not?

- Could mechanical apparatus (computers, robots) possess a mind? Whether they could or not, could the processes and structures of the unconscious be seen in terms of information-processing and neural algorithms?
- Could there be two unconsciouss, the “psychoanalytic” and the “cognitive”? Alternatively, do psychoanalysis and the cognitive orientation study the same unconscious using different methods and from different perspectives (whatever that may mean)?

1.2. PHENOMENA THAT HAVE ARISEN WITHIN THE CONCEPT “UNCONSCIOUS”

1.2.1. DEVELOPMENT OF THE EXPLANATIONS FOR THE “ODDITIES OF HUMAN EXPERIENCE AND BEHAVIOR”

Nobody has ever perceived the (mental) unconscious – seen an unconscious idea or process, or grasped one with tweezers or their fingers, or through the techniques of modern neuroscience. We might therefore ask ourselves how we ever came to talk about the unconscious aspect of the human mind. Part of the confusion arises from the fact that the concept has been used to explain many different kinds of phenomena. Those phenomena can be divided into two categories. First, there are ones that somehow astonish and/or frighten us, or at least are difficult to explain in a reasonable manner – they are “*oddities of human experience and behavior*”. For the second, humans possess *competencies* that are not based on conscious processing – we are able to drive a car without thinking of the pedals the whole time, and can produce correct sentences without having the rules of grammar in the domain of our consciousness, for example. Before turning to study those “oddities” and competencies in a more detailed manner, I will introduce two ideas presented by Claxton (2004).

First, he (Claxton 2004, 1-26) suggests that people’s explanations for those oddities have changed over time from the “outward” to the “inward” stories. The ancient Greeks, for example, explained them in terms of external forces and agents (Gods), whereas present-day people use terminology that refers inside man (repressed memories and neurotransmitters, for example).

Claxton (2004, 155-189) also holds that explanations of these “oddities” fall into three categories: the supernatural, the physiological, and the psychological.

Supernatural explanations refer to different kinds of gods, spirits, and (external) forces. Explanations of present-day neuroscience (and, for the most part, psychiatry) referring to entities such as neurotransmitters and neural networks are *physiological*: the ancient Greeks' ideas about bodily "humours" could be seen as an early predecessor of this type of explanation. Current "folk psychology", or people's common-sense views on the determination of human behavior, is a good example of a pure *psychological explanation*: no stand is taken on how entities such as psychic complexes and unconscious fears might be described in terms of neuroscience.

Supernatural outward -explanations have not vanished. In the domain of alternative medicine, for example, reference is often made to different kinds of energies, the existence of which has not – at least yet – been verified scientifically. In another case, a north-European protestant vicar and Master of Theology was accused in 2005 of assaulting his wife, but claimed that her injuries were caused by evil forces, and that she should be treated by an exorcist.

1.2.2. THE UNCONSCIOUS AND "ODDITIES" OF HUMAN EXPERIENCE AND BEHAVIOR

Edwards and Jacobs (2003, 2-27) and Claxton (2004) mention numerous phenomena that have been explained by referring to the unconscious of man. Some of these (and some others) are described below under three headings: bodily and motor reactions, altered states of consciousness, and stream of consciousness.

Bodily and motor reactions

Compulsive behavior, epileptic seizure, ADHD, Tourette's syndrome, psychosomatic disorder, and panic disorder are contemporary names or "labels" for certain "oddities" of human behavior. When people lacked contemporary psychological concepts and knowledge about neurophysiology, and their worlds were inhabited by Gods and mysterious forces, it was reasonable to present supernatural explanations for this kind of phenomenon. As trust in rational reasoning and scientific study slowly began to gain ground during the Enlightenment, people also began to turn to psychological and physiological "inward" explanations.

The term the unconscious appeared in Western languages less than three hundred years ago (see section 2.7.1. below). Thus, at the beginning of the 1800s it was not possible to *explain* these oddities fully in those terms, although it did help in making sense of certain puzzling aspects of human life.

Currently, there seems to be a battle going on over the best explanation for these phenomena. Freud built his psychological explanations of psychiatric disorders

around the concept of the “unconscious”, and present-day psychotherapists of different orientations still lean on psychological explanations. On the other hand, contemporary “biological” psychiatry has produced physical explanations – in terms of neurotransmitters and dysfunctions in certain neurobiological systems, for instance. On the level of theory (or the philosophy of science), it is not clear what we should think about the relation between psychological and (neuro)physiological explanations. In practice, doctors (and researchers) often recommend patients to take drugs *and* to go into psychotherapy.

Altered states of consciousness

When we are sleeping and dreaming we do not have conscious perceptions about what surrounds us, but we should, nevertheless, consider dreaming to be a conscious state. What are we conscious of while we are dreaming? The world of dreams closely resembles the perceptions and ideas we form when we are awake, but dreams also contain weird elements. They seem to tell us something about something, but what, and about what? Not surprisingly, religions have leaned on supernatural matters when addressing this question. Many researchers, Freud being the best-known of them, have developed psychological explanations: dreams tell us something about the unconscious mind. Nowadays we also have the physical explanations offered by neuroscientists.

Most of us have read about states of trance, mysterious religious experiences, and automatic writing. Such phenomena have been conceptualized in many ways in the domain of psychiatry. Someone diagnosed as having Multiple Personality Disorder (MPD; currently known as Dissociative Identity Disorder, DID), seems to have several – even a dozen – different personalities. Each of these may have a separate identity and behavior may change radically in the transition from one personality state to another. When the person concerned is in one personality state, he or she is often unaware of the existence of the other personalities. The implication seems to be that there may be in man desires, attitudes, and habits that are hidden from her/him except in certain state(s) of personality.

It is relatively easy to sketch different kinds of supernatural and psychological explanations for Multiple Personality Disorder, but it is more difficult to imagine what a pure physiological explanation might consist of.

Stream of consciousness

We can often manage our stream of consciousness. For example, if we find ourselves in a shop and wonder what we came for, we might succeed in bringing the reason to

mind by reasoning that we were going to make a cake, and we had no soda at home. At other times, however, we cannot remember even the most obvious things, or our memories show themselves to be distorted. On the other hand, unwelcome ideas that we try *not to* think about often flash up into our consciousness. Ideas come and go, often without being summoned, and the same holds with moods: the phenomenon called “affective disorder(s)” in present-day psychiatry causes a lot of suffering.

Obsessions and compulsions, mood disorders, and indeed also creativity, could easily be seen as mysteries that are open to various explanations. Anyone suffering from obsessive ideas or a low mood may feel that an external agent or force is persecuting or controlling her/him – and this is as true today as it has been for centuries. Similarly, when somebody possesses exceptional mental abilities – typical of shamans (in the past) and of outstanding scientists or artists today – her/his “genius” is often explained in terms of the supernatural or the mysterious.

It is tempting to think that beneath the surface of consciousness lies some kind of machinery or set of rules, that determines the nature of our conscious states, and of which we are unaware. Thus, Freud’s notion of the *psychic apparatus* was one of his recurring themes, and the domain of cognitive science has its *neural machinery* and *neural algorithms*.

There are still other phenomena that appear to refer to the unconscious but do not fall into any of the categories mentioned above. One of these is self-deception – man’s ability to deceive her/himself into believing something that he or she knows not to be true – which has attracted the interest of thinkers from Aristotle and St. Augustine to Jean-Paul Sartre and present-day scholars. The conscious/unconscious dichotomy is also used to refer to cultural presuppositions, which direct everyone’s thinking and construction of reality (see, for example, Hodgkiss 2001). Thus, sexist or racist attitudes may prevail in a culture for example, but may remain hidden from its members.

It was the oddities that gave rise to the psychanalytic view of the unconscious: hypnosis, patients’ hysterical (Anna O., Dora) and phobic reactions (little Hans), as well as dreams, awoke Freud’s interest. He explained those oddities through the following logic. What lies behind them are repressed instinctual impulses, wishes, memories and fears, which remain beyond consciousness through the agency of censorship. However, these contents possess a drive to reach consciousness, and censorship cannot control that drive completely. This repression is what gives rise to psychic disorders, dreams, and different kinds of slips, all of which represent the repressed content in a symbolic form.

Freud formulated a neurophysiological basis for psychology in his *Project for a Scientific Psychology* (Freud 1895). However, that project remained unfinished and was published only after his death. He still had hopes of anchoring his theories in neurophysiology, but they were never realized and the Freudian explanation of the oddities is thus psychological. Present-day neuropsychanalysis has revived the interest in explaining these “oddities” neurophysiologically.

1.2.3. COMPETENCIES – THE COGNITIVE ORIENTATION AND THE UNCONSCIOUS

It could be said that psychoanalysis has explored the “dark” side of the unconscious – odd and frightening matters and psychological causes of suffering. The coin has another side, too: researchers in the cognitive orientation have been astonished at the human ability to perform complicated tasks without conscious control. A layperson thinks nothing of the fact that one can ride a bicycle or drive a car while thinking of very different things (upon reaching one’s destination one does not necessarily remember anything about the trip). A cognitivist researcher, however, realizes that riding a bicycle is a very complex task: one has to take into account many things concerning both the surroundings and one’s bodily movements. When we are able to perform such tasks without thinking consciously about it we might legitimately attribute it to the unconscious.

Take birds, for example, which are able to fly the same route annually from, say, Ireland to Pihtiputaa. There is reason to suppose that this competence is not based on conscious reasoning (“...and this seems to be Copenhagen...”), which again implies that conscious processing is not a precondition for intelligent behavior in biological organisms. The computer-science branch of cognitive science approaches these matters by building computer simulations (chess computers among them) of human competencies, which are assumed to give hints about what kind of systems in the brain might produce actions performed without conscious control.

Before moving on to the empirical research on unconscious competencies, I should mention that altered states of consciousness, as well as unpredictability in the stream of consciousness, also has another side. Peak, or “flow”, experience, as popularized by Mihalyi Csikszentmihalyi (1990), is an example of the “positive” altered state of consciousness. It refers to when someone is able to use her/his capabilities more efficiently than normal, and Bob Beamon’s world record (890 cm) in the long jump in the Mexico Olympics of 1968 (the previous world record was 835 cm) is often used as an example.

While obsessive disorder is at the dark end of the stream-of-consciousness

continuum, at the other end is creativity and sudden insights. Researchers often tell stories about how the solution to a difficult scientific problem just popped into their mind while they were thinking of completely different matters. This “Eureka Effect” (Perkins 2000) is familiar to those who engaged in re-modelling and design.

Now let us go to the laboratory. Competencies based on unconscious cognitive processes have been studied extensively within several research paradigmas, and there is a multitude of concepts describing them: semantic priming, tacit knowledge, implicit knowledge, procedural knowledge, implicit learning, implicit memory, subliminal perception, non-declarative memory (for references, see **Study II**, 1311-1312). Henceforth the term implicit knowledge is used to refer to all these paradigms, in short to *experience, thought, and action that is affected by past events, which the person concerned cannot consciously remember* (Kihlstrom, Shames & Dorfman 1996, 3).

It was in the 1980s when cognitive scientists became increasingly interested in consciousness, and in that way non-conscious skills and competencies came to fore in empirical research. The core idea of implicit knowledge has been in the air for a much longer time, however (see, for example Ryle 1949, 28-32). In the realm of implicit memory, the conceptual ground was laid by Ebbinghaus, who had a broader view of memory than his contemporaries: he saw it not only as conscious collection, but also in terms of “test-performance influences”. Both historically and currently the study of implicit knowledge has incorporated empirical research and clinical notions concerning the competences of brain-injury patients. At the end of the 19th century, Sergei Korsakoff found that, although amnesics did not remember having had an electric shock, they knew what he was going to do with the shock apparatus (because, after all, they remembered something about having been given the shock). (Masson & Graf 1993, 2)

John MacCurdy is known to have found evidence of implicit knowledge in 1928 (de Gelder, de Haan & Heywood 2001, ix). He met a patient with Korsakoff-syndrome, typically having severe problems with his short-term memory. He was told MacCurdy’s name and address, which he promptly forgot. However, when he was given ten alternative forenames, surnames, and street names and numbers, he chose the right ones. This is evidence of one property of implicit knowledge: it often shows in forced-choice guessing.

The origins of the term implicit learning can be determined more exactly: Arthur Reber introduced it in 1967. Reber studied artificial grammar learning, and his studies followed a particular logic. In the first phase his subjects were presented with series of letter strings (BBAAB and GGJJG, for example), which they were

asked to memorize. In the second phase they were told that letter strings indeed had a grammar. They were presented with still more letter strings and were asked to state which of them were grammatically appropriate (those in phase one). Although they could not say what the grammar was, they were able to tell which series possessed it. The core issue here is that the research on implicit learning seems to indicate that the unconscious is able to deal with abstractions such as grammar. (Berry 1997)

The term subliminal perception also originates from the end of the 19th century, but it was in the 1970s when the phenomenon became an object of intensive study. It is rooted in a tradition of research in which the focus is on how stimuli, usually words, that are flashed subliminally affect the following stimuli (another word). It has been found that, although subjects do not recognize subliminally presented “doctor”, they may recognize the following “nurse” more quickly. Subliminally presented stimuli are thought to activate semantic networks. The notion of subliminal stimuli is familiar to many because of the debate surrounding subliminal marketing. (Merikle 2000)

Empirical studies on unconscious competencies involve several stages, and the reports are often full of technical details. This easily obscures the logic behind the experiments. Most of studies follow the same logic, however, which is explained below. One classic study is then described by way of illustration.

First subjects are presented with a stimulus, or they perform a task. The second phase is conducted to show that they did not (consciously) perceive the stimulus, or that they did not notice or remember a certain aspect of the task. In the third phase they perform a task in which the stimuli presented in the first phase are of help. If the presenting of the stimuli in the first phase (of which the subjects remained unconscious) improves the performance in the third phase, it is an indication that unconscious memory/learning/knowledge affected performance.

In the first phase of Kunst-Wilson and Zajonc’s (1980) beautiful classic experiment the subjects were presented with different kinds of irregular octagons. Octagons are difficult to remember, and not surprisingly, in the second phase recognition of those presented in the first was very poor. The subjects were then presented with new octagons and with those from the first phase, and they were asked to say which ones they liked best. Although they could not say which octagons they had seen in phase one, these were the ones they liked more. Thus, the fact that they had seen them in phase one affected their performance in the third phase, even though they did not recognize them or remember having seen them.

Outside laboratories, clinical observations of brain injuries having caused blindsight, prosopagnosia (the inability to recognize faces), and different kinds of

amnesia favor the idea of implicit knowledge. For example, although a patient with prosopagnosia does not recognize faces, his or her skin conductance may be different with familiar faces – the recognition is unconscious. (Shimamura 1993, Young 1994)

For a non-specialist, the differences between implicit memory, implicit learning and subliminal perception are of minor importance – it seems only to be a question of the methods through which the competencies of the unconscious are studied.

It should also be noted that within all branches of the study of implicit knowledge there has been debate on whether the phenomena found in laboratories are real, and on the technical details of the experiments: the classic articles and critiques include those by Holender (1986) and Shanks & St. John (1994). The main criticism is that the subjects were indeed conscious of the stimuli presented in phase one, but were – for several reasons – not able to retrieve them later (Holender 1986, St. John & Shanks 1997). This is of minor importance in the context of this work – what is unchallenged is that people are often not aware of previous events that affect current behavior. Empirical findings have also shown a connection to the brain: behind implicit knowledge on the one hand and explicit knowledge on the other have been found distinct neural systems (see, for example, Squire & Kandel 1999, 23-67).

Thus, it is clear that, although not later (consciously) remembered, events (or “stimuli”) may give rise to preferences (one likes or fears something because of the previous event) and behavioral dispositions (certain behavior is triggered).

These kinds of matters have been revealed in laboratories following stimuli such as word flashes, strings of letters and octagons. It makes no sense to think that implicit knowledge is restricted to the laboratory, however: it appears in issues related to psychoanalysis, too. Thus, we might suppose that the voice of the primary caretaker has been coded by the implicit knowledge system, that panic attacks are triggered by stimuli that activate certain neural representations of the implicit knowledge system, and that implicit knowledge is responsible for “free” associations and transference reactions, for example. Erdelyi (1996, 182) put forward the notion that phenomena revealed in research on implicit knowledge could be seen as “laboratory homologues” to clinically significant matters such as maladaptive behavior and hysterical symptoms. Freud held that patients suffered from “reminiscent”, and Erdelyi put that in terms of cognitive science: past events appear in procedural forms but not in the declarative memory. It was on this basis that the principles of the “cognitive unconscious” were applied to psychoanalytic themes of repression and becoming conscious of the repressed in **Study II**.

1.3. THE INTEGRATION OF THE PSYCHOANALYTIC AND COGNITIVE VIEWS OF THE UNCONSCIOUS – THE OBJECTIVES OF THE STUDY

Simplifying and polarizing attitudes on the question of the relation between psychoanalysis and the cognitive orientation in general, and of the unconscious in particular, leans on a certain basic assumption: appropriate answers can be obtained by referring to relatively few empirical facts. In other words, there are some distinct “research questions” we already know of, and through which we could release the tension. However, the situation seems to be more complicated: there are, indeed, some basic questions, but the subsequent questions are formed only when we have answers to the basic ones. In the current context, the most basic question is whether the cognitive and the psychoanalytic unconscious share the same point of reference.

Researchers are not usually interested in the unconscious as such – they have rather found a certain phenomenon, and the term “unconscious” (tacit, implicit...) is part of their effort to explain it. Thus, behind the term “unconscious” are a number of phenomena referred to above as “oddities” and competencies. Interest in the former prevails the domains of psychiatry and clinical psychology, while the latter falls within the realm of empirical laboratory research (the study of brain damage putting a clinical slant on implicit knowledge, however). The notion that it is possible to explain both different kinds of “oddities” and several competencies through one conception of the unconscious gives rise to scepticism: one could state that behind several and different phenomena there are probably also several and different psychological mechanisms and neural structures. According to this kind of thinking, the term “unconscious” merely creates the illusion of a shared interest among proponents of psychoanalysis and of the cognitive orientation.

The current state of the art does not support such pessimism, however: as Studies I-V show, there are plenty of issues that are interesting in terms of integrating cognitive and psychoanalytic views. The most fundamental of these – i.e. the one we should start with – is the ontological question of how the unconscious exists. To put it briefly, cognitivists consider it “a neural thing”, and psychoanalysts see it is a “mental” one. The answer to this fundamental question determines one’s attitude toward the integration of the domains: if it appears that there are two kinds of unconsciousnesses, or if there is disagreement on the essence of it, the common ground is very shallow. In that case it would be unclear what the subsequent questions were, or even if such questions existed.

