Psychoanalytische Perspectieven, 2010, 28, 3-4: 271-308

CONVERSATIONS WITH HOWARD SHEVRIN
III
Ghent, December 1st, 2005

Ariane Bazan

Faculté des Sciences Psychologiques et de l'Éducation
Université Libre de Bruxelles (ULB)
Avenue Roosevelt, 50-CP 122, B-1050 Bruxelles
Tel.: ++/32/(0)2.650.67.63, Ariane.Bazan@ulb.ac.be

Summary: Howard Shevrin's interest in neuroscience was first methodological: it provided independent evidence on what goes on unconsciously. The foundation of the mind needs not to be entirely neurophysiological: it is possible to describe the mechanisms in psychological terms. However, we aren't anywhere near a unified theory of the brain and mind. When one goes into analysis, the theory is no longer simply about ideas, one's life almost hangs in the balance. There is an enormous disparity between the neuroscientist publishing his findings and the analyst who is treating patients, but not publishing. If neuro-psychoanalysis is only going to rely on the neuroscience part, it's really not going to achieve its important objective. People into psychoanalysis should be trained in "the basic science of psychoanalysis", which should not be limited to neuroscience, but should include a really important training in psychology, sociology, etc.

Key words: Shevrin, Psychoanalysis, Neuroscience, Neuro-Psychoanalysis, Mind.

Received: January 12th, 2010; ***Accepted***: December 22nd, 2010.

Neuro-psychoanalysis

A.B.: This is the third part of an interview.[1] The first conversation was about your life and your career[2], and the second part was about your ideas on psychoanalysis[3], this third part will be on neuro-

1. This third part of the interview was conducted in public at the Department of Psychoanalysis of the Faculty of Psychology at the University of Ghent, Belgium, on the invitation of Prof. Filip Geerardyn.
2. See p. 229-246.
3. See p. 247-269.

psychoanalysis. You have been doing experimental research in psychoanalysis since the late fifties. Do you have the feeling that it was a kind of "neuro-psychoanalysis" *avant la lettre* and how comes you were actually driven to do this experimental research?

H.S.: First let me thank you very much for inviting me, it is very relaxing to sit back here and answer questions, I hope my responses will be informative for you… For me the recourse to what nowadays is called neuroscience – it wasn't called neuroscience back then – was entirely methodological. It did not start with a special interest in understanding how the brain works. I rather looked upon electrophysiology as a means for providing another avenue for detecting what goes on unconsciously – an avenue that was very different of a purely psychological or a psychoanalytical approach. Insofar as it was different and independent of it, it provided another sort of evidence – I will call it a triangulation – on what goes on when something is being dealt with unconsciously. So my original interest in what has since become neuroscience, was more methodological. Of course I wasn't all together disinterested in the brain. This led me to electrophysiology at a time when it was very new. The discovery that there was electrical activity in the brain and the measurement of it in the so-called electro-encephalogram or EEG goes back to the twenties. Back then the EEG was used for diagnostic purposes for various kinds of disorders: epilepsy etc. The EEG is simply a running record of electrical activity in different parts of the brain, but it doesn't tell you about how the brain is responding to a particular stimulus. It was an English investigator who presented very simple stimuli, flashes of light, and he then literally took a picture, a photograph of a segment of the EEG several seconds after this flash of light was presented. And then he simply superimposed each of those segments of the EEG, coming from forty, fifty repetitions of the flash of light. When he superimposed the segments of the EEG on each other, lo and behold he found that there was a uniformity: in some places the curves coincided, in other places they were random and so they cancelled each other out and he then had emerging in front of his eyes an identifiable curve with certain kinds of properties. And that was the beginning of the event-related potential or ERP. Since then it is done in a far more elegant way, but basically that is the idea. The earliest work was done on attention and then a "research-industry" developed around the so-called P300. The nomenclature is very simple: P means that it is positive and N means that it is negative, and the number tells you the time that elapsed since the stimulus was delivered. So P300

means that there is a big curve that's going in a positive voltage direction, and it happens about 300 milliseconds after the stimulus has been delivered. And so I found this ERP very useful to see what would happen if I did present a stimulus at a thousandth of a second: would the ERP be sensitive enough to pick up regular differences? One needs at least thirty, forty repetitions of the same stimulus in order to find something that is large enough to know, because there is good deal of variability from response to response in the brain, which is another story. Anyway, my entry in what has since become neuro-science and neuro-psychoanalysis was methodological, taking advantage of a method, that had just emerged, and I really jumped at it, because I thought it provided me with that opportunity. That's the beginning of the story.