Thus, **Study I** addresses the foundational ontological question of *whether there is both a “psychoanalytic” (mental) and a “cognitive” (neural) unconscious*. It was argued that there was no such a “thing” or domain as the mental unconscious. If correct, such a claim has significant consequences. From the interdisciplinary perspective, the implication is that psychoanalytic ideas should be conceptualized in terms of the cognitive unconscious. Intratheoretical implications are of major importance, too: the claim challenges the “cornerstone” of psychoanalysis (the mental unconscious), and thus creates a need to re-think several other aspects of psychoanalytic thinking. Namely, psychoanalytic views on the reasons for disorders, on the loss of contents from consciousness (the repression of ideas), and on the curative element of the cure (becoming conscious of the repressed) are anchored in the idea of the mental unconscious. If the unconscious is not mental, the repression of an idea can no longer be explained by claiming that censorship did not allow it to be brought from the unconscious into the domain of consciousness. Similarly, the logic concerning becoming conscious of the repressed collapses: there is no “place” (or domain) from which an idea could be brought into the domain of consciousness. Questions arising from those interdisciplinary and intratheoretical implications are scrutinized in **Studies II-IV**.

Study II considers, on a rather general level, the interdisciplinary issue of *how the cognitivists’ idea of the unconscious as “a neural thing” should be applied in the domain of psychoanalysis*.

Study I also challenges the psychoanalytic view of why and how a content is missing from consciousness (in the case of repression). Thus, **Study III** addresses the question of *how this lack of contents (repression) and their emergence (becoming conscious of the repressed) should be conceptualized in terms of present-day study*.

Studies I-III set “psychoanalytic” topics in the cognitive framework. They seem to point to the relevance of neuroscientific (neuropsychanalysis) study, and the picture that emerges is not especially useful for the clinician (psychotherapist). **Studies IV and V** focus on the *tension between the perspectives of neuropsychanalysis and clinical practice* (psychotherapy). **Study IV** is a rather serious critique of neuropsychanalysis. It claims that the repressive functions of conscious states are at the core of clinical psychoanalysis, and that functions in general cannot be reduced to neurophysiological terminology. Thus, the limits of neuropsychanalysis are more confined than has been realized: *crucial clinical issues remain beyond its scope*. **Study V** addresses the confusing issue that, although unconscious fantasies do not exist, the idea of them has been an important conceptual

tool for clinicians. In a larger context, the aim of **Study V** was similar to that of **Study IV**: *to determine the relation between the terminology of psychotherapy and neuroscience.*

The core claim of **Study I**, and thus also the ideas expressed in **Studies II-V**, reflect the current state of affairs in the domain of the cognitive orientation. The psychoanalytic commentators of **Study I** strongly disagreed with us, however – psychoanalytic thinking seems to be deeply (and confusingly) rooted in the idea of the unconscious *mind*. Thus, in order to make the views and arguments presented in Studies I-V more accessible to those on the psychoanalytic side, the mind and the mental should be considered in more detail: What does the term “mental” refer to? What is the mind? Is it possible that part of it is unconscious? What follows, therefore, is a study of the origins of mental concepts from the perspective of the history of ideas. One of the purposes this serves is to satisfy the requirement – at least of some traditionalists – that a doctoral student should show the ability to set his/her studies in a larger context.

A comprehensive study based on original writings provides material for more than one dissertation. Thus, given the main ideas expressed in **Studies I-V**, it would appear reasonable (and inevitable) to consider the context on a general level focusing only on some of the most significant thinkers and topics. What emerges is a picture in which there are two main lines of thought on the subject of the unconscious.

The first of these – which leads to present-day notions of the cognitive unconscious – begins from Aristotle’s works on logic. Inspired by Aristotle’s insights, Leibniz and Pascal built the first mechanical calculators in the 17th century. Logic aims at *formalizing* (one aspect of) processess of thinking, and Leibniz and Pascal succeeded in *mechanizing* it, thus presaging the work on artificial intelligence and efforts to *digitalize* thinking three centuries later. Leibniz also introduced the concept of the unconscious: he thought in terms of non-sophisticated phenomenal states that remained outside of the scope of consciousness.

The second line of thought, represented currently by proponents of psychoanalysis, is along the lines of unconscious agencies and sophisticated unconscious states (“dipsychism”). It originates to Plato’s ideas, and the spirit of romanticism is also evident in Freud’s thinking.

2. HISTORICAL AND PRESENT-DAY CONTEXTS OF THE TENSION BETWEEN THE COGNITIVE AND THE PSYCHOANALYTIC UNCONSCIOUS

2.1. ON THE MENTAL TERMS AND THEIR TRANSLATIONS

The layman intuition concerning words (concepts) and their translation from one language to another goes something as follows: in the world there are definable matters, and each language contains names for these matters; ideas presented in language A can be translated into language B by simply searching for the corresponding words. This intuition is misleading, however. The best-known attack against it was made by Ludwig Wittgenstein in his works after *Tractatus Logico-philosophicus* (especially Wittgenstein 1953).

Thus, Paul Macdonald opens his book *History of The Concept of Mind: Speculations about Soul, Mind and Spirit from Homer to Hume* in a pessimistic tone:

The history of the concepts of mind and soul is a complex and twisted network of many paths, each path strewn with obstacles, dead ends, false and hidden beginnings, relapses into old ways of thinking and forward leaps of imaginative projection. One of the principal problems is to sort out exactly which issue is being addressed when one holds up for scrutiny any one of the numerous terms involved in the ancestry of the modern concept of mind or soul... In other words, if there is no consensus on what the concept of mind picks out or what it makes reference to, if the historian cannot appeal to a readily identifiable conceptual item, then how can any effort to trace its ancestry ever be confident that discussion of an earlier versions are indeed versions of the same thing? (Macdonald 2003, 1)

Thus, the most fundamental obstacle encountered in the study of the mind and the mental is that we do not know what the words mean and refer to. Consequently, it is also far from clear what is meant when it is claimed that the unconscious is mental.

The fact that Freud used both the terms *Psyche* and *Seele*, and that they both have been translated into English as *mind*, give reason to take a brief look at the origins of the terms *mind*, *psyche*, and *consciousness*.

2.2. ON THE ORIGINS OF SOME MENTAL TERMS

The English words mind, consciousness, soul, and spirit

The terms consciousness, mind and psyche are often used interchangeably: we can say either that “an idea came to mind”, or that it came into consciousness. It also usually makes no difference if we talk about mental or psychic processes. However, these English words have different roots.

The *Chambers Encyclopedic English Dictionary* defines the term consciousness as follows:

1 the state of being conscious.

2 awareness.

3 Psychol. The physical and mental state of being awake and fully aware of one's environment, thoughts and feelings.

“Conscious” comes from the Latin words *con* (together) and *sci* (knowing). Thus, it originally meant that two persons know the same fact. According to *The Oxford English Dictionary*, the word in that meaning is known to have appeared in 1651. In the sense in which we use it (i.e., the definition given in the Chambers Dictionary), it appeared for the first time almost a hundred years later, in 1746 – only about a century before Sigmund Freud's birth. Thus, our ancestors had quite different ideas concerning the nature of man. It is also important to note that the term *conscience* has the same root as consciousness. This means that the word consciousness connotes with Judeo-Christian ideas concerning guilt (Ryle 1949, 24).

The Oxford English Dictionary defines “mind” (from the Latin root *mens*) as “The seat of a person's consciousness, thoughts, volitions, and feelings...”. In its current sense, the term is four hundred years older than the word consciousness (1340). The authors of the dictionary regret that “Unfortunately the word mind has been almost universally employed to signify both that which thinks, and the phenomena of thinking” (hence *mental*, the adjective form of the word, is often needed).

The meanings of the English words *soul* (888) and *spirit* (1250) sometimes come quite near to that of the “mind”. The important difference between the “mind” on the one hand, and the “soul” and “spirit” on the other is the following: “the mind” does not (necessarily) contain any religious presuppositions, whereas “soul” and “spirit” are closely related to the Christian religion and to theology. Spirit also refers to a liquid that is supposed to give life to humans.

“Psyche” in the pre-Socratic period of Greek, and in the Old Testament

The term *psyche* (psychic, psychology) has remarkably longer roots than “consciousness” or the “mind”. Psyche comes from the Greek word, transliterated as psyche. It was used in Homeric poems (c. 750 BC), the earliest extant literature. In English, psyche is translated as both “mind” and “soul”. In the minds of present-day Western people, the term is the other half of the dichotomy between the mind and the body. Originally, especially in pre-Socratic thought, the picture was completely different. Homeric poems, contain several words related to the term “mind”: *ker* (life-force), *noos* (intellectual activity), *aion* (vital force), *thymos* (source of emotions), *menos* (an impulse toward a specific action), for example. The original meaning of the word psyche was “life”, but it has several meanings in Homeric poetry. In certain places the best translation would be “the life principle”, and in others it comes close to the English words the “self” and “person”: it refers to constant features of a certain person. Those features were not necessarily always “mental” – Homer sometimes referred to constant features of the outward appearance, for example. (Gundert, 2000; Wright & Potter, 2000; Macdonald 2003, 2-22)

In Pre-Socratic thinking on the subject of (what we would call) the mind also had a clinical aspect. Hippocrates (or several Hippocratic writers between c. 450-350 BC) included in medicine issues that from the present-day perspective would fall in the domain of psychiatry – some of the clinical practices in Ancient Greece resemble 20th-century psychodynamic therapy (Ellenberger 1970, 40-43).

Descartes talked about *animal spirits* in the 17th century, and in the 19th century Mesmer explained his findings in terms of *animal magnetism*. These terms make sense only if we realise that the Greek word *pneuma* was translated into Latin as *spiritus* (breath), and *anima* is the Latin equivalent of *psyche*. (Macdonald 2003, 2)

Present-day Western thinking is rooted in the Ancient Greek, and also Judeo-Christian tradition. The Old Testament alone contains a host of words that are translated as mind or soul in English: *nepesh* (the most primitive meaning is “throat or gullet”, then “desire or longing”, “life or vital force”, and finally “me or I”); *ruach* (see the next paragraph); *leb* (“heart”, “will or intention”, “conscious or conscience, “me or I”) (Macdonald 2003, 2-3). It is worth noting that *the idea of the soul as a distinct entity from the body is alien to the Old Testament* (Macdonald 2003, 90) – it is characteristic only of the writings of the New Testament.

Reference was made earlier to Claxton’s (2004, 1-26) claim that in the history of mankind, people’s explanations of mysterious phenomena have moved from “outward” stories to “inward” stories. From that perspective it is easy to accept Macdonald’s (2003, 3) general model concerning the process of how words referring

to “mental” matters have evolved in different languages. At first the word means something concrete, which is outside of man (wind, for example). Gradually, the meaning changes, and it begins to refer to something concrete that is inside man – the heart, for example. Following the next shift the word refers to an abstract property of man – life force, for example, and finally the word is reflexive (I, me, self). According to Macdonald (2003, 3), in the case of the Hebrew word “ruach”, the process was the following: 1) wind, 2) breath or the organ of breathing, 3) one who breathes, an individual, and 4) me or I.

Given the Latin (mind, consciousness) and Greek (psyche) origins of mental terms, we can make the following general observations: the terms mental and mind are based on the distinction between *mind and matter*, whereas the term psyche focuses on the difference between *living and non-living organisms*. The former (Latin) perspective could be called philosophical, and the latter (Greek) biological. As will be shown later, an additional perspective emerged in the 17th century: certain aspects of human essence became accessible in mechanical terms. The building of the first computers four centuries later brought mechanical vocabulary (“information processing”, for example) to the core of the cognitive orientation.

Basing on the considerations made above, the following question arises: when psychoanalysts emphasize that the unconscious is mental, does it mean that it 1) consists of “mental stuff”, 2) that it is a biological (living, organic, neurophysiological) entity, or that 3) it cannot be described in mechanical terms?

The first alternative would make Freud’s claim concerning the essence of the unconscious a philosophical issue (his antipathy toward philosophy is commonly known), and the second would fit well with his background in neuroscience, as well as with the current views of cognitivists. The third alternative would contradict both Freud’s (hydraulic metaphors in metapsychology) and cognitive scientists’ (computer metaphor) ease with mechanical vocabulary.

Mental terms may refer to various human aspects or competencies: intelligence, life-force, emotions, free will, conscience, learning, motivation, goal-directed behavior, memory, the qualitative aspect of consciousness (the ability to feel emotions), and imagery. Which of these aspects would the word “mental” placed in front of the “unconscious” refer to?

It seems that the answer is “almost all of them”: we can clearly discount just the qualitative aspect of consciousness, because Freud (1915) held that we should talk about unconscious emotions only in a metaphorical sense. Talk about repressed memories and wishes implies that the unconscious concerns *memory* and *motivation*,

and the idea that it could express itself in a symbolic form (in dreams, disorders and slips) presupposes that it is an *intelligent* entity. *Flexibility* implies that the unconscious is able to learn and react to changing conditions. In claiming it embodies fantasies, psychoanalysts even connect the unconscious to the human capability to create and manipulate *mental images* in the domain of consciousness. In **Study V** we suggested dropping imagery from the list: we argued that there was no such entity as unconscious fantasy, and that the notion on them should be understood as one of the unconscious emotions (i.e. metaphorically).

2.3. PLATO AND ARISTOTLE – THE FORERUNNERS OF PSYCHOANALYSIS AND THE COGNITIVE ORIENTATION

Psychoanalysis and the cognitive orientation do not just happen to represent differing perspectives on the unconscious: they represent also differing interests and influences of different aspects of Western thinking. Dreyfus (1972) and Gardner (1985) are respected for their critical introductions to the origins of the cognitive orientation, and Ellenberger (1970), Sulloway (1979) and Kitcher (1992) could be seen as their counterparts in the domain of psychoanalysis. Comparison of psychoanalysis and the cognitive orientation reveals certain general differences that are similar to those between Plato and Aristotle: what is common to Plato and psychoanalysis is motivation, and to cognitivists and Aristotle are reason and intellect. In terms of the mind/brain, the former focus on agencies and dynamics, and the latter on processes.

Plato

According to Robinson (2000, 39), Plato's (427-347 BC) works were "the first fully articulated account of the relationship between soul (*psyche*) and body (*soma*) in Western literature." According to Macdonald (2003, 42), the Socratic (or early Platonic) view of the nature of the human being "is clearly some sort of dualism, but what sort of dualism is not yet decided; whether the soul is mortal or immortal, material or immaterial, is left in the air."

In his early works Plato credited Socrates with advocating that the *psyche* had a dominant role over the body: it was the cognitive and moral agent, and it reflected the true nature of a person. Bodily desires (toward food, drink and sex, for example) were different from the desires of the *psyche* (knowledge and goodness).

Charmenides contains an analogy that illustrates Plato's early view on the relation between psyche and body: according to Socrates, the psyche is to the body as the head is to the eyes. This implies that the psyche is superior to the body, and that the body has functions only in terms of the psyche. (Macdonald 2000, 37-46; Robinson 2000, 39-45)

The psyche of Plato's early writings consisted of two parts (or aspects): reason and non-rational ("gut") impulses. Different kinds of bipartite models were common in the Ancient Greece, but Plato's later tripartite model was first of its kind. It posited that the psyche comprised 1) reason (*logos*, located in the head), 2) spirit (*thumos*, chest), and 3) desire or appetite (*epithumos*, stomach). Each of these parts or aspects had its own desires, pleasures, and pains of its own: reason loves wisdom, truth, and learning; the spirit aspires to honor and victory; objects of desire include money and profit. Plato illustrated his view of aspects of the psyche through a well-known comparison with the chariot, which consisted of the *driver* (reason), *a noble, white horse* (higher emotions, spirit), and *a black, base horse* (desire, appetite). (Robinson 2000, 44-55; Macdonald 2003, 46-54; Claxton 2005, 79-85).

The ancient Greeks first conceptualized problems of human life as "outward stories" in terms of natural forces, and after that as conflicts between gods. By the seventh century BC the gods began to lose their influence, and "inward stories" gained ground – initially in terms of connecting emotions and behavioral tendencies to bodily organs. Plato's bipartite model portrayed human life as a battle between the psyche and the body. From today's perspective, the shift to the tripartite model had important consequences: it set conflicts *inside the psyche* in the form of tensions between the three inner agents.

There is a certain similarity between Plato's doctrine of tripartition and the psychoanalytic perspective. Both emphasize the *dynamics* of the mind and intrapsychic conflicts, although Plato considered those dynamics conscious: the driver and the horses were transparent to each other (Claxton 2005, 81). Freud was not ignorant of Plato's works, and the resemblance between the tripartite model and Freud's structural model is evident: driver/reason-ego, white horse/spirit-superego, black horse/desire-id (Tallis 2002, 62; Claxton 2005, 179). Claxton (2005, 179) explicates – tongue in cheek – Freud's anthropomorfication of the mind by suggesting that the Freudian internal agents were a Puritan priest, a sex-crazed monkey, and a rather nervous bank clerk. Perhaps the most anthropomorphic of Freud's psychic instances was "censorship", however, the task of which is to "decide" which ideas are allowed to enter consciousness.

Aristotle

Throughout Aristotle's (384-322 BC) work runs a line of thought that differs significantly from Plato's (substance) dualism. Aristotle was interested in matters that fell within (our) concept of the natural sciences, and his view is often characterized as biological – he considered man to be a rational animal. In general, his central aim was to anchor the psyche in the activities of the body. He presented many analogies in order to communicate his idea on the nature of the mind. He considered the body and the mind to be like matter and form, subject and predicate, or eyes and sight. (van der Eijk 2000; Macdonald 2003, 54-71) His thinking could even be claimed to represent property dualism. This is a view that is widely advocated in present-day science, suggesting that the mind is a property of the physiological processes of the brain and the body (this will later be called the “two-sphere view”). However, Aristotle also assumed that there was a part of the psyche that was distinct from the body and was immortal: intellect (*nous*), or the capacity for insight and reflection. (van der Eijk 2000, 70; Macdonald 2003, 65-66)

Aristotle's works covert some topics, such as *acrasia* (weakness of will), forgetting, and dreams, which are also the focus of psychoanalysis, although his work was more significant for cognitivists. According to van der Eijk (2000, 57), Aristotle's remarks on the domain of the mind and its relation to the body “...perhaps more than those of any other ancient philosopher, continue to be welcomed as stimulating contributions to contemporary debate in the philosophy of mind and the cognitive sciences.” (see also Wedin 1988, 18-22) From a more general perspective, Aristotle's most significant contributions are in the domain of logic: he is often called the “father of logic”.

A researcher in the humanities may well ask what on earth logic has to do with psychology and the unconscious. He/she may also have wondered why so many great names in the history of (cognitive) psychology – Aristotle, Leibniz, Descartes, Alan Turing, Marvin Minsky, John von Neumann, to mention just a few – were logicians or mathematicians. A very brief answer might be as follows: logic and mathematics are efforts to *present human thinking in a formal way*. This makes cognitivists' fascination with computers comprehensible: computers are able to make mathematical analysis tick – in playing chess, for example.

In creating his foundations of logic, Aristotle aimed at explicating the rules of human thinking – why and how the sentences “Socrates is a man” and “Men are mortal” lead to the sentence “Socrates is mortal”, for example. If the first two (so-called presuppositions) are true, and if they are manipulated accurately in one's mind, one reaches a conclusion that is also true. Aristotle created a language of

symbols for logic, which enabled him to present presuppositions and conclusions in an abstract form. We could say that he re-symbolized the thought process.

How do we know which sentences are worth putting together in order to arrive at new facts? The sentences concerning Socrates and men are, but most others are not. Another important question is: "How does putting presuppositions together lead to a certain true conclusion?" Whether or not the relevance or sense of these questions is difficult to see depends on their foundational nature: as mentioned above, Aristotle studied the principles or rules of thinking. While Plato's models could be seen as anthropomorphizing the dynamics of the mind, Aristotle's studies on logic appear as *formalizations of human thought-processes*.

What is crucial for us is that when an idea is written on paper in the form of logical symbols, *it exists in a generalized and non-mental form*. What is crucial about that? It does not mean anything that there is an idea on a paper – this is only significant once somebody has read the paper, and transfers the idea into her/his *mind*. What if logic enabled us to present ideas in a form in which they could be manipulated mechanically? Aristotle's work led Pascal and Leibniz to think of this question in the 17th century, and to build the first mechanical calculators. Different kinds of machines were designed in the 1940s, which were able to manipulate ideas (symbols) in a much more powerful manner: digital computers. These achievements created the foundations on which the mechanical perspective on the mind was built.

As mentioned above, the earliest divergence point between psychoanalysis and the cognitive orientation can be traced to the Academies of Ancient Greece – Plato was psychoanalysts' man, Aristotle a man of the cognitivists. Psychoanalytic ideas, according to which the mental unconscious consists of anthropomorphic mechanisms (inner agents) and intrapsychic conflicts, and which aim at explaining "oddities" of human behavior, belong to the Platonic tradition of thought. Behind the cognitivist view of human thinking as information-processing (the formalization of the thought process), interest in competencies and the (not-necessarily-mental) unconscious of subliminal perception, implicit memory, procedural knowledge and algorithms (rules directing the processing of stimuli), lies Aristotle.

2.4. THE ENLIGHTENMENT AND THE MECHANIZATION OF THE WORLD

The more we know about the surrounding world, the less need there is to believe in supernatural entities and present supernatural explanations. The world of the ancient Greeks was crowded by a legion of gods, and supernatural elements had a significant role in people's world view for the next two millennia. The Enlightenment, or the "age of reason" (1600-1800), is seen as a period when rational or scientific elements began to dominate. There was a shift in the domain of philosophy in the 17th century, which is reflected in the well-known statement that modern philosophy began with René Descartes. It was during that period that philosophy was transformed from a branch of theology into an independent discipline.(Copleston 1958, 1-15)

The first telescopes were built at the turn of the 16th and 17th centuries. In 1610 Galileo Galilei revealed how the universe appeared through a telescope – he told of craters and mountains on the moon, the cycle of Venus, of numerous stars and galaxies. In terms of scientific progress, the 17th century was very successful. Some decades after Galilei's findings Isaac Newton (1643-1727) presented his Universal Law of Gravitation, and there was progress in the domain of human anatomy, too: William Harvey discovered the circulation of blood in about 1615.(Copleston 1958, 10-11)

The 17th century was also a century of clocks and different kinds of mechanical automata. People were fascinated by the work of skilled clockmakers, and through them they were able to grasp how complex actions could arise from simple and concrete mechanisms. Thus, they also began to think about other things in that way – a mechanical world view emerged. The cornerstones of that world view were atomism, reductionism, and mathematical laws: any phenomenon could be broken down into small parts that behaved according to strict laws, and made sense of by analyzing them.(Channel 1991, 11-29)

From the perspective of the 21st century it is difficult to see what was so new and exciting about such a world view – in order to understand the significance of Galilei's findings, we should know the pre-Galilean way of thinking. Perhaps the most revolutionary idea was that even stars and universe could be studied without any immediate reference to God: the systems that drove nature, could be considered similar in principle to those that drove (mechanical) clocks, for example. Channel presents the spreading of the mechanical worldview as follows: "At first the machine served only as analogue for biological processes; the organic world could be

understood by comparison with some well-known mechanical device or technological process. But as mechanical philosophy became successful as a method of explanation, people no longer saw a machine as simply an analogue of life – life became literally mechanical. They believed that biological processes, such as digestion, respiration, movement, and sensation, were, in fact, technological processes.”(Channel 1991, 30)

In the domain of physiology, the so-called *iatromechanical* (iatro=medical) movement, whose followers compared the human body with a hydraulic machine, took root in the 17th century (Channel 1991, 36-40; Canguilhem 1994, 93-96, 291-295). Thus the debate on artificial intelligence and the analogy between the computer and the human mind are far from fresh – the question of whether it is reasonable to conceptualize man as a (hydraulic/digital) machine is about 400 years old. At least in one respect the mechanical view is highly plausible: modern technology has rendered it possible to replace ill-working parts of human body, such as the heart, with mechanical devices.

Given this mechanical world view, it is not surprising that many of the influential philosophers of the 17th century (Descartes, Leibniz, Pascal, Spinoza) were distinguished mathematicians. Inspired by Aristotle’s ideas on logic, Blaise Pascal built mechanical apparatus that could add and subtract in 1643, and 31 years later Gottfried Leibniz’s machine could also divide and multiply. René Descartes is commonly considered the “father” of the philosophical mind-body divide and an advocate of dualism. However, he was also among those who laid the grounds for the mechanical view of man.(Kreiling 1990, Davis 2000)

2.5. DESCARTES ON THE MIND AND MECHANISMS

René Descartes (1596-1650) and his “Cogito ergo sum” argument, according to which the only thing one can be sure of is that one thinks (or, to be precise, that thinking exists in oneself), are familiar to most of us in the West. On a more general level, Descartes presented suggestive arguments in favor of the idea that the soul was an immaterial substance. His reasoning appears intelligible to present-day people, too: if one is asked, “What is the mind”, the answer “the ‘mind’ refers to the fact that one may possess mental images (memories) concerning matters of one’s past life, entertain different ideas in one’s consciousness, and make judgements on ethical matters, for instance” sounds plausible. If one knows about one philosopher it is

probably Descartes, and if one is acquainted with one philosophical idea, it is very likely the “Cogito ergo sum” argument.

The academic community is well aware that Descartes laid the grounds for dualistic thinking through his distinction between *res cogitans* (“a thinking thing”, the mind) and *res extensa* (matter, physical objects). This philosophical distinction could be expressed as follows. Normally we can acquire knowledge on what a certain matter F – a lion, or a table, for example – is by trying find some Fs and studying their common characteristics. With the mind the situation is different, however: each person knows only her/his own. We can observe the behavior and reactions of other people, but their minds remain hidden to us. This is known nowadays as the “problem of other minds” (see, for example Searle 1992, 71-77). Consequently, present-day philosophers and researchers of consciousness also distinguish the “first-person point of view” and the “third-person point of view” (see Searle 1992, 10-26). The point is that there are matters (feelings and mental images, for instance) that are accessible only to the person who possesses them – i.e. others cannot observe them from their “third-person perspective”.

The Cartesian framework offers physiological explanations for motor behavior, and supernatural explanations for the conditions of the soul. It gives religion its own broad territory, and Descartes included in his theory quite complex proof of the existence of God (see, for example, Copleston 1958, 99-115). The role of psychological explanations is difficult to determine within these conceptual frames.

The significance of Descartes’ ideas in Western culture is commonly known, and it is not necessary to go into more detail here. What is interesting is that he also held that, for the most part, human behavior could be explained similarly as the functioning of mechanisms. Mechanical explanations are plausible in the case of even quite complicated activities: the beating of the heart and the system of arteries; perceptual processes; the processing of this sense data in the imagination; remembering; the movement of the limbs; reacting to food depending on whether one is hungry or not; walking and singing (when attention is not directed to these activities). Traffic between the soul and the body is bi-directional: the soul gives orders to the body, and in the pineal gland it receives data from the bodily senses. The relation between these two substances is not symmetrical: the soul possesses hegemony over the body. (Cottingham 1992, 246-247; Hatfield 1992, 344-348)

In present-day terms, Descartes’ view on perception could be presented as follows. The sense organs – the eyes, the receptors in the fingers and so on – form neural patterns (“ideas”) of the impulses they receive. These patterns are sent to the brain (in the form of “animal spirits”), which is able to (mechanically) process this

data and carry out complex activities such as those mentioned above. (Rée 1975, 61-69) Instead of criticizing Descartes for his ideas on immaterial substance, one perhaps should be astonished at the sophistication of his mechanistic explanations: they are quite near to present-day cognitivist ideas of neural patterns and procedural knowledge.

The Cartesian view of the mental unconscious and censorship

Descartes studied (among other matters) the nature of the soul (mind) and the question of obtaining knowledge of its essence. In the context of the present study it would be relevant to ask if his views can be applied to the topic of the unconscious: how should we approach the “Cartesian” questions, “Is my unconscious mental, and how could I know that?”, and, “If my unconscious is mental, can I know that others’ unconscious are mental, too?”. According to the prevalent psychoanalytic view, the unconscious is capable of remembering, willing, judging and so on (the aspects of memory, motivation, and the intellect). For Descartes, the criterion for “mentalness” was the capability to doubt one’s own existence, and the unconscious did not possess that capability. Thus, in the Cartesian framework, there was no evidence that it existed apart from the body.

The significance of Descartes’ thinking is also apparent in the re-appearance of “Cartesian” problems in the works of later researchers – his fallacies have been difficult to avoid. The term “hidden Cartesianism” usually refers to the dualism that are implicit in one’s thinking, but researchers also often face the homunculus fallacy.

Homunculus means “little man”, and Descartes’s model implies that such a being exists in the pineal gland. Neural patterns (or, in Descartes’ terminology, ideas in the form of animal spirits) go from the senses to the pineal gland, and there – or through it – the soul studies them in order to make decisions about voluntary movements, for example. An ontological problem with Descartes’ theory is that the soul cannot be studied scientifically. The homunculus fallacy is independent of that, however. The core of the fallacy is the following: if we explain human behavior by assuming that there is an intelligent agent inside man, we fall into infinite regression because then we would need to explain the “behavior” of that agent, and so on...

In the domain of psychoanalysis, the problem of the homunculus fallacy is reflected in the notion of repression (Colby & Stoller 1988, 123-128). Repression is assumed to be directed toward the ideas that are in some way threatening to a person. Freud suggested in his topographical model that an agency called censorship prevented threatening ideas from entering consciousness. It appeared – like the soul in the pineal gland – in the form of a wise little man doing a complicated task. Thus

the question arose of how censorship – which is just a part of the mind/brain – could know which ideas were too threatening if they appeared in the domain of consciousness? This, among other things, led us to propose in **Studies III** and **IV** that systems approach should be applied in a more profound manner in psychoanalytic theorizing.

2.6. LEIBNIZ, A THINKING MACHINE AND THE UNCONSCIOUS

Fascination with mechanisms, the zeitgeist of the 17th century, led Gottfried Wilhelm Leibniz (1646-1716) to design a machine that was able to “think” in a more comprehensive manner. He never tried to build such a machine, but merely developed the project in his mind (and his writings). He reasoned that, in order to create a thinking machine one should, first of all, be able to code true ideas concerning the world in a symbolic form. If that could be done, the same symbols could probably be presented to a machine – just as numbers and mathematical operations had been presented to the calculator that he and Pascal had built. Once this had been achieved, there should be no reason why a machine could not manipulate the symbols (just as humans manipulate ideas in their consciousness), and produce conclusions. Thus, again, we find that the basic idea of the computer and the cognitive science originates in the 17th century, and before that in Aristotle’s insight concerning logic. (Copleston 1958, 264-272; Kreiling 1990)

As mentioned above, the 17th century fostered the creation of entirely “mechanistic” explanations of new phenomena such as gravitation and the functioning of the body. For the study at hand, the crucial question is *whether one could treat man in terms of natural science and try to create “mechanical” explanations for his essence and behavior, and if so to what extent.*

It was stated above that the idea of the unconscious as a mental entity refers to motivation, learning, imagery, memory, learning and intellect. The tradition that began with Aristotle, was developed by Pascal and Leibniz, and is represented by present-day researchers on artificial intelligence, offers an interesting perspective on the intellect -aspect of the unconscious in that it has been shown that purely mechanical (or digital) systems are able to produce logically correct (thought) processes. The relevance of this fact has not been fully acknowledged in psychoanalytic circles.

The reason for this may lie in the fact that unconscious processes are considered

as irrational, and contradictory to logic. Woody and Phillips (1995, 127), for example, state, “Computational systems are ineluctably rational and normative, whereas the primary process thinking that Freud found to be characteristic of unconscious ideation is notoriously at odds with the discursive logic that is essential to both computation and information theory.” However, such a view is erroneous: so-called unconscious ideas may be false or irrational, but logic does not take a stand on the truth value of ideas. Ideas – regardless of whether they are true or not – are related to each other through rules (of at least some kind of logic). It is possible to formalize psychoanalytic ideas concerning the logic of unconscious processes (“my mother was short-tempered” + “my analyst is like my mother” = “my analyst is short-tempered”, for example), and such processes may be realized in a mechanical system. Thus, in terms of the cognitivist tradition, there is no compelling reason to assume that there is anything mental (i.e. not matter) behind the “intellect” of the unconscious.

As far as Leibniz is concerned, it must be admitted that he anticipated many core ideas of cognitive science (primarily computing), and – as Tallis (2002, 1) puts it – also presented “the first significant entry into philosophical discussion of unconscious mental operations”. Leibniz presented his ideas on the unconscious in the conceptual framework of *apperception*, *perception*, and *minute perception*. The term perception refers to any kind of experiences, or conscious states, and from Kant onwards, the term apperception has played a significant role in philosophy and psychology. Perception becomes apperception when it is reflected, or parts of it are attended to. Let us think of watching a football game: one sees the 22 players all the time, but it is only after reflecting on the game, or directing one’s attention to certain matters, that one might notice the roles and characteristics of the players, or the tactics of the teams. Thus, we could say that it is only through this kind of thought process that perception becomes apperception. Leibniz used the term minute perceptions to refer to short or somehow faint sensations, which are not necessarily conscious, but nevertheless affect one’s behavior. In this he seems to have anticipated the term subliminal perception. (Broad 1975, 130-145; Tallis 2002, 1-4)

In the age of the Enlightenment, when the emphasis was on mastery and control, Leibniz’s ideas were unwelcome: “It was absurd, surely, to suggest that man (equipped with ‘god-like reason’) should be influenced by mental events so insubstantial as to escape his ordinary notice.”(Tallis 2002, 2) From the psychoanalytical perspective, one might say that Leibniz was talking about consciousness and pre-consciousness: the Leibnizian unconscious does not contain complex unconscious desires and fears, but rather comprises non-attended conscious

states that affect one's behavior.

Although we had no apperception of it at that time, In **Study III** we reflected the Leibnizian view on the "Freudian phenomenon" of repression. We suggested that it should be seen in terms of states of narrative self-consciousness or, in Leibniz's terms, apperceptions that have not yet been formed. Their formation requires attending to and verbalizing conscious states (perceptions and minute perceptions) and relating them to each other.

2.7. THE UNCONSCIOUS

2.7.1. BEFORE FREUD

In the domain of the natural sciences, certain observations make researchers believe that there exists an entity that is not yet known – a new particle of matter, for example – and that created methods and experiments would verify or falsify the belief. With the mind as well as with the unconscious it is a wholly different issue: ideas have developed in a continuously-changing manner in Western culture. Whyte (1969/1978, 15) describes this in terms of the history of ideas: any idea should be considered according to whether it was *conceivable*, *topical*, or *effective* for the people living in a certain era. Account should also be taken of whether the idea was conceivable to ordinary people, or to those who had the time and interest to speculate on, say, "metaphysical" issues. In this sense we might state that the idea of the immaterial mind/soul was conceivable for some men in Hellenistic societies in the pre-Socratic era, it has been relevant to many Western people since the emergence of the Christian religion, and it is effective in all present-day Western cultures.

The roots of the Western idea of the unconscious as "an intangible 'thing' that the human being possess" lie in Homer's poems: the unconscious appears as an internal mechanism that receives the wishes of the gods (Claxton 2005, 61). As noted above, Leibniz, among others, studied the unconscious although the term was not used in his day. "Oddities of human behavior and experience" have been explained in different ways in the course of history, and the term "unconscious" refers to recent non-supernatural, or at least *less*-supernatural, means of explanation. According to Claxton (2005, 22), "Explicit conceptualizing of unconscious mental states needed a well-developed notion of the mind as 'the organ of intelligence' to hook onto..." (see also Whyte 1969/1978, 59-76)

In English literature the idea that one might be unconscious of one's own mental

process dates back to the year 1751. The German terms *Unbewusstsein* and *Bewusstlos* were also used in that century for the first time – according to Whyte (1969/1978, 116), E. Platner (1744-1818) was the first to use them. The term *inconsciente* appeared in French a hundred years later (in the 1850s). Thus, the idea of unconscious ideas or desires has been accessible through the major Western languages for less than 300 hundred years.(Whyte 1969/1978, 66-67)

We can thus compute the era during which the idea of the unconscious became explicit to Europeans: according to Tallis (2002, 5), “...right from the beginning, the existence of the unconscious was fully accepted and integrated into romantic psychology”, and Claxton (2005, 153) suggested that the romantic movement “rekindled, developed and began to give explicit voice to several varieties of the unconscious that had been implicit in human culture from the dawn of history”.

Freud was a child of romanticism. The era covered approximately a century prior to his first psychoanalytic writings, and in comparison with the writings of Pierre Janet and Alfred Adler, Freud’s (and especially C. G. Jung’s) ideas were characteristically romantic in tone (Ellenberger 1970, 887-888). While the era of the Enlightenment was preoccupied with machines and rationality, romanticism focused on wholly different matters: dreams, mystical experiences, mesmerism/hypnosis, and nature. Thus, and not surprisingly, the unconscious was a very popular topic in the 19th century – philosophers (Schopenhauer, Nietzsche) as well as novelists (Dostoevsky) embraced it, and books such as *The Philosophy of the unconscious* (Eduard von Hartman, 1869) and *Symbolism of dreams* (Gotthilf Heinrich von Schubert, 1814) were published. There were even connections with the 1960s and flower-power: drugs (opium) were sometimes seen as a road to the unconscious.(Tallis 2002, 16-34; Claxton 2005, 120-154)

2.7.2. DIPSYCHISM AND POLYPSYCHISMS

Two views of the unconscious were prevalent in the era of romanticism: *dipsychism* and *polypsychism* (Ellenberger 1970, 145-147; Tallis 2002, 28). According to the former, the unconscious is like a double ego, a second personality (“under consciousness”) with similar competencies as the conscious ego (“upper consciousness”). Tallis describes *polypsychism* through the metaphor of a classical orchestra: the unconscious contains “lesser minds” that resemble sections of the orchestra (stringed, wind and brass instruments).