A.B.: So you had been doing this research with these ERPs all along and at one time for the first time you come to hear of this term of neuro-psychoanalysis…

H.S.: That was many years later. One day I find a letter in the mail from Mark Solms and he invites me to join the board for a new journal *Neuro-psychoanalysis*. I was very excited about that… Especially when I discovered that there were going to be two boards. That's very rare for a journal. One board was of analysts and the other were neuroscientists. And the people of both boards were people of some note, so I was very impressed and flattered that I was asked to join the actual psychoanalysis side of it. And then we started to meet once a year. I attended, made some presentations. I believe I first saw the three of you[4] at the meeting in New York.[5] So the way I found out about that I was really a neuro-psychoanalyst all these years, is much like in Molière's *The Bourgeois gentilhomme* (the one about the man, the Bourgeois, who is being deceived and is given lessons in how to talk). He is informed he really speaks prose and he was very impressed with the fact, that all his life he had been speaking prose. He felt like it was a real accomplishment. And that was sort of my feeling when I discovered: "Oh you're a neuro-psychoanalyst, and you have been doing neuro-psychoanalysis all these years, marvelous." So that was my prose.

A.B.: How would you define neuro-psychoanalysis, what is neuro-psychoanalysis to you?

4. Filip Geerardyn, Gertrudis Van de Vijver, Ariane Bazan.
5. The Unconscious: Fourth International Neuro-psychoanalysis Congress on The Unconscious in Cognitive Neuroscience and Psychoanalysis held in New York on 25-28 July 2003.

H.S.: Well, I think, first it is an effort to bridge over psychoanalysis and the neurosciences to put it simply – and to take advantage of the methodologies of the neurosciences, as I try to do in my way. So it is a pioneering venture – and perhaps even adventure – to see how people from these different disciplines meet, share ideas, to see in what ways their interest might converge and to have a forum where people could present their work and their ideas, which is probably the most important part of it. Now, to me there have been two – possibly three – people whom I've learned a great deal from in terms of my thinking and research. Leaving Freud aside, the two people were David Rapaport[6] and Benjamin Rubinstein.[7] I think Rubinstein is actually a very important figure. He was trained as a philosopher and his papers were collected by Robert Holt[8] (Rubinstein, 1997). They are not easy reading, one has to study them. There was an interesting difference between Rapaport and Rubinstein with respect to neurophysiology. Rapaport was of the opinion that in order to provide a basic science of psychoanalysis, the methodologies could be either psychological or neurophysiological. On the other hand, Rubinstein made a very strong case in a number of his papers that the only way you can provide a firm scientific foundation for psychoanalytic propositions was to ground it in neurophysiology. So you might say from a theoretical standpoint he was the first neuro-psychoanalyst. I think we should have a bust of him somewhere, because it was his point of view that neuro-psychoanalysis has taken on. I am closer in this view to Rapaport: I don't think that the foundation needs to be entirely neurophysiological. There are perfectly legitimate psychological methods that can perform some of the same methodological and theoretical function. Now, someone like Jaak Panksepp, more than anyone else, has beaten neuroscientists on the head, so they would start thinking, not only of cognition, but of affect as well.[9] He wrote

6. See note 2, p. 219.
7. See note 3, p. 220.
8. Robert Holt, professor of Psychology Emeritus at New York University.
9. Jaak Panksepp (°1943) is a psychologist, a psychobiologist, a neuroscientist at Washington State University's College of Veterinary Medicine, and Emeritus Professor of the Department of Psychology at Bowling Green State University. Panksepp coined the term "affective neuroscience", the name for the field that studies the neural mechanisms of emotion. He is known in the popular press for his research on laughter in non-human animals, such as rats. He has conducted research on brain opioids and attachment and has identified the way in which the hormone, oxytocin, plays an important role in maternal caring and in affiliative behavior. He has been a strong and vocal advocate among neuroscientists for the importance of affect and has written the definitive text in the field called eponymously *Affective Neuroscience* (Panksepp, 1998). Along with Solms he has played a key role in developing the new field of