It is through this distinction that the essential differences between the psychoanalytic and the cognitive unconscious are also made visible. Apart from in his early writings with Breuer, Freud’s view on unconscious motives and (Platonic)

internal agents such as censorship clearly fell on the side of dipsychism.

The roots of the polypsychist view lie in Aristotle's studies on mental operations, but it was Leibniz who lay the grounds for that view on the unconscious, which preceeded cognitivist ideas on the modularity of the mind, parallel distributed processes and implicit knowledge. Thus, within the cognitive orientation the unconscious is seen in terms of different kinds of unconscious processes and behavioral dispositions, which are not as sophisticated as Freudian presuppositions of unconscious ideas and mental agencies. The dipsychism-polypsychism distinction appears in the debates on whether the unconscious is "wise or dumb" (see, for instance, Haskell 2003), and on whether the lack of contents in consciousness should be conceptualized in terms of repression or dissociation (see **Study III**).

Dipsychism cannot avoid falling into the trap of the homunculus fallacy, and polypsychism faces that danger, too: how those "lesser minds" (modular activity or implicit memory systems of the brain) are "orchestrated" in order to produce the phenomena that psychoanalysts face in their practice. Within the cognitive orientation this problem is seen in terms of self-organization and non-linear dynamics, for example.

The Aristotelian/Leibnizian polypsychist tradition of thinking constitutes the cognitive orientation, but it is alien in the domain of psychoanalysis. Matte-Blanco's (1975) *The Unconscious as Infinite Sets* is a monumental counter-example. Colby's (1981) computer model of the paranoid mind and Lloyd's (1998) study on Freud's Lucy R. should also be mentioned as ground-breaking exceptions. In his book *The Emergent Ego: Complexity and Coevolution in the Psychoanalytic Process*, Stanley Palombo (1999) considers the psychoanalytic process in terms of non-linear dynamics. This is a work that should enjoy the reputation of being the most challenging psychoanalytic writing since *The Interpretation of Dreams*, but "Aristotelian" viewpoints are far from the focus of psychoanalysts' interests. Submitting a manuscript applying the computer metaphor to a psychoanalytic journal more often than not provokes emotional reactions from reviewers. **Studies I-III** in particular could be seen as critiques of the dipsychist view and as giving support to polypsychism.

2.7.3. FREUD AND THE UNCONSCIOUS

Seele, Geist, and Psyche

Thus, contrary to a prevalent claim Sigmund Freud did not "found" the unconscious,

and his contribution was not wholly original either – he learned from his contemporaries Friedrich Nietzsche and Arthur Schopenhauer more than he was willing to admit. Charcot also used the notion of the unconscious for clinical purposes before Freud. Zaretsky (2004, 15-40) argues that Freud's ideas on the unconscious differed from those of his contemporaries (and predecessors) in that he thought of it as *personal*: “an internal, idiosyncratic source of motivations peculiar to the individual” (Zaretsky 2004, 16). It was Freud who created a consistent system, through which human behavior could be interpreted in terms of unconscious aims and memories, and with the help of which psychic disorders could be treated.

Freud wrote in German, and the essential “mental” terms in that language are “Seele-seelische”, “Psyche-psychische” and “Geist-geistig”. “Seele” is usually translated as “soul”, but its origin differs from that of the English word: Seele originates in the word “See”, ocean. “Geist” has a Gothic origin, and it is usually translated as “mind”, “spirit” or “intellect”. Interestingly, when the word “mental” appears in the English translations of Freud's writings, the original word is often “Seele”. (Grimm & Grimm 1897; Bettelheim 1982, 70-78)

Bruno Bettelheim (1982) gave his well-known critique of the standard English translation of Freud's works in his book *Freud and Man's Soul*. According to him, it was a serious error to translate “Seele-seelisch” as “mind-mental” – “soul” would have been better. In the context of the present study, it is of particular relevance which word – “seele”, “psyche” or “geist” – Freud used to emphasize the mental nature of the unconscious. The sentence, “It is clear in any case that this question – whether the latent states of mental life, whose existence is undeniable, are to be conceived of as conscious mental states or as physical ones...” (Freud 1915a, 168) was written in German as follows: “Immerhin ist es klar, dass die Frage, ob man die unabweisbaren latent Zustände des *Seelenlebens* als unbewusste *seelische* oder als physische auffassen soll...” (Freud 1915b, 266, italics mine). Was it the case that Freud referred to different matters when he used the word “seelisch” on the one hand and “psychisch” on the other? Should we replace the idea of the mental unconscious by speaking about the unconscious soul?

Freud was a “militant” atheist (Gay 1987, 37), and his view on the unconscious almost certainly did not incorporate any hidden religious agenda. At the time of Freud's birth in the middle of 19th century, romanticism was turning into scientism and positivism (Galdston 1956). Thus, we cannot claim either that he based his view on the nature of the unconscious on the philosophy of science, which is entirely alien to the present-day scientists.

Thus, we might legitimately assume that in referring to the mental/seelisch

unconscious, Freud did not mean anything mystical, or anything that would imply dualism – he did not aim at presenting a supernatural explanation. All this makes it difficult to understand why he emphasized the mental nature of the unconscious, and what he meant by the term “Seele-seelisch”. What is particularly confusing is that “Seele” *does* have a religious connotation in German, and that Freud the atheist/materialist deliberately used that term.

Bettelheim (1982, 76-77) offered some ideas for clearing up this confusion. According to him, Freud (often) preferred “Seele” over “Geist” because the latter term refers to rational aspects of the mind, and the emphasis in psychoanalysis is on the non-rational. He noted that Freud never gave a precise definition for “Seele”, and thought this was not by chance: Freud used the term “*because of its inexactitude, its emotional resonance.*”

In any case, it is still difficult to fully grasp Freud’s idea of the nature of the unconscious, and there is a need to look more closely into his intellectual background.

The mental unconscious: the tension between romantic roots and scientific ideals

Freud’s thinking had romantic undertones in many respects. The essential “Freudian” topics of hypnosis, the interpretation of dreams, sexuality and fantasy, as well as his interdisciplinary approach (psychology, anthropology, studies on the arts, and neurophysiology), clearly reflect that spirit. Many of his favorite poets (Goethe, Schiller) and philosophers (Nietzsche, Schopenhauer) also had a romantic streak. (Galdston 1956; Cranefield 1966a; Cranefield 1966b ; Ellenberger 1970, 534-542)

There was also a touch of romanticism among Freud’s close friends and colleagues. Wilhelm Fliess was the most influential of these, and Freud always presented his ideas first to him. Fliess himself had interests that were very far from those of Freud, numerology and biorhythms being among them. Galdston (1956, 495-502) suggested that it was through Fliess that the ideas of romanticism found their way into Freud’s works. Freud also had serious discussions on mystical topics with C. G. Jung. (Sulloway 1979, 135-237)

Freud’s use of mechanical metaphors on the mind/brain could be seen as a reflection of the Enlightenment fascination with mechanical apparatus. However, there are romantic roots behind even these technically-sounding terms.

Gustav Fechner is considered a great figure in the history of psychology, known from his “psychophysical law”, and Freud also respected him a lot. According to Ellenberger (1970, 542), the concept of mental energy, the principles of pleasure-

unpleasure, constancy and repetition, and the topographic model of the mind all derive from Fechner. Fechner's roots were deep in romanticism: under the pseudonym of Dr. Mishes he wrote the pamphlet *Comparative anatomy of angels*, and he tried to reconcile the laws of the spiritual and physical worlds. At that time the romantic philosophy of nature was already old-fashioned, and because of that he presented his ideas within the conceptual framework of experimental psychology. (Copleston 1963, 375-376; Ellenberger 1970, 215-218)

The "mesmerism" of the 19th century, later called hypnosis, was the "basic approach to the unconscious mind" (Ellenberger 1970, 120). The realm of hypnosis was a major battleground, or as a matter of fact, two battlegrounds. There was heated debate on supernatural explanations on the one hand: Ellenberger (1970, 53) traced the emergence of dynamic psychiatry to the year 1775, when the exorcist Johann Gassner's supernatural explanation for certain oddities was surpassed by that of Franz Mesmer (1734-1815).

On the other hand, there were conflicting views on hidden fluids and forces. Mesmer explained the effectiveness of his treatment in terms of an invisible fluid he called "animal magnetism" (the term refers, again, to the soul, the anima). Interestingly, in this case physiological explanation came first, but the fluid was never identified, and researchers began to offer psychological explanations. Freud was very well informed on the notion of animal magnetism because that line of explanation persisted along with the psychological ones during the entire 19th century (Ellenberger 1970, 148; Drinka 1984, 123-151).

Freud adopted his scientific ideals from the so-called "school of Helmholtz", which included Emil du Bois-Reymond, Ernst Brücke, Carl Ludvig and Hermann Helmholtz, and which strongly contradicted the spirit of romanticism (or "German idealism"). He began his scientific studies in the domain of physiology, and studied eels and the effects of cocaine, among others. However, for economic reasons he decided to abandon that career, and began to work as a clinician. By the middle of the 19th century the "school of Helmholtz" had sketched the basics of neurological thinking, which was later encapsulated in the terms "(naive) reductionism", "sterile scientism", "mechanistic", and "positivistic". When Freud was studying medicine at the end of the century, its impact had already decreased, although it is often claimed that through his teachers Brücke, Theodor Meynert, and Sigmund Exnert he adopted rather reductionist scientific ideals. (Cranefield, 1966b; Ellenberger 1970, 535; Gay 1988, 32-37)

The tension between romantic interest and reductionist philosophical presupposition in Freud's thinking has often been noted (e.g. Galdston 1956;

Cranefield 1966b; Holt 1989, 31-33). Below I will focus this tension from which his ideas on the unconscious arose. (This issue is studied in detail in Talvitie, Kaitaro & Ihanus 2006)

The phenomena that led Freud to stress the mental essence of the unconscious included the following: people, without conscious planning, create fantasies, psychic disorders, associations, metaphors and dreams, which symbolically present intrapsychic conflicts; the human brain is capable of anticipating distressing situations (by prohibiting the formation of certain contents of consciousness); and the human capability to detect dangerous/distressing situations without conscious thinking (stimuli triggering psychic disorders). Freud also noticed interrelations between his patients' disorders, slips of the tongue, dreams, life-histories, hidden memories, and their reactions toward himself (transference). These interrelations were not present by chance – he was inclined to think that they had, or served, some purpose.

These notions would have been easy to comprehend given the interests of young Freud in German idealism, but because of his scientific ideals he did not wish to present his ideas in such a terminological framework. On the other hand, he could not explain his notions in terms of the “school of Helmholtz” either. Galdston presented that impossibility as follows: “Intentions and purposes smacked of vitalism, and reeked of teleology. Life, according to prevailing scientific belief, was to be accounted for in terms of matter and energy, in terms of molecules in motion. Purpose and intention had neither place nor meaning in the realm of science.”(Galdston 1956, 494) According to Holt (1989, 352), Freud’s “...theories were always more or less succesful struggles to synthesize the themes and outlook of humanism with those of mechanistic metaphysics.”

On these grounds we might understand the idea of the mental unconscious as a “compromise formation” between Freud’s romantic background, his clinical observations, and the (reductionist) ideal of science he had adopted. In those times the term “mental” (“seelische”, “psychische”) was perhaps the best one to describe the unconscious, as it appeared to Freud.

“Psychic energy” and “an unconscious idea” are matters that cannot be perceived through senses or measures. A present-day neuroscientist aiming at explaining human behavior through a not-yet-discovered substance would be seen as a dualist presenting a supernatural explanation. However, the situation was different at the end of 1800s: people felt more free to speculate. Isaac Newton’s mechanics has been considered an exemplar for Freud’s metapsychology, but according to Gay (1988, 79-80) Freud followed the great Newton in other ways, too: Newton held that,

although gravity remained invisible, it was worth studying. Freud applied that view to psychic energy and unconscious mental contents. It is also worth mentioning that Kant and Hegel were the great philosophers of Freud's youth, and both of them were of the opinion that it was not the real state of things that we perceive by our senses – there are matters that exist even though they cannot be perceived.

It is surprising and unfortunate that Freud did not clarify his relation to Franz Brentano (1838-1917). Brentano held that intentionality – the fact that conscious states refer to what is outside of themselves differently than pictures do – makes the difference between the mental and the material. Along with Brentano's studies the term intentionality has become a concept that cannot be overlooked in studies of the nature of the mind and the essence of the mental. Freud attended Brentano's lectures and, indeed, respected him a lot (Gay 1988, 29-31). Although Brentano's ideas were extremely relevant to the debate on the mental nature of the unconscious, Freud quoted him just once in his works (a short footnote in *Jokes and their relation to the unconscious* from the year 1905). Intentionality is studied more closely in section 2.8.2.

According to Kitcher, psychoanalysis developed as an interdisciplinary theory, and she holds that Freud's hypotheses "enjoyed a substantial amount of support by nineteenth-century standards." (Kitcher 1992, 109-110) However, from the present-day perspective Freud's ideas appear otherwise: "He [Freud] relied too much on the smooth progress of neurophysiology, took much too great risk in hoping that physiology would provide an adequate grounding for libido theory, and was overly impressed by the potential unity of his theory of mental to see that real connections had to be made, not simply assumed." (Kitcher 1992, 182)

Freud attempted to explain the apparent goal-directness of the unconscious several decades before von Bertalanffy's ideas on systems, Shannon's cybernetics, evolutionary biologists' ideas on functions, the concept of non-linear dynamics, and philosophers' conceptions of as-if intentionality emerged. The major challenge in the current work was to determine how cleverness, flexibility, and learnability in the unconscious should be considered within the scope of present-day research. This challenge was addressed in **Studies II, III and IV**.

2.8. THE MIND, THE UNCONSCIOUS, AND THE BRAIN IN POST-FREUDIAN TIMES

2.8.1. NEUROSCIENCE, PHILOSOPHY AND THE COMPUTER METAPHOR

For scientists, feelings and mental images (qualitative aspects of consciousness) are adequate proof of the existence of the mind (consciousness, intrinsic intentionality). For philosophers, however, the issue is more complicated for two reasons. The first is because anyone “believing in” the qualitative aspects of consciousness is in danger of succumbing to Cartesian dualism, which is far from a merit in our times. Secondly, from the perspective of the methodology of science, proof of the existence of these aspects is less than conducive: it is possible to perceive only *one’s own* feelings and mental images (in terms of philosophical jargon, they appear only from the “first-person-point-of-view”), which means that the existence of the mind/consciousness cannot be verified objectively from the third-person-point-of-view.(see, for example, Searle 1992, 1-57)

Cartesian intuitions are still difficult to avoid, which means that the layman’s view of the nature of the mind cannot be combined within the world view of natural sciences that has emerged over the past four hundred years. There are three basic approaches to the mind-body problem. The first is to deny the non-material characteristics of the mind and consciousness (Paul Churchland and Daniel Dennett are examples of this). The second is to overtly advocate dualism (it is difficult to find advocates of this approach other than sir John Eccles), and the third, is to attempt to find a solution by arguing that mental properties are one aspect of matter.(Searle 1992, 1-57)

The mind-body problem has been thought of as a philosophical problem. As such, it does not usually disturb researchers: they just lean on the layman view and acknowledge that people do possess feelings and mental images, and that they are an interesting object of study. Neuroscientists have been fascinated by the fact that it is possible to find different kinds of neural correlates for our private experiences, and some scientists of today even hold that the mind-body problem might be resolved by finding neural correlates for consciousness. For example, Churchland (2002) suggested that the mystery should be seen as similar to those surrounding electricity, or epileptic seizures: although a supernatural explanation may seem intuitively plausible, researchers will someday give us a physical explanation.

Tallis gives the impression, that mid-20th-century advances in neuroscience

caused an anti-Cartesian revolution:

"In the 1930s and 1940s the Canadian neurosurgeon Wilder Penfield conducted an extraordinary series of experiments that dramatically demonstrated the intimate relationship between brain and mind. His work represented a troubling challenge to the advocates of Cartesian dualism. The 1.4. kg of gelatinous matter that comprises the human brain was shown to be the organ of consciousness – the physical reality behind the phenomenal world." (Tallis 2002, 110)

Penfield, originally studying epileptic seizures, stimulated patients' brains with an electric probe, and that produced specific responses: patients heard clicks, felt hot or cold, and had déjà vu experiences or visual and auditory hallucinations. Penfield's findings were not as clear as they appeared (Squire & Kandel 1999, 11), but nevertheless they seriously challenged Cartesian intuitions. According to Kandel (1998, 40), the idea that all mental functions reflect the functions of the brain is nowadays "almost a truism".

Another classical series of experiments was that conducted by Benjamin Libet. He was able to show that "readiness potential" (RP) occurred 220-550 msec before the conscious *decision* to move one's finger. Thus, "*initiation* of the voluntary process is developed unconsciously, well before there is any awareness of intention to act" (Libet 1996, 112; italics original). Descartes held that the soul gave orders to the body, but in the light of Libet's experiments it appears that the opposite is the case: neurophysiological machinery in the brain creates conscious states. Experiments conducted by Libet and others have given rise to the idea that consciousness in itself could be considered an illusion, just a side-product of neural activity (see Wegner 2002, Dennett 2003). Thus, in the scope of present-day cognitive science *there is no doubt that unconscious matters determine our behavior* – it is the role of consciousness, that is in question.

It is as a result of this kind of neuroscientific study that the relations between the body/brain and various mental concepts (the mind, consciousness, awareness) have become less complex. There seem to be just two spheres or levels, the neurophysiological (the body/brain), and conscious states (feelings, mental images and so on). There is no need to talk about unconscious *mental* matters – the term unconscious merely refers to brain processes. This cognitivist conception is termed the *two-sphere view* in what follows.

Thus, among scientists and philosophers there is currently consensus that the

brain directs the mind, or consciousness, or at least that it emerges from the neurophysiological processes. There is, however, no generally accepted theory on how or why that is the case: the mind/consciousness/intentionality is still a mystery.

Cognitive science, or the cognitive orientation – the mainstream of present-day psychological study – began to emerge in the 1940s. That was when the first computers were built, and researchers found them a useful tool in the study of the human mind/brain. The year 1956 is considered significant in the history of the cognitive orientation, because it was then that an inspirational seminar was held in which certain leading researchers participated. It was not until two or three decades later, however, that the term “cognitive science” came into common usage. Nowadays, cognitive science means a paradigm of research, or a loose basic orientation that is applicable in several domains of study including psychology, philosophy, linguistics, anthropology, computer science and neurophysiology. (Dreyfus 1972, Gardner 1985)

It is only after having become acquainted with the findings of post-war neuroscience that one can understand the significance of the so-called “computer metaphor” to the cognitive orientation. If the brain is considered “the organ of consciousness” – as Tallis puts it – there is no need to suppose that there are any “animal” substances or forces between consciousness and the brain. It is through this kind of logic that the mystery of the mind takes the form of the question, “Which properties of the brain cause, or give rise to consciousness?” In a world surrounded by computers capable of performing many humanlike functions, it is reasonable to approach this question by asking another: Why do computers not exhibit consciousness, and could they do so one day?

Studying the human mind/brain from the Aristotelian/Leibnizian perspective – in terms of information processing, neural algorithms, computations, neural representations, and rules of thought – has been useful in two ways. For philosophers the computer metaphor has provided a fresh perspective on the age-old mind-body problem, while it has been a concrete tool for scientists: it has been possible to test theories and models by creating computer simulations. The metaphor has also provided cognitive insights into intentionality – a subject Freud became familiar with in Brentano’s lectures.

In the 18th century laymen began to think of human essence in terms of mechanical metaphors, and two centuries later the computer metaphor became part of our “folk psychology”. Rich Cohen’s book, *The Record Men: Chess Records and The Birth of Rock & Roll*, portrays the collaboration between record companies and musicians in the 1950s and the 1960s. In it we find “a record man”

describing the difference between musicians and themselves as follows: “Assume the human brain is made of chips like a computer. And those chips govern behavior. Well, these [musicians] can take a sheet of paper and put notes on it and go into a studio and translate it into music and perform that music in front of millions. We can’t do that. They got chips we don’t. But to make room for those chips, other chips fall out. Sanity, reason, logic gratitude. Anything like that is gone.”(Cohen 2005, 123-124)

2.8.2. “INTRINSIC” AND “AS-IF” INTENTIONALITY

As mentioned in section 2.7.3., it was through Brentano’s writings at the end of the 19th century that the term intentionality came to the fore in the philosophy of the mind. Thus, it is also one of the core terms in Searle’s (1992) book, which inspired **Study I** (entitled *On the nature of repressed contents – a working through of Joh Searle’s critique*), and consequently has a prominent role in Brakel’s (2003), Smith’s (2003) and Natsoulas’ (2004) commentaries on the article.

Intentionality is a technical term, and is not derived from the words intention or intend: it refers to *aboutness*. Aboutness characterizes humans’ mental life: our perceptions, dreams and memories are about things outside us, and our fears and desires are directed to certain objects or matters. The core idea behind human intentionality is that mental states refer to what is outside of themselves.

I should add at once that physical entities also refer to what is outside of themselves: a photograph of Paris and the sentence “Paris is a beautiful city” are about Paris and refer to it. Computers also function in a manner, that resembles humans’ goal-directed behavior arising from fears and desires: they aim at certain things (“desire”; to keep their clocks at the right time, for instance), and try to avoid others (“fear”; virus infections). Plants, too, seem to strive for objects: they frequently turn toward the sun, for example. Thus, present-day cognitive science does not presuppose that only humans possess intentionality: the epithet “intrinsic” (or “original”) is used for human intentionality, and “as-if” (or derived) often precedes the term when it is talked about pictures, computers or plants.(see, for example, Searle 1992, 78-82; Dennett & Haugeland 1998)

The mind-body problem often appears through the term intentionality. When an author holds that original intentionality is wholly different from as-if intentionality, he/she is often accused of hidden Cartesianism. Not surprisingly, the eliminative materialist usually does not see any fundamental difference between the two.

In the scope of this work, all this means that the claim, “The unconscious is mental in essence” is (almost) identical to the claim “The unconscious possesses

original intentionality". Thus, if the latter holds, the unconscious is mental in essence. Similarly, if the "competencies" of the unconscious (which is why Freud called it mental) turn out to be based on as-if intentionality, it is difficult to see why the unconscious should be considered mental.

In terms of the conventional conception of intentionality, the answer is in the definition: humans' intrinsic intentionality comes from the fact that *conscious states*, as we experience them, are about something. Because unconscious states are not experienced, and they do not – of course – appear in the scope of consciousness, the unconscious is not intentional.

Nevertheless, John Searle (1992, 151-173) represented the liberal wing when he held that certain unconscious states were intentional, too. Thus, one might suppose that of all philosophers it would be Searle who was considered to reflect the psychoanalytic viewpoint. **Study I** indicated the opposite, however: the commentators were even more eager to criticize Searle's ideas than ours. From the psychoanalytic perspective, his conceptualization of the intentionality of the unconscious was too shallow in that he posited that all unconscious states were neurophysiological ones indeed, and had no intrinsic intentionality as such. However, some neurophysiological states (or structures) do have a disposition to produce intentional states into the domain of consciousness – the belief that "Denver is the capital of Colorado", for example. It is because of this disposition that Searle considers certain neurophysiological states intrinsically intentional.

The study of repressed desires and fears is essentially about goal-oriented behavior. In order to make sense of when goal-oriented behavior should be seen as intrinsically intentional, intentionality is classified below as mechanical, biological or mental. The study is based on contemporary views (see, for example Searle 1992, 78-82; Dennett & Haugeland 1998), but it was inspired by Dennett (for instance, 1978, 3-58, 233-285). Dennett's ideas had an enormous impact on **Studies III-V** (and, of course on Talvitie 2003), and specifically the approach he developed, which makes it possible to explain apparently goal-directed behavior without falling victim to the homunculus fallacy.

Let us begin by thinking of the behavior of flowers turning toward the sun. They do that every morning, and Daniel wakes up early one morning and does the same (because that morning there is a partial eclipse of the sun). We could also imagine a solar-panel system turning toward the sun: there is a sensor detecting sunbeams, and a computer turning the panel toward the sun according to the information received from the sensor. Thus, we find goal-directed, turning-toward-the-sun behavior in flowers, Daniel and the solar panel. In Daniel's case there is intrinsic, mental

intentionality: his consciousness contains beliefs (“There will be an eclipse of the sun in the morning”) and desires (“I want to see the eclipse of the sun”) about the sun. There is no intrinsic intentionality in the solar panel: it detects sunbeams and turns toward the sun just because a computer engineer has programmed it to do so. It has been assumed that mechanical intentionality in computers is derived from the programmer: he or she possessed intrinsic intentionality when building the program, and the program’s intentionality is thus derived (hence, the term “derived intentionality” is used as synonym for as-if intentionality). We could also say that the engineer possessed mental goal-directedness, whereas the solar panel system is goal-directed in a mechanical manner.

Consequently, the flower is goal-directed in a biological manner. Sunbeams cause a biological processes that makes it turn toward the sun. In this case, the behavior is driven by the logic of evolution: it became prevalent millions of years ago in the interests of survival. Dennett is used to say that the “behavior” of plants and animals – turning toward the sun is one example – was “designed by mother nature”, and thus biological intentionality derives from her. In this he is suggesting that such acts are not arbitrary, but arise from the logic of evolution.

The above picture of mental, biological, and mechanical intentionality was painted in the Dennettian way, but it nevertheless reflects the current state of the art in the study of intentionality. Current views have evolved due to the progress in the domains of systems thinking, philosophy, evolutionary biology and computer science. Freud presented his claims concerning the essence of the unconscious decades previously, and considering the era, it was a rather natural choice to use the term “mental” to refer to the competencies of the unconscious. In contemporary terms, these competencies are based on as-if intentionality (or, in terms of the above “Dennettian” picture, biological intentionality).

2.8.3. THE BRAIN AND THE MIND IN PRESENT-DAY PSYCHOANALYSIS

Before embarking upon his psychoanalytic studies, Freud worked in Ernst Brücke’s and Theodor Meynert’s laboratories and published some articles on neurophysiology. His *Project for Scientific Psychology* (Freud 1895) falls in the domain of neuroscience, but after that he did not make serious efforts to integrate (or reduce) his psychoanalytic ideas to neuroscience. The neuroscientific perspective was marginalized for decades after Freud’s death, too. Thus, psychoanalysis moved quite quickly from the domain of the natural sciences to that of the humanities. Its methods have been clinical and only occasionally empirical.

All the time, of course, there has been interests in empirical and neurophysiological issues among psychoanalysts and psychoanalytically -oriented researchers (see Levin 1998). Nevertheless, this has played a minor role in the realm of psychoanalysis – an Average Analyst of the 20th century did not care whether or not psychoanalytic claims were supported or contradicted by empirical research, or how psychoanalytic concepts such as censorship and repressed contents would appear from the perspective of neuroscience.

There is a tradition of empirical psychoanalytical research that is especially interesting in the current context, however: subliminal stimuli have been used since 1917, when Otto Pötzl flashed pictures subliminally to subjects, and requested them to have a dream. He aimed to show that subliminally presented stimuli could appear in dreams. In terms of the standards of present-day science, Pötzl's experiments were far from sophisticated, but they nevertheless gave rise to a tradition of research. Pötzl was a member of the Vienna Psychoanalytic Society, and Freud was fascinated by his studies. It was through the later works of Charles Fisher (from the 1950s onwards) and Lloyd Silverman (from the 1970s onwards) that there emerged a tradition of research focusing on Subliminal Psychodynamic Activation (SPA). (Bornstein 1990, 62-63; Erdelyi 1996, 72-81)

The main idea behind SPA is that subliminal stimuli bypass ego defenses, and thus are able to activate unconscious conflicts. Silverman presented subjects subliminally with sentences such as "Mommy and I are one", "Mommy is leaving me", and "Beating dad is wrong", which were targeted to tap certain oedipal or oral unconscious fantasies. In one of his best known experiments (Silverman, Ross, Adler & Lustig 1978) he presented his subjects with a message that increased their anxiety related to oedipal conflict ("Beating dad is wrong"), decreased it ("Beating dad is OK"), or was neutral ("People are standing"). It was found that, in a dart-throwing competition, anxiety-increasing messages lowered the scores, anxiety-decreasing messages improved performance, and neutral messages did not affect it. (Silverman 1983, Bornstein 1990)

It is no surprise that researchers have disagreed about the results of SPA studies. Silverman (1983, 90) claimed that, of the studies in which *he had not participated*, 34 had supported SPA, 13 had mixed results, and eight were clearly non-supportive. Fudin (1999, 235), for his part, concluded that "...none of his [Silverman] experiments can be replicated, and none of his positive results were found under luminance conditions he reckoned ...no experiment using Silverman's procedures can yield unambiguous positive results..."

Neuroscientific methods evolved a lot toward the end of the 20th century, and

perhaps that caused the revival of neurophysiology in the domain of psychoanalysis. A growing interest in the brain gave rise to the term *neuropsychanalysis*, and in 1999 the first number of *Neuro-Psychoanalysis* came out. The journal promotes a genuine interdisciplinary spirit: its editorial advisory board contains leading neuroscientists, and it has published articles and commentaries by Jaak Panksepp, Francis Crick, Benjamin Libet, and Ray Jackendoff, for example. Neuropsychanalysis is focused on Freudian thinking – names such as Klein, Jung and Lacan rarely appear in the journal – and there is a relatively strong emphasis on metapsychology especially in Mark Solms' writings.

There is a certain fascination with neuropsychanalysis in academic circles, and it also enables newspapers and magazines to write popular "Revival of Freud" articles. Interest may be more restricted in psychoanalytic circles, however: in fact most psychoanalytic journals simply do not feature neuropsychanalytic topics. Because neuropsychanalysis is an interdisciplinary endeavor sharing much common ground with cognitive science, in the scope of this work I consider it reasonable to treat it as a representative of "modern" psychoanalysis.

Cognitive science is a general researcher orientation comprising different interests, topics and views, and the same holds for neuropsychanalysis: it is not a monolithic doctrine or society. However, there is one central figure in it: Mark Solms, who has been trained as both a neuropsychologist and a psychoanalyst. He has written many articles since the beginning of the 1990s, and he is also one of the founders and current editors of *Neuro-Psychoanalysis*.

The following lengthy citation from the website of the journal sets out the aims of neuropsychanalysis :

The goal of this journal is to create an ongoing dialogue with the aim of reconciling psychoanalytic and neuroscientific perspectives on the mind. This goal is based on the assumption that these two historically divided disciplines are ultimately pursuing the same task, namely, 'attempt[ing] to make the complications of mental functioning intelligible by dissecting the function and assigning its different constituents to different component parts of the [mental] apparatus' (Freud, 1900a, p. 536). Notwithstanding the fact that psychoanalysis and neuroscience have approached this important scientific task from radically different perspectives, the underlying unity of purpose has become increasingly evident in recent years as neuroscientists have begun to investigate those 'complications of mental functioning' that were traditionally the preserve of psychoanalysts.

[http://www.neuro-psa.org.uk/npsa/index.php?module=documents
&JAS_DocumentManager_op=viewDocument&JAS_Document_id=1](http://www.neuro-psa.org.uk/npsa/index.php?module=documents&JAS_DocumentManager_op=viewDocument&JAS_Document_id=1)

Neuropsychanalytic studies cover many issues – the neurophysiology of dreams has been especially popular – and indeed, the term mental apparatus rarely appears in (the titles of the) writings. The concept of the psychic/mental apparatus – the “official core issue of neuropsychanalysis” – is nevertheless a crucial one in terms of the articles that comprise this dissertation. For one thing, **Study I** focuses on the question of whether the unconscious is mental or not, and from that perspective the grounds on which the apparatus is held to be mental are important. Secondly, it was shown in **Study III** that through the concept of the mental apparatus it is possible to find a reasonable connection between psychoanalytic issues and Dennett’s ideas concerning the self. Finally, **Study IV** (*The Psychic apparatus, metapsychology and neuroscience – Toward biological [neuro]psychoanalysis*), published in *Neuro-Psychoanalysis*, focuses on the psychic apparatus.

At first sight, the aims and basis of neuropsychanalysis seem to fit well with present-day cognitivists views, which focus on *nomothetic* explanations: what causes schizophrenia, and which regions of brain give rise to episodic memory, for example. Psychoanalysis and psychoanalysts seek *idiographic* explanations: what makes a certain individual behave and feel the way he/she does. According to psychoanalytic thinking, the mental apparatus is the entity that determines these matters. Studying it in terms of present-day neuroscience seems a promising strategy for integrating the psychoanalytic and cognitive approaches.

Studies I, IV and V considered in detail the views of neuropsychanalysts, and especially of Solms, on the nature of the psychic apparatus and unconscious fantasies. There appears to be a fundamental disagreement between the (neuro)psychoanalytic and the cognitive approaches, however: Solms and the commentators of **Study I** contradicted the two-sphere view of the cognitive orientation (Solms’ response was published in conjunction with **Study IV**).

3. STUDIES I-V

3.1. THE LOGIC BEHIND THE STUDIES

As noted in section 1.3., in order to make sense of the Freudian conception of the unconscious, one must be aware that there are four entangled questions: 1) What is the unconscious like? 2) How does the unconscious give rise to the oddities of behavior and experience? 3) Why and how are certain contents missing from consciousness (repression of contents)? 4) How do these contents emerge (becoming conscious of the repressed)? It is made explicit in this chapter how these questions 1)-4) are addressed in Studies I-V. The contents of the studies are not reviewed in detail: the core ideas are presented, and their more general frameworks are introduced.

Questions 2-4 above depend radically on the answer to the first, the conventional psychoanalytic answer being, “The unconscious is mental”. This is the basis on which the “psychoanalytic” answers to the other questions are built: in a nutshell 2) repressed (mental) contents cause the oddities (disorders); 3) contents do not appear in the scope of consciousness because an agency called censorship prevents them from being brought from the unconscious to consciousness; 4) contents become conscious when they are no longer repressed (i.e. when censorship allows them to become conscious).

We challenged the conventional psychoanalytic ground in **Study I** (and deal with the issue in the other studies, too): we argued that it had never been clear what it meant that the unconscious was mental, and insisted on evidence for that. According to the rules of scientific fair play, the one who claims that something exists assumes the burden of proof. Thus we stated – leaning on the two-sphere view of the cognitive orientation – that in the current situation psychoanalysis should drop the epithet “mental” before the term unconscious.

If one is not aware of the interconnections between questions 1-4, whether or not the unconscious should be held to be mental may appear hair-splitting. One could also wonder at the naivety of the authors (of **Study I**) concerning the significance of the first question. Namely, if the conventional psychoanalytic answer collapses, the answers to the other the questions also collapse.

Here we face the fundamental difference between the cognitive orientation and the conventional psychoanalytic view. When the former operates in terms of the brain and consciousness (the two-sphere view), there are three players in the

psychoanalytic game: the brain, the mental unconscious and consciousness. This psychoanalytic conceptualization – let us baptize it hereby the *three-sphere view* – also appears in Freud’s metaphor of consciousness as perceiving (in the mind there may be ideas that are not perceived), and his spatial metaphor of ideas being brought from one “place” (the unconscious) to another (consciousness).

Thus, with question 1) we stand at the crossroads: one should either lay down appropriate grounds for placing the term “mental” in front of “unconscious”, or move toward creating new perspectives on questions 2-4. Freud was careless, and sometimes even arrogant (see, for example, Freud 1923, 14), when arguing in favor of the mental nature of the unconscious. It is worth asking if the (neuropsychological) analysts of our times still favor the traditional Freudian three-sphere view, or if they have converted to the cognitivists’ two-sphere one. **Study I** offers (at least a partial) answer to the question in that it was published as a target article in *Neuro-Psychoanalysis*. **Studies II-V** lean on the stand taken in **Study I**, which is therefore considered in some detail in section 3.2. below.

Section 3.3. focuses on **Study II** (published in the *International Journal of Psychoanalysis*). In it we treated the unconscious as a neural thing, and in terms of implicit knowledge. From that perspective the answer to question 2) is straightforward: it is the brain that causes the “oddities”. **Study II** also addresses question 4): it considers how we should conceptualize the psychoanalytic idea of becoming conscious of the repressed in terms of implicit knowledge.

Studies I and II do not say a lot on question 3). **Study III** (*Psychology & Psychotherapy: Theory, Research & Practise*), which is discussed in section 3.4., thus focuses on the mechanisms that cause the absence of contents from consciousness, and further develops our response to question 4).