this definitive text on *affective neuroscience* (Panksepp, 1998) and he is, along with Solms, the co-chair of the *International Neuro-psychoanalysis Society*. It's Panksepp's view that neurophysiology is absolutely essential and that it can't be done with other than neurophysiologic methods. There are two things that neurophysiology can accomplish according to Panksepp. One is that it extends the range of neuro-psychoanalysis beyond the boundaries of human beings and allows including animal models and the enormous amount of work neuroscientists do, including Jaak's work, with animal models. Second, it is the only way in his view that will allow us to discover the "mechanisms", which are defined by him as *the mechanisms operative in the brain*, ruling out the possibility that one can actually describe them as psychological mechanisms. *In my view, it is possible to do so, it is possible to describe the mechanisms in psychological terms. That there also may be an instantiation or grounding in the brain, is probably very much the case, but one does not rule out the other.* So there are these different views about the role of neurophysiology in psychoanalysis going back to the earliest pioneers, like Rapaport and Rubinstein. When I say psychological mechanism, you must wonder what I mean…

A.B.: Yes…

H.S.: Well, Rapaport and some of his students – the misfortune was that Rapaport suddenly died of a heart condition when he was fifty – were on the verge of some very interesting work. I've studied this and written some about it. It is not easy and it's not well worked out. That is what I'm trying to do now, to see if I can work it out beyond where it was left.[10] Rapaport worked out a concept of what he called a psychological apparatus of consciousness, which he felt there was a basis for in Freud's metapsychological contributions and in which the concept of attention was central. Of course, attention is a psychological function, and it is extremely important, the relationship between attention and perception for example is critical. Whenever you perceive, attention is involved, whether it is conscious perception or unconscious perception. That is the interesting thing, because what follows from that is that *there is unconscious attention*. And it's only been in the last twenty years that at least some psychologists – and

Neuro-Psychoanalysis devoted to building bridges between psychoanalysis and neuroscience. He is also deeply interested in psychoanalytic theory and its relevance to neuroscience.

10. In the book that Howard Shevrin is writing, see note 17 p. 266.

some very good ones like Posner[11], and also early on Tony Marcel[12] – have come around to the belief that there has to be unconscious attention. This was especially paradoxical because for the longest time the thinking in psychology was that it's attention that defines what becomes conscious. Along comes someone like Rapaport who said "no no, attention can be unconscious." Now let me also mention Daniel Kahneman.[13] He's the second psychologist who has won a Nobel Prize. The first was Sperry for his split brain work.[14] Kahneman won it in 2002 for his work he did with the Israeli psychologist Amos Tversky on how people really think, to put it simply. Not on how we are supposed to think, but on how we *really* think. Kahneman and Tversky discovered a long time ago that when people solve problems, they are not necessarily logical, they are not necessarily rational. At the same time, they are not, in the extreme sense, irrational, by which I mean that they are not making mistakes against logic or because they

11. Michael Posner (°1936) is an eminent researcher in the field of attention. He is currently an emeritus professor of neuroscience at the University of Oregon. Posner studied the role of attention in high-level human tasks such as visual search, reading, and number processing. More recently he investigated the development of attentional networks in infants and young children.

12. Anthony Marcel is a British professor in Psychology and a researcher who has published extensively on consciousness, bodily representation, neglect, blindsight, anosognosia, emotion experience and delusional states. In the 1970s, Marcel performed subliminal priming experiments, based on previous findings that seemed to show that decisions about a stimulus are facilitated when the stimulus follows a related stimulus. In one of Marcel's studies, subjects were asked to identify a letter string as a word or a nonword; it was found that subjects could classify a letter string as a word faster if it was preceded by a "semantically related word." Marcel found that related words primed subsequent word/nonword decisions even when the priming words were "presented under conditions that made it difficult if not impossible for the observers to distinguish when the words were present from when the words were absent."

13. Daniel Kahneman (°1934, Tel Aviv) is the winner of the 2002 Nobel Prize in Economic Sciences. Kahneman decided to major in psychology after a life altering childhood encounter with a German S.S. soldier. He won half of the 2002 Nobel Prize in Economics "for having integrated insights from psychological research into economic science, especially concerning human judgment and decision-making under uncertainty."