Studies I-III set “psychoanalytic” topics and the psychoanalytic idea of the unconscious in the framework of the cognitive two-sphere view of the mind/brain. The picture emerging from these studies is not especially useful for a clinician (psychotherapist) – it is far from easy to determine how insights on concepts such as implicit knowledge and as-if intentionality might help a psychotherapist to practise better psychotherapy. We focus on this issue in particular in **Studies IV** (section 3.5.) and **V** (section 3.6.). **Study IV** (*Neuro-Psychoanalysis*) is a rather serious critique of neuropsychanalysis, while **Study V** (*Theory & Psychology*) considers the idea of unconscious fantasy in terms of its usefulness to the clinician.

3.2. STUDY I: THE UNCONSCIOUS – A “MENTAL THING”?

In its conventional meaning, the term mental refers to subjective feelings and mental images appearing in one’s consciousness, and the reference point is evident to everybody (apart from, of course, the majority of philosophers). When the mental thing is “the unconscious”, however, feelings and images cannot serve as determinants – characteristic of feelings and mental images are their phenomenal qualities, which appear in the domain of consciousness. Thus, it is difficult to give arguments in favor of the view that the unconscious should be held to be mental in the ordinary sense of the word. Present-day psychoanalytic writings are rarely explicit on whether the expression “mental unconscious” possesses a particular meaning, or if it is just a Freudian turn of phrase.

We present the above line of thought in **study I** (*On the nature of repressed contents – A working through of Joh Searle’s critique*) and in our responses to the commentators (Talvitie & Ihanus 2003, see Appendix A; Talvitie & Ihanus 2006, see Appendix B). The commentators, all distinguished scholars in the field, disagreed with us: the question concerning the mental essence of the unconscious is not just a terminological one – *the unconscious really is mental*. According to Joel Weinberger, “A cognitive scientist and/or social psychologist would be perfectly comfortable with it [our conception of the unconscious]...” (Weinberger 2003, 152). However, he held that our article contained “conceptual and terminological confusions”, and that we did not, in fact, deal with repression. Thus, he could not “feel comfortable in offering a sensible critique” of our article.

In the article we presented certain lines of thought by leaning on the philosopher Searle’s book, and thus it should be no surprise that the other two commentators – Linda Brakel and David Livingstone Smith – took Searle and his philosophy as the main target of their critique. Our response, *What is it like to be unconsciously mental?* (Talvitie & Ihanus 2003, see Appendix A; paraphrasing Thomas Nagel’s [1974] classic article *What is it like to be a bat?*), was arguably a more significant contribution than the article itself. For one thing, we focused more strongly on the supposed mental essence of the unconscious, and for another we tried to avoid philosophical discussion and insisted on concrete evidence of the existence of mental unconscious states – the commentators did not give any.

Brakel (2003, 143) stated in her commentary: “For something to qualify as a mental state, ... it would need to be first-personal, subjective and intrinsically intentional.” Later she added “meaning” and “representational” to the list. In our

response we argued that, apart from the “representational”, neural states cannot be described through such attributes.

Smith (2003; see also Smith 2003b, 92-95) took from Freud’s writings the so-called “continuity argument”, which – in his view – gave the (main) reason why Freud held the unconscious to be mental. This argument could be briefly summarized as follows. Human consciousness contains “gaps” – sometimes we “sleep on” a problem and wake up with an answer, or a solution to a problem suddenly pops up in our mind. This means that we have unconsciously processed an idea. Plain neurophysiological matters cannot produce such a competence, and thus unconscious processing must possess the property of “mental”.

It has been suggested previously that the psychoanalytic conception of the unconscious refers to memory, motivation, flexibility, and intelligence. Smith focused on the last of these: for him, an unconscious lacking mental properties is not intelligent enough to produce the phenomena psychoanalysts and other people have noticed. Our response was in accordance with the Aristotelian and Leibnizean spirit of the cognitive orientation: if a mechanical (or digital) computer can carry out a complicated task, we have no reason to suppose that the non-mental brain could not do so. It is worth noting here that Smith did not explain what the mental essence of the unconscious was like, or how it would make the brain more intelligent. He might have argued that, as a matter of fact, the problem was with flexibility: computer intelligence is still quite restricted (context-dependent), whereas human information processing is characterized by flexibility. However, the same problem holds as with intelligence: the presupposition that the unconscious is mental cannot be a solution to any problem unless one is able to tell what is the “mentalness” of the brain, and how that increases intelligence or flexibility.

The philosopher Thomas Natsoulas was asked to comment to our article, but his commentary was not available for issue 2 of 2003. Perhaps he became interested in our ideas only after he had read the discussion between us and the reviewers – his commentary (Natsoulas 2004) appeared in issue 1 of 2004, and was considerably longer than our original article.

Natsoulas also saw the unconscious as mental and he treated the subject in terms of philosophy. His writing offered no concrete evidence of the mental essence of the unconscious either, which we insisted on in our response to the other commentators. Instead, he gave us labels and advice: “I sense in them [VT&JI] a return of behaviorism in a new guise”(Natsoulas 2004, 105); “I would guess that Talvitie and Ihanus subscribe broadly to an eliminativist philosophy of science.”(Natsoulas 2004, 106); “They need to adopt and develop a more critical attitude toward their own

statements. Using a neater or more scientist vocabulary than others is not enough. The attractiveness that their approach holds for key neurophysiological and philosophical personnel in our universities does not suffice either.”(Natsoulas 2004, 106)

Thus, Natsoulas agreed with Weinberger in that our ideas worked outside psychoanalysis but not within its scope. His long commentary gives rise to an impression that we had touched on an important question. However, it did not shed light on why we perhaps ought to consider the unconscious as being mental (see Talvitie & Ihanus 2006, Appendix B).

Natsoulas applies Freud’s unconscious – pre-conscious – conscious and descriptive – dynamic unconscious distinctions, and it could well be asked why we did not use them in **Studies I–V**. In **Study III** we suggest that our distinction the brain – consciousness – self-consciousness – narrative self-consciousness is more nuanced than Freud’s former distinction. As for the descriptive – dynamic unconscious distinction, the focus of this study is on the latter (i.e. in the “The Freudian unconscious”).

I will now turn to how the issue of the mental nature of the unconscious is dealt with in contexts other than our article. In his target-article for *The Journal of the American Psychoanalytic Association*, Solms (1997) explicitly rejects the (cognitivists’) “truism” that conscious experiences are caused by brain processes (the two-sphere view): “It is, I believe a statement to which no psychoanalyst should ever assent, as it flatly contradicts the fundamental assumption on which the whole of our discipline rests.”(Solms 1997, 681) If Solms is right, it is no surprise that the commentators of our article did not accept the view we advocated.

Solms based his view on Freud’s conception (or metaphor) of the nature of consciousness: consciousness is like perception. Just as material things around us may be seen or not, mental things in our minds may be seen or they may remain hidden. According to Solms/Freud, the brain does not cause consciousness, but “rather the abstract, natural thing that generates both of them, and that can never be known directly.” (Solms 1997, 701) It is not clear if this kind of view is dualistic or not, but there is no doubt that Solms and Freud share a presupposition that radically contradicts the cognitive two-sphere view.

Both psychoanalytic and cognitivist commentators strongly challenged Solms’ view, however: the perception metaphor is erroneous, Solms has misread Freud, Solms’ view reflects Kantian transcendental idealism... (see also Searle 1992, 170–171) Howard Shevrin, another leading figure of the neuropsychanalytic approach, even holds that Solms was sliding into (subjective) idealism as advocated by Bishop

Berkeley at the beginning of the 18th century (Shevrin 1997, 746-747). How, then, does Shevrin approach the subject of the unconscious?

Conscious and unconscious processes: Psychodynamic, cognitive, and neurophysiological convergences (Shevrin, Bond, Brakel, Hertel & Williams 1996) is an interdisciplinary study on the unconscious (one of the writers, Linda Brakel, was also a commentator on **Study I**). The authors introduce the “psychoanalytic”, “cognitive” and “psychophysiological” theories of the unconscious in the beginning of the book. They then present their extensive and sophisticated series of research projects dealing with psychodynamic evaluation (three interviews), psychological testing (WAIS-R, Rorschach, TAT), and laboratory experimentation (using a tachistoscope to present rapid flashes of words related to the subjects’ intrapsychic conflicts, and recording their ERPs).

William James and Norman Dixon (a well-known researcher on subliminal perception) are representatives of the two-sphere view. Shevrin et al., however, argue in favor of the existence of the *psychological* unconscious (i.e. the three-sphere view) quite apart from the plain neurophysiological unconscious. They (Shevrin, Bond, Brakel, Hertel, & Williams 1996, 264-266) base their arguments on subliminal perception. In that context it has been found that flashing the word “nurse” subliminally (the subject does not know he or she has seen it), for example, leads to more rapid recognition of the word “doctor”. Their reasoning is as follows: “If only the conscious can be psychological, then nonconscious neurophysiological processes must lack ‘aboutness,’ for that is what makes something psychological. However, as we will try to show below, subliminal studies, including our own, demonstrate that ‘aboutness’ does exist in the absence of consciousness.”(Shevrin, Bond, Brakel, Hertel, & Williams 1996, 265)

The fact that Shevrin et al. do not mention intentionality, and do not make the distinction between intrinsic and as-if intentionality, makes one wonder whether they have read even an introductory article on intentionality, or whether they suppose that the reader has not done so – “aboutness” is not a magical word that gives a being a psyche. Showing through the study of subliminal perception that neurophysiological structures possess as-if intentionality is not an argument in favor of the psychological unconscious (whatever that means).

Shevrin et al. state, “When we speak of Mr. A’s *unconscious* rage, Mr. C’s *unconscious* desire to submit himself homosexually, or Mr. B’s *repressed* perception of his father as fatally ill, we are talking about mental contents that are represented in the mind and instantiated neurophysiologically.”(Shevrin, Bond, Brakel, Hertel, & Williams 1996, 270, italics original) Thus, it is clear that they advocate the three-

sphere view: the mental unconscious exists apart from the brain and consciousness (“...represented in the mind *and* instantiated neurophysiologically.”). The following citations contain echoes from vitalism: “...it is essential to talk about a *psychological* unconscious which is embodied in still unknown neurophysiological processes but for which we have discovered certain useful markers.”(Shevrin, Bond, Brakel, Hertel, & Williams 1996, 265) They portray the psychological unconscious and repressed mental contents as Cartesian “animal spirits” embodied in “still unknown” neurophysiological processes. It is worth mentioning that Shevrin (2004, 150) also holds that unconscious fantasies – the existence of which we call into question in **Study V** – are one important form of subjectivity.

According to Solms (1997, 691), “Psychoanalysis and PET scanning... study one and the same underlying object: the mental apparatus and its functions.”, and Shulman and Rothman (2000) have disagreed with that (see also Shulman & Reiser 2004). They claim that functional imaging methods do not directly measure mental processes (Shulman & Rothman 2000, 164), and that such experiments “are designed to exclude the subjective brain activity that is the essence of the psychoanalytic field.” (Shulman & Rothman 2000, 169) Their logic is difficult to follow – *what is subjective brain activity?* In any case, it is clear that both their and Solms’ conceptions differ from the two-sphere view of the cognitivists.

Yoram Yovell, one of the editors of *Neuro-Psychoanalysis*, holds that, although “most contemporary philosophers, the majority of contemporary neuroscientists and cognitive psychologists... firmly reject” the idea of the unconscious level of mentation, “there are conceptual as well as experimental reasons to hypothesize that such a level exists.”(Yovell 2004, 156) He suggests that the human tendency for self-deception is one of the latter. However, the leading theory on self-deception (Mele 2001) applies the two-sphere view of the cognitive orientation. The idea of the mental unconscious is also supported by Allan Schore (2003), for example, who has suggested that unconscious processing occurs in the right hemisphere, and conscious processing in the left. Thus, the leading neuropsychologists seem to consider the unconscious as being mental.

I offer three conclusions from the above:

1. Neuropsychanalysis, too, leans on Freud’s three-sphere view on the mind/brain (the brain – mental unconscious – consciousness), and explicitly rejects the two-sphere view of the cognitive orientation (the brain – consciousness).
2. There is serious disagreement among neuropsychologists concerning the grounds on which the idea of the unconscious as being mental should be advocated.

3. It has not been shown how and where the mental unconscious might exist.

The confusion among psychoanalysts concerning the idea of the mental essence of the unconscious is astonishing. One might guess that the reason for this is the intimate relation between questions 1 and 2-4. Brakel probably had this in mind when closing her commentary with the remark that adopting Searle's view "threatens to separate the practise of clinical psychoanalysis from its foundational theory. Such a separation would strike a serious blow both to practise and to theory..." (Brakel 2003, 146).

3.3. STUDY II: THE UNCONSCIOUS AS A "NEURAL THING", AND BECOMING CONSCIOUS OF THE REPRESSED

When the essence of the unconscious is seen as being merely neurophysiological, the cause of different kinds of "oddities" (question 2) is clear: it is the firing of certain neurons (or the activation of certain neural networks) that gives rise to hysterical symptoms, panic disorders and so on. Most advocates of the mental unconscious would probably agree with that: it is difficult to argue otherwise without ending up in an overtly dualistic position. One might ask, then, what the epithet "mental" has to do with oddities.

A large body of evidence on the subject of implicit knowledge has emerged in recent decades. It is unlikely that the processes and structures behind it would give rise only to *competencies* that the unconscious possesses. Thus, as we noted in **Study II** (*The Repressed and Implicit Knowledge*), the perspective of implicit knowledge has also been applied to "oddities" in the domain of psychoanalysis although it has been treated as if it were somehow additional to that of repression. We suggested a more radical view: *repression should be treated in terms of implicit knowledge*.

Explanations given in the domains of psychoanalysis, evolutionary psychology and the study of implicit knowledge possess the same basic structure: there are certain events (traumatic experiences, evolutionary challenges met by the hunter-gatherers of the Pleistocene era [see Buller 2005, 127-200], and stimuli presented by researchers) giving rise to certain entities (repressed contents, modules of the brain, neural representations), which later give rise to certain phenomena (psychic disorders, species-specific competencies, better performance in later phases of an experiment). We suggest in **Study II** that attempts should be made to incorporate the

phenomena studied within the realm of psychoanalysis into the framework used by empirical researchers on implicit knowledge and neuroscientists. In terms of methodology, psychoanalysts and evolutionary psychologists face more difficult problems than researchers of implicit knowledge: given the temporal perspectives of psychoanalysis (decades) and evolutionary psychology (10,000-1.8 million years), it is relatively easy to be “exact” when the time interval between the event that creates the neural structure and the behavior it gives rise to is some just minutes. Thus, psychoanalysts interested in idiographic explanations will never be able to determine exactly the relations between (traumatic) events, certain neural structures, and present-day behavior (psychic disorders and transference-reactions, for example). This notion sets the scene for **Study IV**, in which we considered the essence of repressive functions in terms of evolutionary biology.

In sketching an alternative conceptualization of “becoming conscious of the repressed”, **Study II** leans on the idea that the contents of consciousness do not pre-exist in the mental unconscious or in the brain, but they become construed in interaction of several brain and conscious processes. That idea is more fully developed in **study III**.

3.4. STUDY III: THE UNCONSCIOUS AND THE SYSTEM(S) BEHIND THE NARRATIVE SELF

It was argued in **Study I** that there was no *mental* unconscious in which ready-made contents might lie, and hinted in **Study II** that representations of the *neural* unconscious are not of the kind that could be made conscious. **Study III** (*From the repression of contents to the rules of the [narrative] self: a present-day cognitive view of “The Freudian phenomenon” of repressed contents*) showed that, when studied closely enough, the psychoanalytic three-sphere view and the cognitive two-sphere view will be found to incorporate radically different ideas on the roles of consciousness and language, too.

Presuppositions concerning the unconscious and consciousness are, of course, intimately tied to each other – the “dumber” we consider one part, the “wiser” we must consider the other. In the context of mainstream psychoanalysis the unconscious is – following Platonic and dipsychist lines of thought – regarded as “smart” (possessing agencies and sophisticated ideas). Thus it is possible to follow Freud’s metaphor and consider consciousness as being just like perception. Conversely, in the scope of the two-sphere view the unconscious is considered

“dumb” (containing just information processing routines), and because of that consciousness must be held to possess an important function(s) in thinking. It is thus seen as a forum in which the outputs of the modules of the brain are brought together and elaborated on (e.g. Baars 1997).

Unlike narrative psychoanalysis, mainstream psychoanalysis presupposes a quite straightforward relation between the contents of the mind and verbal reports on them: In the unconscious there lie “ready-made” contents. If these contents are repressed, they do not appear in the scope of consciousness, and if not, they do. If a content appears in consciousness, it is reported to an analyst, otherwise it is not – the analysand’s reports are seen as reflecting (fairly) directly his/her conscious states. We showed in **Study III** that there are serious difficulties with this kind of thinking other than those mentioned in **Study I**.

Neural processes reflecting streams of consciousness and narration certainly exist. However, we argued in **Study III** that language and consciousness could not be reduced to them because they were both *tools of thinking* – sophisticated ideas emerge only when some other ideas are related to each other in the scope of consciousness and language. Thus, the contents of consciousness and narratives possess something (function as a cognitive tool) that cannot be reduced to the unconscious regardless of whether or not it is seen as mental or neural. When a content is missing from consciousness, neither is it “hiding” in the unconscious. From these standpoints we argued that the lack of content (repression) is due the lack of activation of certain neural representations of explicit knowledge, to non-attending to certain (features of) conscious states, to not relating certain ideas to each other, and to refraining from verbalizing certain ideas.

Study III is a three-ways bridge between **Studies I** and **II** on the one hand, and **IV** and **V** on the other. First, **Studies I** and **II** could be seen as representing the presupposition that neurophysiology and neuropsychanalysis are the most relevant branches of study when the intention is to integrate psychoanalytic and cognitive views. Contrary to that, it is argued in the latter part of **Study III** and in **Studies IV** and **V** that present-day neuropsychanalysis is somewhat flawed, and not fully up to dealing with certain aspects of clinical psychoanalysis.

Secondly, considerations introduced in the first part of **Study III** turn attention from the unconscious to the machinery that determines the contents of consciousness and narration. In the context of psychoanalysis, that machinery is called the psychic apparatus, whereas in the cognitive domain the words “neural” and “machinery” are preferred. **Study IV** focuses on this issue in detail. **Studies III** and **IV** also show the

need to create a present-day parallel with Freud's metapsychology in terms of systems thinking.

Thirdly, **Studies I and II** treat the subject in a psychoanalysis-as-science spirit, and the latter part of **Study III** prepares the ground for the hermeneutic standpoints taken in **Study V**. Quite surprisingly, mixing Freud's and Daniel Dennett's ideas promotes the Lacanian or Ricoeurian (Ricoeur 1970) view, according to which the unconscious is a phenomenon appearing on the level of language.

The perspective of language is crucial here in many respects. In order to create an appropriate context for the (more) practical issue dealt with in **Study V**, I should note here that there is a very strong discrepancy between the scientific language of the mind/brain, and the psychological concepts we apply in daily life – and in psychotherapy, too. Within the cognitive orientation, laymen's use of psychological concepts is called "common-sense psychology" or "folk psychology". Cognitivist debate on folk-psychology centers around three contradictory views (Churchland 1981; Horgan & Woodward 1985; Gordon 1986; Dennett 1987, 43-68):

1) Folk psychology has emerged outside scientific psychology and, for the most part, even *before* it. In each society children are taught how human behavior and conscious states should be talked about. Thus, one aspect of growing into an adult is to learn the use of terms such as wish, shame, belief and feeling. At the core of folk psychology are *propositional attitudes*, or sentences in the form "X believes/desires/fears Y". (cf. Fonagy & Target 1997)

It is important to note here that Freudian concepts have become part of the common-sense psychology of our times, too – one quite often hears talk about "unconscious motives", for example, outside of professional circles, too.

2) The mind/brain does not contain propositional attitudes – our knowledge exists in the form of different kinds of explicit (episodic and semantic knowledge) and implicit (procedural knowledge, behavioral dispositions) neural representations. Thus, folk psychology – like folk physics – contradicts scientific views on many issues, and is simply false and misleading.

Such strictness may appear astonishing. In order to make sense of it, imagine a layman trying to answer the question, "How do knowledge or

beliefs exist in one's head?" The whole idea sounds weird, and the answer may something like, "One has seen or read a certain fact, and after that one just knows that 'horses have four feet', for example." The crucial thing here is that the whole question of the *implementation of knowledge* (supposed propositional attitudes) *is irrelevant* in folk psychology.

3) Folk psychology is an excellent tool for explaining and predicting human behavior. It enables us to tell quite successfully what John will do when he notices that his wallet is not in his pocket, for example: first he will go through all his trouser pockets, then he will look on certain tables and a desk. If he does not find the wallet, he will make a telephone call. Behind our prediction lie several propositional attitudes (John *knows* that if the wallet has been stolen the thief will *know* what to do with the Visa card, and because of that it is important to make a call to the bank ..., for example).

The majority of cognitivists think that folk psychology is misleading, *and* try to explain why it works (see, for example, Horgan & Woodward 1985; Gordon 1986; Dennett 1987, 43-68). Bermúdez (2005, 35-39) calls the the issue of relating terminology of science and that of folk psychology the *interface problem*.

There are two camps here: one – the "theory theory" camp – holds that folk psychology is a theory, and we predict others' behavior by applying it. This alleged theory falls within the scope of implicit knowledge: it is unconscious, rather like knowledge concerning the grammar of one's mother tongue. According to the other camp, the success of folk psychology is based on simulation that helps us to imagine another person's state of mind.(Davies 1994)

The interface problem is a subject of philosophers' arm-chair study. Within psychotherapy, however, it is extremely concrete and practical. It could be stated as follows. In psychotherapy people use ordinary concepts, i.e. those of folk psychology, when describing their psychic reality. If the critics of folk psychology are right, *introspective talk and the insights we reach in psychotherapy do not refer to any factual states of things* (in the mind/brain). On the other hand, a psychotherapist's thinking is assumed to be based on scientific theories. How, then, is it possible match the views of scientists, psychotherapists and laypeople? In bringing language and narration into focus, **Study III** lead us to the interface problem, which formed the more general framework of **Study V**.

3.5. STUDY IV: FROM NEUROPSYCHOANALYSIS (BACK) TO PSYCHOLOGY

3.5.1. REPRESSIVE FUNCTIONS AND NEUROSCIENCE

At the beginning of this work I introduced Claxton's idea that, in the course of history, people's explanations of the "oddities" of behavior have turned from outward stories to inwards stories, and that there are supernatural explanations on the one hand, and physiological and psychological explanations on the other. From the Enlightenment onwards, supernatural explanations have been increasingly replaced by the two latter. Neuroscientific methods have developed a lot during the past decade or so, and that has given rise to another trend: it is often supposed that behind the psychological explanation lies the neurophysiological explanation, which is somehow more foundational or scientific. Thus, there is a spirit in the air whispering that, just as scientific explanations have replaced supernatural explanations, neurophysiological explanations will (at least to some extent) replace psychological explanations. Perhaps we should consider that such a spirit eventually gave rise to the endeavours of neuropsychanalysis, neurotheology, and neuroeconomics.

Study IV (*The Psychic apparatus, metapsychology and neuroscience – toward biological [neuro]psychoanalysis*) challenges this kind of thinking by focusing on the role of repressive functions in the clinical practice of psychoanalysis. Conceptions of functions originally emerged in the domain of (the philosophy of [evolutionary]) biology from the 1970s onwards. "Function" is also the core concept around which attempts to define the independence of psychological explanations are built, the classic presentation being Robert Cummins' book *The Nature of Psychological Explanation* from the year 1983 (Cummins 1983). The perspective of biology dominated **Study IV**, and thus it would be useful here to consider functions in terms of psychology.

3.5.2. THE CHARACTERISTICS OF PSYCHOLOGICAL EXPLANATIONS

Cummins (1983, 1-51) suggests that there is a significant difference between psychology and the natural sciences: while the latter (mainly) strive for causal explanations, psychology aims at *analyzing why and how humans possess certain properties or competencies*. From the psychological perspective, it is not at all interesting to hear which structures of the brain make one play chess, for example

(causal explanation), but it is worth finding out what makes good chess players, i.e. analyzing the competences involved in playing chess. Such an analysis would apply terms such as representation (of the chess board, the characteristics of the pieces, and the rules of the game), memory (in which those representations are stored) and attention (see Saariluoma 2001). The crucial point is that these psychological terms are *functions*, which are determined not through their neurophysical constitution, but by analyzing people's behavior and competencies. The logic of functions goes as follows.

There are different kinds of mouse traps – they can be built from different materials, and their mechanisms vary. Thus, it is absurd to talk about mouse traps in terms of physics by describing their material constitution. It is rather a certain function (the ability to catch mice) that determines the class of objects called “mouse trap”. The situation is similar with psychic functions – the ability to represent matters, retrieve them (memory), find new solutions (learning), relate ideas to each other (thinking, problem-solving), and so on. Solving “what is 4+2” is based on several functions, including the ability to consider numbers as referring to amounts of things, and to make the calculation. In your, my and anyone's brains these functions are, or at least may be, realized in different neural structures. As a matter of fact, they do not need to be realized in organic matter at all: calculators and computers possess them, too (here we see Aristotle and Leibniz behind present-day psychology). This is termed the *multiple realizability* of functions, and it is thus often impossible to present complete (or reasonable) neurophysiological explanations of phenomena studied by psychologists. The crucial thing with psychic functions (the ability to count, for example) is that many lower-level functions (the ability to consider numbers as referring to amounts, and so on) are linked together as an integrated performance. A function is *what several structures of the brain do or make happen*. (Cummins 1983, 28-51; Cummins 2000; Feest 2003; Looren de Jong 2003; Bermúdez 2005, 52-70)

Thus, psychic functions cannot be reduced to the brain, and in the cognitive domain this is considered to give psychology its autonomy from the neurosciences. Autonomy in psychology is often presented in terms of the computer metaphor: if humans were computers, psychologists would not concern themselves with the hardware, but would study the programs (software). The analogy is interesting because programs are realized in hardware, but otherwise they exist only as abstractions. In a similar vein, mental matters have neural correlates, but otherwise minds do not appear to the scientist in a concrete form (they are not visible from “the third-person point of view”).

The idea of function implies that there are several levels of explanation. This is intuitively clear: when the aim is to explain earthquakes it makes no sense to study grains of sand; the heart can be studied in terms of its tissue valves or muscle fibres, but it is often reasonable to study it in terms of its function (beating and pumping blood) and so on. Thus, the issue of whether a certain explanation is good or bad in a certain situation depends on whether it is true or not, and also on whether it is on the appropriate level. Its plausibility depends on one's interests – as Bem (2001, 785) states, “...much depends on what, precisely, we want to know: are we interested in psychological questions about events at the neurological, physiological level; or in psychological questions about meaningful actions in intersubjective contexts?” The issue of levels of explanation is addressed in **Study IV** through the common example concerning why the giraffe has a long neck.

Thus, all interests in competencies (of chess-players, for example) is not satisfied through the explanations of neurophysiology. In **Study IV** we aimed to show that the case is similar with “oddities”. Researchers of neuropsychanalysis have not argued the opposite. However, there is an intense hope that the problems of psychoanalysis could be resolved through determining neural counterparts for metapsychological ideas.

We also argued that the hopes put in neuroscience are partly without foundation. The main reason for this is that psychoanalysts – clinicians, and theoreticians advocating the metapsychological perspective – are interested in functions in particular (Manson 2003). Conscious states encompass neural correlates, but their possible *repressive functions* cannot be found in the brain.

The psychological level of explanation can be put another way, too. We can easily offer a neurophysiological explanation for raising one's hand, but the issue becomes complicated if the context were an election, and the person raised her hand in order to vote X. In order to give her vote, she could have as well raised her left hand or her walking stick, or have shouted “My hands have suddenly become paralyzed, but I want to give my vote to X”. Thus, in terms of voting X, the raising of the right hand is as such, an irrelevant matter. We could say that when we consider the raising of the hand in the context of an election, we are not interested in the movement as such, only in the *meaning* (or function) of it. Juarrero (1999, 1) makes a distinction between movements of the body and the meanings associated with them by asking, “What makes the difference between wink and blink?”.

Intuitively, the psychological level consists of humans' intentional states and propositional attitudes. The philosophical wing of functionalism (see Putnam 1967) gives this legitimation: intentional states are functional states of the brain. When we

study meanings, the issue of psychological explanation becomes more complicated, however.

For a long time it was thought that meanings depended only on one's mind – the meaning of a sentence or an act could be determined by simply asking about the subject. However, Saul Kripke's and Hilary Putnam's writings at the end of 1960s changed the prevailing view. Putnam's view – called "externalism" about meanings – appeared in the slogan "meanings ain't in the head", the word play "meaning of meaning", and was based on a complicated philosophical thought experiment concerning Twin Earth ("Let us imagine that there is Earth, in which the chemical composition of water is H₂O, and a Twin Earth, in which it is XYZ..."). To put it very briefly, the idea behind "meanings ain't in the head" is the following: raising my hand means, in a certain social context (an election), "voting for X", whether or not I mean that. To be exact, we should say that only *part of the meaning* is in one's head – the other part is in the external context. (Devitt. 1990; Juarrero 1999, 196-198; Lau 2004)

In general – regardless of whether we talk about words, sentences, contents of consciousness, representation, or acts – meanings depend on one's intentions and the social context, and also on the surrounding words and sentences (Block 1997, Lau 2004). This means simply that a word, for example, possesses different meanings in different sentences.

All this has strong implications as far as the current topic is concerned: if the meanings of ideas, words, and so on depend on other ideas, words, and so on, and also on the social context (they are not just "in the head"), *it is not possible to find neural correlates for them*. It is worth noting that the complexity involved in the term "meaning" also implies that the psychoanalytic presupposition (advocated by Brakel, for instance, in her commentary on **Study I**) that the unconscious contains meanings is extremely problematic.

Researchers (e.g. Peressini 1997, Bem 2001, Looren de Jong 2003) anchor the psychological level of explanation in functions and in the notion that the meanings of acts depend on the context(s), and because of that psychology has a lot to add to neurophysiological explanations. As Bem (2001, 791) states, "...in most cases – e.g. 'Why did the Serbians fight the Kosovars?' – it would even be absurd (and not only irrelevant) to search for neurological causal chains, for historians, politicians, judges and so on, as well as people in the world of common communicative rationality, are curious about the contents of people's beliefs, people's reasons for their actions, which refer to situations in the world, and not curious about their brains in the first place."

The terms “narrow” and “broad” assume a central role in the discussion surrounding the meanings and contents of consciousness. When “meaning” just means something that is in one’s head and possesses a neural correlate in the brain (remember the slogan “no mental difference without physical difference”), it is referred to as “narrow content” or “narrow meaning”. Consequently, when the focus broadens to incorporate aspects of meanings related to the external context, the word “wide” is used. (Devitt. 1990, Peressini 1997, Bem 2001)

Thus, psychological study may be practiced in narrower or wider contexts. When we seek neural correlates, the context must be very narrow: there is the subject’s behavior, perhaps verbal reports on her/his states of consciousness, and modern equipment scanning the activity of the brain. When it is a question of laboratory research, it is also possible to take contextual factors into account to some extent. For example, it would be possible study a psychotic person’s brain when he or she is not in possession of any psychotic ideas (acting in a “real” social context), and when he or she is thinking of voting in an election but not doing so (an imagined context). In the domain of psychoanalysis, neuropsychanalytic endeavor has focused on neural correlates of different matters, and has thus made its context rather narrow.

The research context may be “wide” in many ways. For one thing, one could study how *social context* affects behavior – what impact economic depression has on people’s behavior, for example. Secondly, the interest may be in the subject’s entire range of beliefs, desires and memories: one could study the decision to vote X in relation to the subject’s political and moral commitments (relating the decision to the fact that X is a member of certain party, that Y has divorced lately, what the subject thinks of marriage and divorce in general, and so on). We could call this the *intrapsychic context*, and this kind of interest in the dynamics and interrelations of ideas characterizes the psychoanalytic approach. In the psychoanalytic parlance, the intrapsychic context is studied in terms of *psychodynamics*.

Thirdly, the researcher may wish to study the desire to vote X from the perspective of the personal life-history: when does a person make the decision to vote for the person or the party? The desire or decision to vote has a neural correlate(s), and that correlate possesses history, too. Peressini (1997) holds that behavior in general supervenes (this concept is addressed in the next section) not only neurophysiological matters, but also historical facts. Thus, voting for X supervenes the kind of historical fact one assimilated in one’s youth that “Party A knows best what is good for our nation”. In the scope of psychoanalysis, the term *genetic aspect* (of psychoanalytic thinking) refers to the *historical context*.

Narrow and wide contexts should be seen as a continuum: on the one end there is objective, ecologically non-valid laboratory study, and on the other end is qualitative study, the results of which remain in the air. When the context of the subject matter (a competence, a psychic disorder, a behavioral disposition, and so on) is broadened, the search for neural correlates becomes more complicated.

If we consider psychoanalysts' work or any kind of psychoanalytic interpretation, we find that psychoanalytic practice occurs in a wide context, and that psychoanalysts study analysands' ideas in many contexts. It is common knowledge that psychoanalysts seek the origins of psychic troubles in childhood, i.e. They study them in the historical context. Their interpretations refer to the past, and also to the conflicts between the analysand's ideas thereby giving the intrapsychic context. The third context is the external, social one: if one acted out a desire or a fear, what would the consequences be, or how would it be interpreted by others? The possible consequences are manifold: someone may become angry, someone else may become happy, and the subject him/herself may be in trouble, or avoid a difficult situation. Repression of one's wishes often appears as ignorance about the meaning that one's words and acts possess in the external context. The sentence "I did not mean to hurt her" is an example of that, and the significant secondary benefit attached to disorders hints in that direction, too.

This study began with an ontological question concerning the unconscious mind, and has been engulfed by the Cartesian mind-body problem. If we change the perspective and ask how we should explain human behavior – both competences and "oddities" – the issue appears in a new light. Such a perspective seems to pass over the philosophical problems concerning the essence of the mind and its relation to the brain – it is the *questions*, or both public and scientific *interest*, that determine the (level of) explanation, not philosophers' problems. This leads to the question of what psychoanalytical interests does the term repressed mental contents serve – a question that gave rise to the ideas put forward in **Study V**.

3.6. STUDY V: THE MENTAL UNCONSCIOUS AS AN (SUPERVENIENT) ABSTRACTION

The relatively straightforward matters we began with – the relation between the cognitive and the psychoanalytic unconscious, and the psychoanalytic idea of the

unconscious as a mental entity – have turned into complex issues to do with the essence of consciousness and narratives as cognitive tools, the interface problem, levels of explanation, and narrow and wide contexts. In **Study V** (*Biting the bullet: on the nature of unconscious fantasies*) we condensed these theoretical questions into a practical conundrum: unconscious fantasies do not exist, but psychoanalysts have found it clinically useful to think in terms of them.

Supervenience and the interface problem provided the framework for **Study V**, although the terms are not mentioned. First, we once again explained the problems with the three-sphere view, and argued that matters such as unconscious fantasies do not exist. We then considered the paradox of the non-existence and clinical usefulness of unconscious fantasies.

The “Kandelian truism” mentioned previously is occasionally expressed in the slogan, “No mental differences without physical differences”: in other words, when something happens in the mind (feeling, association...), there is always a counterpart in the brain. This idea is generally accepted (in the domain of psychotherapy, see Cozolino 2002), because disagreeing with it would mean advocating dualism – if there were no neurophysiological correlates for mental states, the mind would be an entity outside the material realm.

The slogan represents the more general idea of “supervenience”, and thus also refers to different levels of explanation: below the ideas of the special sciences there are always laws of basic sciences of physics and chemistry. Social-science concepts (“modernism”, for example) can be reduced, and thus supervene on certain psychological facts (prevalent personal attitudes and values), which supervene on neurophysiological facts (neural networks of people’s brains, on which the attitudes are implemented), which again supervene on certain laws of physics and chemistry (properties of serotonin, for example).

According to what Gold and Stoljar (1999) call “a radical neural doctrine”, mental matters are just neural states, and thus pain, for example, is nothing but a neurophysiological state. To put it another way, *mental matters can be completely reduced to physical matters*, for “Minds are simply what brains do” (Minsky 1997). In the current context such reductionism could mean that, because the unconscious is just the brain, we should aim to replace the mentalistic terminology of psychoanalysis by the neurophysiological and computational language of cognitive science.

There are many ways of articulating the relation between the special sciences and the natural sciences, however. Matters studied in the scope of psychology, for example, could be called *emergent properties* of material reality. In the view of some

philosophers, the mind is an *aspect* of matter, and it is also often said that mental matters are *realized* by the brain. Thus, supervenience as such does not solve the mind-body problem, it merely expresses it. (Kim 1998, 4-27)

We suggested in **Study V** that it makes no sense to talk about neurophysiological matters in psychotherapy, and that when thinking in terms of unconscious fantasies, psychoanalysts *abstract the functioning and structures of the brain*. To put in another way, we could say that unconscious fantasies *supervene on neurophysiological matters*. If our claim holds, there are appropriate grounds for supporting the idea of unconscious fantasy. But does it?