14. Roger Sperry (1913-1994) was an American neuropsychologist and neurobiologist who, together with Hubel and Wiesel, won the 1981 Nobel Prize in Medicine for his work with split-brain research. Before Sperry's experiments, some research evidence seemed to indicate that areas of the brain were largely undifferentiated and interchangeable. In his early experiments, Sperry showed that the opposite was true: after early development, circuits of the brain are largely hardwired. In his Nobel-winning work, Sperry tested ten patients who had undergone an operation, involves severing the corpus callosum, with tasks that were known to be dependent on specific hemispheres of the brain and demonstrated that the two halves of the brain may each contain consciousness. In his words, each hemisphere is "indeed a conscious system in its own right, perceiving, thinking, remembering, reasoning, willing, and emoting, all at a characteristically human level, and... both the left and the right hemisphere may be conscious simultaneously in different, even in mutually conflicting, mental experiences that run along in parallel."

don't have enough knowledge but simply because they are thinking in a different way. Not necessarily the better way, but nevertheless it is a way of thinking. And in fact, Kahneman carried this over into economics. That was a very good move on his part, because there is a Nobel Prize for economics and there isn't one for psychology. Most models of human behavior that economists follow, is that we are all rational people, and that we make rational decisions. So, these huge models for how people act as economic beings – how they spend their money, how they make life-decisions about how to spend their money – weren't working out too well, if you assume that everybody is being rational and that the only times they were irrational is when they were making mistakes or didn't know enough about what the situation was. *What Tversky and Kahneman demonstrated is that it is not that way at all: people are just thinking in a different way*. Now, the nature of that difference is very interesting and has not been fully worked out. To show you how these historical things intertwine, Rapaport was at Austin Riggs for a number of years, which was a private psychiatric institution in New England. He would have a young research assistant working with him every summer and it was a prized position, because Rapaport had a rather important reputation. It was Kahneman who was Rapaport's assistant for a summer, and he worked a great deal. He published his first book two years later, a thin little volume called *Attention and Effort* (Kahneman, 1973). The book tells you that Kahneman learned two things from Rapaport. The first I have already mentioned, and that is that there is unconscious attention and that it could be demonstrated. But even more interesting from a psychoanalytical and metapsychological point of view, is that he learned about the importance of what Rapaport – and Freud before him – called "*psychic energy*". Now, when people hear the term "psychic energy", they throw up their arms and legs: "What is this nonsense? Psychic energy, it doesn't exist. It's one of these unfortunate ideas that should be buried." There are a lot of leading psychoanalysts and thinkers who have taken that position like Robert Holt, for example. What Kahneman did in that little book was not to talk about psychic energy, *he gave it another name, he called it effort*. In the field of work psychology effort is an important concept: the nature of it can actually be measured in physical units when you get into such things as people who do actual physical labor. So remarkably enough, this notion of psychic energy, which has been banned from psychoanalysis for about forty years, had an innocent little life over on the side somewhere, which Kahneman in effect used. He married this

lady, Anne Treisman, who is really one of the leading researchers on attention and who believes in unconscious attention, if I am correct.[15] He then went on with work that eventually earned him the Nobel Prize. But there is that interesting link and the notion even of psychic energy has in fact a quiet life in the hinterland of psychology, although it is called by a different name. Now, Kahneman's work is part of a larger undertaking which appeared in a very interesting article in *Behavioral and Brain Sciences*. This is perhaps the best journal in the field on the relationship between behavior and the brain. It has the tradition of having any number of commentators, who are not reluctant to be critical, even to get angry. Then the authors have the opportunity to respond and it's an education in any given field to read the lead article on a particular topic and all of the commentaries and finally the responses. Now there was a whole section in *Behavioral and Brain Sciences* on *The Dual Theory of Thinking* (Stanovich, 2004; Stanovich & West, 2000). What this dual theory came down to, *if you just read it with one eye, it sounded very much like primary and secondary processes*. What Kahneman and Tversky did was in fact one form of that. There were others as well. There is an old former colleague and friend of mine, Seymor Epstein who was at the University of Massachusetts for a long time, who also had done work along these lines.[16] So, what I was more and more struck by is that here in cognitive psychology you have two very interesting and important developments in the last twenty years: one, people are discovering that there is an unconscious and two, they are discovering that there are two different ways of thinking. Although in neither case is it clarified what is meant by the unconscious, or what fundamentally the nature of those differences are and how it all relates to other things. Although if you look at the table (see Table, p. 280) in that article, with side by side what both kinds of thinking are like, and

15. Anne Treisman (°1935) is a British psychologist, working currently at Princeton University. She researches visual attention, object perception, and memory. One of her most influential works is the feature integration theory of attention, first published with Gelade in 1980. According to this model, different kinds of attention are responsible for binding different features into consciously experienced wholes. The theory of feature integration is very dominant in the field of visual attention to this day.