This is a difficult question because there are no strict rules on when it is plausible to say that “A supervenes on B”, and no empirical tools to determine that (Kim 1998). Do we know (for sure) that “schemata” supervene on certain neurophysiological matters? In any case, as we suggest in **Study V**, it is certain (verbal and other) acts of an analysand that lead the psychoanalyst to think in terms of an unconscious idea and/or fantasy, and behind those acts there is activity in certain neural networks. Behind repressed fear, for example, are the neural structures and processes that interest Joseph LeDoux (1998), among others. LeDoux considers his thinking to be close to Freud’s ideas on conscious, preconscious and unconscious levels of the mind, but adds, “However, Freud’s terms carry much of theoretical luggage that I want to leave behind.” (LeDoux 2002, 29) That “luggage” seems to be useful to clinicians, but it should be anchored in LeDoux’s and his colleagues’ findings with the help of the term supervenience.

The acts of an analysand that support the analyst’s idea of unconscious fantasy are manifold, and so are the neural processes and the structures behind them. Thus, the neural matters on which “an unconscious fantasy” supervenes cannot be pinpointed in the brain – it is both spatially and temporally (i.e. Peressini’s [1997] idea that mental matters supervene on historical facts, too) distributed. This renders talk about supervenience rather abstract here. We could even say that, in general, such talk just expresses one’s loyalty to the slogan, “No mental differences without physical differences” – as mentioned above, behind supervenience there may lie eliminative materialism, dual-aspect theory as well as emergent materialism. However, if (neuro)psychoanalysis abandoned the three-sphere view and accepted the idea that repressed contents supervened on neurophysiological matters, the fundamental disagreement with cognitive thinking would be resolved.

It is through these lines of thought on supervenience that we might understand how the terms “unconscious fantasy” and “repressed content” could *explain* the acts of an analysand, and if we think of them in terms of contexts of meanings, we might

understand why and how they may *serve as a tool* for the analyst.

In terms of the two-sphere view, we are able to “detect” properties of events without being conscious of it, and implicit knowledge systems of the brain give rise to slips, jokes, associations and psychic disorders. These processes occur in the realm of neurophysiology, which merely possesses biological (as-if) intentionality and lacks meanings. If we look more closely (in the psychoanalytic cure) at what the neural unconscious gives rise to, and verbalize our ideas and associations, neurophysiological matters become accompanied by meanings. Thus, we could think of becoming conscious of the repressed in terms of *transforming biological matters into mental, intentional and meaningful ones* – turning bodily reactions and movements (such as “winks” and the raising of the hand) into acts accompanied by meanings and (original) intentionality (“blinks”, “voting for X”). The analyst’s task is to support such “mentalization of the brain” (cf. Fonagy & Target 1998). There is no other way to this than thinking of the neural unconscious in terms of intentional and meaningful entities such as (repressed) beliefs, desires, and even fantasies.

If we consider the concepts psychotherapists use from a more general perspective, we might say that there are three things that legitimate a concept.

- 1) A concept captures a certain aspect of a patient’s (verbal) behavior in an appropriate way.

Given the “Kandelian truism” that there is always a neural counterpart for a behavioral or mental matter, if 1) is true, then

- 2) The concept is an abstraction of certain neural matters, it supervenes on them.

Because psychotherapeutic thinking occurs in a “wide” context, the relation between the concept and these neural matters is far from one-to-one correspondence – the word “abstraction” has to be emphasized here.

- 3) The concept is useful in therapists’ work.

On these grounds we might state that *if* the concept of repressed content (and “unconscious fantasy”) is of use in clinical practice, the only problem is that psychoanalysts have been used to thinking that unconscious ideas exist similarly as

conscious do.

4. DISCUSSION

4.1. ON THE PRESENT-DAY CONTEXT OF THE PSYCHOANALYTIC ENDEAVOUR

We began with the notion that attitudes toward psychoanalysis are often simplistic, polarizing and personifying. In such a context this study may appear to be – depending on one’s position – either an attack on psychoanalysis and Freudianism, or a last desperate attempt to save them. In any case, it seems that Freud was clearly misled on a certain ontological issue: there are no such things as repressed mental contents, and thus the three-sphere view is erroneous. On this basis, the simplistic question, “Is Freud dead?” should be given the simple and self-evident answer, “Yes”.

Although several major topics – the effectiveness of the psychoanalytic cure, its curative elements, details of neurophysiology – remain beyond the scope of this study, the preceding pages have covered a wide range of issues: philosophical and historical studies on the mind; the grounds of psychoanalysis and the cognitive orientation; relations between the brain, consciousness and language; the characteristics of psychological explanation. At least, it should be clear that the confusion surrounding the relation between the psychoanalytic and the cognitive unconscious should be studied otherwise than in a simplistic frame.

This is a pharisaic statement because psychoanalysis is a battleground. From the beginning there have been serious controversies within the psychoanalytic movement: relations between different psychoanalytic and their central figures have often been hostile, and a geographical gap between European and American psychoanalysis has also opened. In a wider context, critiques presented by Hans Eysenck, Karl Popper and Adolf Grünbaum are the core writings in the battle between critics and advocates of psychoanalysis, supported by the work of many others from Jeffrey Masson to Alice Miller. Thus, the reputation of psychoanalysis in the academic world is bad. Many dismiss empirical claims as mainly erroneous and – perhaps more seriously – the psychoanalytic way of theorizing as fundamentally flawed: psychoanalytic thinking is circular and confused, and the ideas can be neither falsified nor verified. Above and beyond these disagreements is the question of whether psychoanalysis falls into the domain of natural science or humanities (hermeneutics).

It is not reasonable to go into more detail on these psychoanalytic wars here (D.

L. Smith [2003b], one of the commentators on **Study I**, has written an introduction to them). However, it is worth noting that behind them lie more general issues concerning the different levels or kinds of psychological explanation referred to in section 3.5. above. Regardless of the flaws in psychoanalytic thinking, psychoanalysis promotes unquestionably important and relevant interest in the human mind, brain and behavior, which is not been shared by proponents of the more fashionable theories and trends of study of the late 20th century. To the extent that the psychoanalytic way to realization is flawed and out of date, we should try to devise the way of promoting psychoanalytic interests in the current circumstances.

However, the question of who should raise such issues and where is problematic. On the one hand, psychoanalysis is a psychological theory that also generates a plethora of questions in the domains of neuroscience, cultural studies and the philosophy of the mind, but its reputation in the academic world has collapsed since the 1960s. Nowadays it is difficult to find researchers from universities who are interested in “updating” psychoanalytic ideas, and to find “psychoanalytic” articles in scientific journals (apart from those devoted to psychoanalysis).

On the other hand, psychoanalysis is psychotherapeutic practice. Like other psychotherapists, psychoanalysts and psychodynamic psychotherapists are trained in psychotherapy institutes, and connections between universities and these institutes are weak or non-existent. Finnish psychoanalysts and researchers on mismatch negativity (in the Department of Psychology at the University of Helsinki), for example, do not collaborate. Perhaps they do not even know (or care) that they are studying the same phenomena from the perspectives of two different traditions of research. Psychoanalytic interests are (mainly) restricted to clinical practice and psychoanalytic institutes.

Psychoanalytic journals are still published, and they should be considered scientific. They are directed to a psychoanalytic audience, i.e. to clinicians. In order to satisfy consumers, the numbers must feature studies that are clinically relevant: authors submitting a theoretical paper are quickly reminded by referees and editors that they should show how their ideas can be applied in clinical practice. Thus, these journals do not pull psychoanalysis toward the academic world, but rather push it away.

All in all, it is very difficult to find room and institutional support for the scientific study of psychoanalysis. Thus, turning simplistic discussion on psychoanalytic ideas into fruitful research results is a rather difficult project. However, Otto Kernberg (1998, 203-237) and the Society of Neuro-Psychoanalysis, for example, stress the need to make intensive efforts to re-build the connections with

universities and the scientific community: in the future, psychoanalytical issues should be studied in a genuinely interdisciplinary spirit.

It was claimed above that “...psychoanalysis promotes unquestionably important and relevant interest in the human mind, brain and behavior...”, and different levels of psychological explanation were hinted at. Some suggestions are made below concerning the project for the “re-scientification” of psychoanalysis. The matters studied represent the psychoanalytic *interest* or *point of view*, and must not be confused with the problems connected with psychoanalytic *claims*, *methods of study* and *theorizing*. The focus should shift from the problems of psychoanalysis to the question of how its (plausible and important) interests should be conceptualized in the current state of scientific affairs.

4.2. THE CHARACTERISTICS OF THE PSYCHOANALYTIC INTEREST

4.2.1. A HISTORICAL PERSPECTIVE ON THE MIND, THE BRAIN AND BEHAVIOR IN THE OF IDIOGRAPHIC CONTEXT

If people know one thing about psychoanalysis, it is often the fact that it involves tracing present-day matters back to one’s childhood: current problems are due to the traumatic experiences of childhood or unresolved oedipal conflict. There are specific claims that have to be disputed – conceptualizing historical conditions in terms of phases of psycho-sexual development, for example. In general, however, scientists do not disagree with the relevance of historical interest: events and experiences shape the brain, and changes in the brain affect one’s later behavior and phenomenal reality.

As stated in section 3.3., both psychoanalysis, the laboratory study of implicit knowledge and evolutionary psychology are historical subjects – the core issue being the *length of the perspective*. The short temporal perspective of empirical research does not arise from what is interesting and what is not – researchers are not short-sighted people with a passion toward short term. The problem is a practical one: it is easier and more economical to put forward studies on that basis.

The temporal perspectives in psychoanalysts’ minds are years and decades. It is difficult to reflect that perspective in empirical research, and it is not possible to control or even to determine all the intervening variables. It is thus obvious that

within the long temporal perspective knowledge of how A affects B is, and is doomed to remain, “more speculative”.

In the realm of cognitive science it is interesting to be able create a historical story behind cognitive competencies: at what age children learn to master abstract thinking, and how the development of the brain makes that possible, for example. Handbooks tell us that the cognitive orientation concerns humans’ *general* cognitive competencies, which is a basic premise that could not interest a practising psychotherapist less. For one thing, people see psychotherapists for reasons connected with psychic defects, not competencies (although such defects could often be seen as an inability to fully utilize one’s competencies). Secondly, how things are generally, or according to statistics and averages, is irrelevant to a psychotherapist. His/her task is to try to help a certain individual, and to find out how his or her problems could be overcome.

Behind disorders and symptoms such as panic attacks and depression are several possible reasons, and each person fosters a unique composition of actual reasons. Thus, while the interest in evolutionary psychology and the cognitive orientation is in histories of *man(kind)*, psychoanalysts work with the *personal* histories of their clients. They are simply outside the interest of cognitivists (patients with brain injuries are an exception because the clinical cases may shed light on general issues). Here psychoanalysis operates outside the domain of the cognitive orientation. Thus, we should think that clinical practice falls outside the realm of science, or that psychoanalytic methodology is closer to that of history or hermeneutics than laboratory research.

All in all, although empirical research neglects the long temporal perspective, it is legitimate, relevant and important to study things within that scope. Nevertheless, when psychoanalysis and the cognitive orientation meet, differences in temporal perspectives often lead to unfair criticism of psychoanalytic ideas for being just “interesting speculation”.

Childhood experiences certainly shape the personality and affect later behavior to a large extent, but the problem remains of how to combine more or less speculative ideas with the results of empirical study. The challenge seems to be to keep the long temporal perspective in the arena without conveying a non-scientific image. Daniel Stern’s (1985) writings and studies on attachment theory, for example, are extremely important in this respect: such studies help us to restrict the territory of speculation, and create a more solid basis for what remains.

4.2.2. REPRESSIVE FUNCTIONS AS A CHARACTERISTIC OF PSYCHOANALYTIC THINKING

The function of defence mechanisms – what they make happen – is to keep “dangerous” ideas outside consciousness. Were the idea of repressive functions (of conscious states and information processing procedures) taken away from psychoanalytic thinking, what remained would lack the characteristics of psychoanalysis. Clinical psychoanalysis would then focus on cathartic experiences, support, and psychoeducation, and there would be no interpretations or resistance.

As noted above, the crucial point about functions is that by referring to them a psychologist can tell a story that adds something relevant to the neuroscientist’s story. This, combined with ideas on the repressive functions of disorders and conscious states, gives psychoanalysts a perspective on the mind/brain that neuroscientists cannot access. Thus, as long as repressive functions enjoy a central role in clinical psychoanalysis – in other words as long as there is psychoanalytic psychotherapy – there will be a domain that is closed to neuroscience and neuropsychology.

The essence of psychoanalysis is often described in terms of the philosophical notion of the mental unconscious (the “cornerstone of psychoanalysis”), or through certain empirical claims such as those concerning psychosexual development. The grounds for the former were questioned in this work, and one might wonder why psychoanalysis should lean on certain particular empirical claims. Its essence should rather be captured through the idea of repressive functions, because then the characteristics of the psychoanalytic *perspective* would be visible.

4.2.3. PSYCHOANALYSIS AS THE STUDY OF COMPLEXITY

The idea of function implies that a psychical or physiological property is part of a system consisting of several properties or functions: long necks have their functions because there are stomachs responsible for digestion, hearts circulating blood and so on; the short-term memory has a function only because there are functions of learning and motivation, and so on. The world is full of systems, and researchers have to make a choice between two alternative research strategies.

Lazlo and Lazlo (1997) call the strategy used in laboratory research “reduction to components”, according to which strategy research is restricted to one component of a system, and thus the object of study is either the heart or the neck, a certain memory system or a certain form of learning. Through this strategy it is possible to gather exact knowledge on the components of a system. However, the whole picture remains confused – reduction to components does not tell us a lot about complex

interrelations between learning, different memory systems, motivation, emotions, coping strategies, and so on. Lazlo and Lazlo (1997) call the strategy focusing on these interrelations “reduction to dynamics”, a systemic approach that neglects the details of memory systems, for example, and in which psychic functions are studied at a low level of resolution. The research interest here is in the big picture, the complicated dynamics of a system.

There is no doubt which strategy is applicable to the clinical practice of psychoanalysis: it is the systems that are under scrutiny. Consider the whole of the analysand’s propositional attitudes – his/her beliefs, desires and fears. Each one is determined through, and is dependent on, other attitudes: what one fears depends on what one believes to be true and what one thinks is desirable. Thus the psychoanalyst is able to think about propositional attitudes in terms of their possible repressive functions.

The reduction-to-dynamics strategy is becoming increasingly popular in domains from meteorology to the social sciences and neurophysiology in several guises: the study of complexity, non-linear dynamics, self-organizing systems, chaos theory, and systems theory (for references, see **Study IV**). It is clear that psychoanalysts, too, deal with complex dynamics. However, this fact is commonly acknowledged neither outside nor inside the scope of psychoanalysis. For example, computer simulations are used as a tool of study as part of the reduction-to-dynamics strategy, but this is alien to students of psychoanalysis. Perhaps the claim that psychoanalytic thinking is (too) speculative is more often than not related to ignorance of the two research strategies introduced above.

Thus, in this context the re-scientification of psychoanalysis should imply, first, that the nature of the phenomena studied should be made clear – one cannot blame psychoanalysis if there are complex dynamics behind certain phenomena. Secondly, we should develop more sophisticated views on how the results of reduction-to-components study – those of genetics, for instance – may support or contradict the ideas that have emerged in the scope of psychoanalysis.

4.2.4. A PRACTICAL PERSPECTIVE ON THE MIND, THE BRAIN AND BEHAVIOR

People advocating psychoanalytic ideas are mostly clinicians and practising professionals, whereas cognitive models are (usually) developed by academic researchers, who do not need them in order to do something (practical). As a matter of fact, this difference is not only characteristic of the relation between psychoanalysis and the cognitive orientation: in general there is a (more or less wide)

split between academic psychology and different kinds of practise – occupational psychology, psychotherapy from different traditions, and different kinds of consultancy and supervision.

In the present-day academic world the criterion for the plausibility of a theory is empirical verification. The practising psychologist earns his or her salary by promoting change in the worlds of their clients. For them, the criterion for the plausibility of a theory is usefulness – “The point is not merely to understand the world, but to change it”.

There is yet another difference between academic and non-academic psychology: many researchers attempt to create *causal explanations*, whereas the practicing psychologist needs to find *reasons* for certain states of things, and to *make sense* of them. Thus, when we find that certain psychoanalytic ideas are erroneous from the perspective of academic psychology, is that news? If we consider how “scientific” is the thinking of non-academic psychologists in general, psychoanalytically oriented psychologists do not necessarily pop out. Thus, when psychoanalysis is criticized for its “speculations” and claims not supported by present-day study, we should ask to what extent such criticism is reflection on psychoanalysis, and to what extent it reflects the gap between academic psychology and practicing psychologists.

CONCLUSION

There is a discrepancy in interest between psychoanalysis and the cognitive orientation: the former ignores certain fundamental psychological issues such as learning, and it is only recently that the latter has had anything to say about emotions, dreams and art, for example. This discrepancy is also evident in the study of the unconscious. There is a difference in the object of study (“oddities” vs. competencies), but it is difficult to see how this could justify the difference in approach to the essence of the unconscious.

The conclusion drawn from this study is that the conventional psychoanalytic conceptualization of the mind/brain (“the three-sphere view”) is a persistent throwback to Freud’s era, and cannot be justified in the light of present-day study. It seems that the essence of the unconscious is not studied critically within the scope of psychoanalysis *because* it is the cornerstone: there has been an unwillingness to question it (as we did in **Study I**), presumably to avoid the challenge of re-building the rationale behind the psychoanalytic cure (**studies II-V**).

Thus, at least in the academic context, the “oddities” caused by the unconscious

should also be analyzed in terms of the “two-sphere view” of the cognitive orientation: the unconscious should not be considered mental, it is just the brain (perhaps we should also cease to talk about *the* unconscious). One could, of course, define “mental” in an idiosyncratic way and thus give legitimation to talk about the mental unconscious. It is difficult to see what would be gained with that, however.

Perhaps the most serious consequence of the isolation of psychoanalysis is that its unique and entirely plausible characteristics of psychoanalysis (Chapter 4.2.) have not been made clear in response to the criticism that has emerged from the outside. Conflict over the correctness of empirical claims has overshadowed the fact that the human mind/brain and behavior can and should also be studied 1) from a long temporal perspective, 2) with an interest in idiosyncratic explanation, 3) applying a reduction-to-dynamics strategy, and 4) focusing on repressive functions. The core issue should not be how psychoanalytic endeavour has succeeded during the past century, but how we should proceed in terms of those four perspectives. Now, at the beginning of its second century, psychoanalysis is facing challenges in terms of both practical and scientific plausibility. It remains to be seen if that will lead to annihilation, even more strict isolation, development, or assimilation.

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