16. Seymor Epstein is an emeritus professor of Psychology at the University of Massachusetts and researcher in personality, stress, emotion, and coping, constructive thinking and emotional intelligence. In the 1970s, Epstein, developed his "cognitive experiential self theory." In it, he points out that human beings process information through two systems: Just as we learn things consciously all the time – the cognitive part of the theory – we also learn things experientially, without realizing we've learned them.

citing all the relevant literature, you could get some idea of the differences between those processes. In fact Linda Brakel and I contributed a commentary (Brakel & Shevrin, 2003) and we pointed out that the first dual cognitive thinker was of course Sigmund Freud. Although there was a lapse of maybe a hundred years before Kahneman, Tversky, Epstein and others began to pick it up… So, where did I start? Is it alright to free associate?

A.B.: These latest points you mention are extremely interesting. You started your development by saying that there is this concept of a *psychological apparatus* and you've been giving us some outlines on important developments concerning *psychological* functions such as attention, perception as well as unconscious attention and unconscious perception. But this concept of a psychological apparatus is in itself controversial, not seen as evidence in the neuro-psychoanalytical "world." Let me just give you two examples. In Frankfurt last year[17] Damasio said that Freud started out as a neuroscientist and it was because the neurosciences at that time weren't developed enough that he was forced to go over to psychology.[18] Also, in his book *Descartes' Error* (Damasio, 1994), he points out that this mind-brain dualism is an error and that we should go to a unified theory. Also Solms in his paper in *Scientific American* (Solms, 2004) indicates that neuro-psychoanalysis wants to go to a unified theory. What is your feeling about this? Is it neuro-psychoanalysis' endeavor to go to one theory? Is it your feeling that one day we will be elaborate enough in neurosciences that we could explain all psychological phenomena? Or, as you seem to suggest, is there something else like a theory of a psychological apparatus? How do you feel about these differences?

17. Antonio Damasio, Rage and hate from a neuroscientific point of view, Bindung, Trauma und soziale Gewalt, Psychoanalyse, Sozial- und Neurowissenschaften im Dialog. Sigmund-Freud-Institut in Kooperation mit den Fachbereichen Erziehungswissenschaften und Gesellschaftswissenschaften der Johann Wolfgang Goethe-Universität Frankfurt, 3 Dezember 2004.

18. Antonio Damasio (°1944, Lisbon) is a Portuguese behavioral neurologist and neuroscientist working in the United States. His main interest is the neurobiology of the mind, especially neural systems which subserve memory, language, emotion, and decision-making. His research has helped to elucidate the neural basis for the emotions and has shown that emotions play a central role in social cognition and decision-making. Damasio has formulated the somatic markers hypothesis. His current work involves the social emotions, decision neuroscience and creativity.

The terms for the two systems used by a variety of theorists and the properties of dual-process theories of reasoning

	system 1	system 2
Dual-Process Theories		
Sloman (1996)	associative system	rule-based system
Evans (1984-1989)	heuristic processing	analytic processing
Evans & Over (1996)	tacit thought processes	explicit thought processes
Reber (1993)	implicit cognition	explicit learning
Levinson (1995)	interactional intelligence	analytic intelligence
Epstein (1994)	experiential system	rational system
Pollock (1991)	quick and inflexible modules	intellection
Hammond (1996)	intuitive cognition	analytic cognition
Klein (1998)	recognition-primed decisions	rational choice strategy
Johnson-Laird (1983)	implicit inferences	explicit inferences
Shiffrin & Schneider (1977)	automatic processing	controlled processing
Posner & Snyder (1975)	automatic activation	conscious processing system
Properties		
	associative	rule-based
	holistic	analytic
	automatic	controlled
	relative undemanding of cognitive capacity	demanding of cognitive capacity
	relatively fast	relatively slow
	acquisition by biology, exposure, and personal experience	acquisition by cultural and formal tuition
Task Construal		
	highly contextualized	decontextualized
	personalized	depersonalized
	conversational and socialized	asocial
Type of Intelligence		
Indexed	interactional (conversational implicature)	analytic (psychometric IQ)

Table from Stanovich and West (2000: 659).

H.S.: That gets into some very complicated questions and sooner or later you can't ignore the whole tangle of the muddy… the mind muddy… the mind-body [parapraxes] problem. The challenge of a unified theory is always a holy grail for any science. It is the search for a comprehensive theory that explains everything, that you feel needs an explanation. In fact, physicists are still trying to do that. This is what Einstein devoted the last half of his life to, developing a unified theory that would combine all the different forces, quantum theory and the macro level physics. And physics isn't there yet! We're certainly a very far way away. But let me give a little historical introduction. I was trained in an American tradition in psychology. I was fortunate though to have several teachers along the way, who were not in the traditional mode, before I entered into psychoanalysis. American and British psychology are still trying to make sure that no one confuses them with fuzzy-minded continental speculators: "Watch out that you don't fall into the deep ravine of speculating about things instead of going into your laboratory and finding things!" So the American, British psychology is a very empiricist undertaking. Although there are little theories here and there, nobody is talking about a comprehensive theory. One may have a little theory about attention, a little theory about perception, but nothing on how the two might interact or relate! Some people do motivation research, some do research on emotion, a lot of people do research on cognition, on categorization. *But I have yet to see much in the way of how the findings of these diverse fields might in fact fit together in any way. I think there is a traditional resistance against any such thinking.* So, if we were going to wait for a unified theory from either American or British psychology we would wait a very long time. But at the same time, we would be learning a lot about a lot of things, and the methodologies are extremely sophisticated, so what is learned is pretty solid. It's important to be trained in the experimental methodologies, that have been developed over the years and to use them. But it generally stops at the level of what I would call *empirical generalizations*. So, you'll not get anything heading toward a unifying theory. On the other hand, someone like Freud did not hesitate to speculate on what many psychologists – with some justification – would see as a very narrow empirical basis: five case studies published in his lifetime, and that's it! It's like an inverted pyramid: *on top of this very narrow empirical base you have this unified theory*.

My goodness, think of it: it's about neurosis, it's about normality, it's about dreams, it's about psychosis, it's about development… I could even add culture and religion! Here was a theoretical undertaking of enormous abstraction with implications for the basic ideas of all of these important fields. There was nothing that Freud's mind left untouched and often with very interesting provocative ideas. Now, a number of them have turned out to be false. For example, his book on *Moses and Monotheism* (Freud, 1939*a*) was based on certain historical and archaeological assumptions that proved to be wrong. But nevertheless he had no hesitation and a number of the early analysts certainly developed rather comprehensive theories of the mind. The tradition in American psychoanalysis – what has since been called Ego psychology[19] – came over from Europe. People like Hartman[20], Lowenstein[21], Kris[22] and Rapaport were very well educated in the sciences and culture and continued what Freud started. They were trying to develop in a tighter way a comprehensive theory of the mind and they did not hesitate to cross boundaries. I was always very attracted to that. So you might say, I come from two traditions: I was

19. Ego psychology is a school of psychoanalysis rooted in Sigmund Freud's structural – id-ego-superego – model of the mind. An individual interacts with the external world as well as responds to internal forces. Many psychoanalysts use a theoretical construct called the ego to explain how that is done through various ego functions. Proponents of ego psychology focus on the ego's normal and pathological development, its management of libidinal and aggressive impulses, and its adaptation to reality.

20. See note 2, p. 253.

21. Rudolph Maurice Loewenstein (1898, Poland-1976, New York City) was a Polish-French-American psychoanalyst. After studying medicine and neurology in Zurich, Loewenstein was analyzed in Berlin by Hans Sachs. In 1925, he began to practice as a teaching analyst in Paris, where he trained a number of future analysts, including, notably, Jacques Lacan. In 1926, he founded the first French psychoanalytic society, the Société Psychanalytique de Paris (SPP), along with René Laforgue, Marie Bonaparte, Raymond de Saussure, and Angelo Hesnard. In 1930, he became a French citizen and began his studies anew, defending his thesis for a doctorate in medicine in 1935. In 1939, he was mobilized as a doctor in the French army. After the Armistice, he fled to the south of France and from there left for the United States, where he settled in New York. There he pursued a distinguished institutional career with the International Psychoanalytic Association, becoming its vice president from 1965 to 1967. Loewenstein is known above all as one of the foremost figures, with Ernst Kris and Heinz Hartmann, of what has been called Ego psychology.

22. Ernst Kris (1900, Vienna-1957, New York) is an American psychoanalyst and art historian. He made some important contributions to the psychology of the artist and the psychoanalytic interpretation of works of art and caricature. In England, Kris analyzed Nazi radio broadcasts for the BBC. In 1945 he co-founded the journal *The Psychoanalytic Study of the Child* with Anna Freud and Marie Bonaparte. Kris dedicated the last years of his life on the psychoanalytic theory. He was one of the first developers of the new ego psychology. He proposed a new way to enter the unconscious: not via a fast and immediate entrance, but via exploration by the surface. It consists of exposing defense mechanisms and not of exploring the id.

trained to do experimental research in my graduate work, in my PhD studies, to follow an empirical path. But at the same time I was reading all of what these people were thinking, and I felt "Boy, that is really very exciting!" because it gave me a way to think about the things that I was beginning to do in a different way. It also gave me a way to realize the limitations of what I was trained to do. So, it was out of that dialectic that I went into psychoanalysis and I didn't know what I was getting into! *Because when I went into my analytic training and into my analysis, that was an entirely different thing. Although the connections were there once you experienced it, it's no longer simply about ideas.* Anybody who has been in analysis knows that *your life almost hangs in the balance*, which isn't the case when you are studying Ego-psychology and the nature of the mind. So, I'd say I am a result of those two important contributions which are not necessarily unconflicted. In other words, the side of myself who says "I got to go into the laboratory to find out if this is so", is the part of me that has some doubts about psychoanalysis. And if you want to be a scientist, you better have some doubts. If you don't have any doubts, you'll only find what you're looking for. And often that can be very misleading. The other important side is the ego-psychoanalytical effort to develop a comprehensive theory of mind, in the hands of the people I've mentioned. However, it has since been essentially abandoned in American psychoanalysis with one or two exceptions. In fact it has been criticized as sort of a mark of hubris[23] to think that psychoanalysis would give birth to a comprehensive theory of mind. I'm working on a book right now and when people ask me: "What about this book?", what I say is "The dead will applaud and the living will ignore." That essentially is what I expect will happen with this book and since the dead don't buy copies… I don't think it's going to be a bestseller. I am not doing it of course for that purpose, I'm doing it for myself and I hope for the field in time. So I would say these are two very important contributions to my own development and they continue to be what I'm striving to do in different ways.

A.B.: But isn't the endeavor to go to a comprehensive theory of mind crucial amongst people who are doing neuro-psychoanalysis? You say it is something that is being abandoned, even in psychoanalysis. Is it however something neuro-psychoanalysis is going for in your feeling?

23. "Hubris": excessive pride or self-confidence; arrogance.

H.S.: Well, someone like Marshall Edelson[24] who died not long ago, twenty years ago has written a book about this. He, like others, had some very real doubts about whether the time was right for this. In Edelson's judgment the time wasn't right. Morton Reiser[25] also wrote about whether it is possible to build strong bridges between neurosciences and psychoanalysis. I don't think that question can be ignored. I think that we should simply assume that that has to be the way to go: that the more people are discovering about the brain – and a good deal is being discovered – the more complex, demanding and difficult the whole enterprise becomes. There is no question that the brain is almost as complicated as we are… To understand how it operates is an incredibly challenging undertaking. I think that what's happening now is that most neuroscientists are getting lost in a new kind of localization. In fact, there was a book published by a former Michigan colleague of mine, he calls it the *new phrenology* (Uttal, 2001). This new phrenology is being energized by the new methodologies of brain-imaging: fMRI's, PET etc. These help one to study parts of the brain but in fact the brain works as an integrative organ all the time. Even when it is injured, it reintegrates itself. That is true for all organs and especially of the brain. We don't know the principles of integration; *we don't know the neuronal code by which one part of the brain communicates with another part of the brain. We don't know the language of the brain*, if I can put it that way. We know how the amygdala work, but again almost like it were an isolated organ rather than part of an entire system. I think it leads to some foolishness, like for example the position of Joseph LeDoux.[26] Foolishness is too strong a term, because I think his work on the amygdala is exceptionally good. But his position is very straightforward and from a psychoanalytical point of view, I think it's downright wrong. And that is, LeDoux says that there isn't an emotion

24. Marshall Edelson (1929-2005) was a professor of Psychiatry at Yale University and a practising psychoanalyst. Edelson became a leader in developing the idea and practice of the therapeutic community in psychiatric in-patient settings. He explored such topics as the boundaries between psychoanalytic theory and the social sciences and the scientific status of psychoanalysis. Edelson applied the philosophy of science to the task of formulating and testing psychoanalytic theory. In *Psychoanalysis: A Theory in Crisis* (1988), Edelson identifies the core theory of psychoanalysis and shows how free association and the case study method can provide rational grounds for believing its clinical inferences about the causal role of unconscious sexual fantasies.

25. See note 15, p. 239.

26. Joseph LeDoux (°1949) is a neuroscientist and professor of Neuroscience and Psychology at New York University. LeDoux's research achievements are mainly on the biological underpinnings of memory and emotion, especially the mechanisms of fear.

– i.e. in the psychological sense – until some part of the cortex, namely the working-memory, is activated. So if anything happens before, e.g. in the amygdala – which is where his study of fear is focused – than that is *purely physiological and it has no psychological representational character*. It only becomes psychological when the cortex is activated: therefore, *he introduces the mind-body problem between the amygdala and the cortex. Other people will put it elsewhere in the brain, but it is inescapable*. Now, this is his view of what the unconscious is. Since there is some solid empirical evidence that some things do go on unconsciously, the unconscious is now something you can talk about. The question is: "What is the nature of that unconscious?" And then you have some very interesting ideas that are not necessarily in keeping with what I understand to be psychoanalytical ideas of the unconscious. So, to go back to what you're saying, *I am very dubious that we are anywhere near a unified theory of the brain and mind and that the basis of it will be entirely an understanding of the brain*. Let me give you another example. Let's suppose there exists a pill that will make you happy. Remember for a time Prozac was supposed to do this: the advertisers were not only selling it to alleviate depression, but also if you were unhappy or if you were feeling like you wanted to get more out of life. Essentially it was sold as a happiness pill: "You can feel good, take a Prozac." There wasn't much said in the popular literature about the downsides of Prozac, what else it does to you. For example, we now know that about forty percent of the time there is a sexual complication or difficulty for both men and women. As psychiatrists were beginning to ask about this, the percentage of sexual difficulties in both men and women even began to go up. Why is that? Because any medication you use, since you don't know enough about how the brain works, affects all parts of the brain, not just the happiness part. In order to develop medications that can really do what they are stated to do, you have to have a knowledge of how the brain works – not how this or that part of the brain works but of how the brain works. See, we go back to the other side of the corner. What about a psychological field, what about that? Well, bear in mind that the name of the field is neuro-*hyphen*-psychoanalysis: it's not neuro psychoanalysis or neuropsychoanalysis, it's neuro-psychoanalysis[27], and presumably by

27. At the International Neuropsychoanalysis Conference in Vienna in 2007, Mark Solms has decided, without much debate, to change the old orthography "neuro-psychoanalysis" to the new orthography "neuropsychoanalysis" without the hyphen.

having these two boards of people – the analysts over here and the neuroscientists over there – there was acknowledgment that there had to be an equality of input. Now, that equality is not there. That equality is not there because neuroscientists are busily at work in their laboratories with many people assisting them, with well worked out methods. A good laboratory like Damasio's, for example, can turn out maybe fifty, a hundred papers a year. And then there are laboratories all over the world which will pick up things that Damasio and his people are doing, and they will try to replicate it or extend it, and they will also publish. But what do you find at the side of the psychoanalysts? The modal number of publications of all three thousand members of the American Psychoanalytic Association is zero: most psychoanalysts do not publish a single paper a year. The mean is maybe a little less than one. That one paper had better be world-shaking! *So you have an enormous disparity between the neuroscientist who is being productive and in some instances creative and the analyst who is busy treating patients, often very successfully, but the world might as well not know about it*. Or certainly not know about it in that same systematic scientific manner. And this disproportion has been growing as more young creative minds are interested in neurosciences: it's an exciting field as psychoanalysis once was in the twenties and thirties and forties. Whereas at the same time, throughout the world – with the exception perhaps of South-America – the interest on the part of young creative minds in psychoanalysis has diminished. Although there are obviously a number of very important exceptions. But it worries me very much, because what psychoanalysis as psychoanalysis can contribute is important. *I think that if neuro-psychoanalysis is only going to rely on the neuroscience part, it's really not going to achieve its important objective*. So, I would say, we need to bring up more of these psychological psychoanalytical contributions to the field – and we face a very real problem in that aspect.

A.B.: I think this last point is extremely important, and it is also at the heart of the controversy of neuro-psychoanalysis. You might not have heard as much about it, because it's maybe less so in the United-States, but in France where there is a strong analytic community, and in fact also a strong Lacanian analytic community, neuro-psychoanalysis for example has been called a *canular*, which is big organized joke (Fédida, 2000).

H.S.: What is the word?

A.B.: *Canular*. I think that the skepticism or the criticisms pertain to some of the problems you are pointing to. What some clinicians are saying is that there is a danger of reduction to this neuro-psychoanalytic enterprise. One of the sensitive points is the clinical interaction with the patient. One position is: "What we have to protect in the first place is the patient, we have to prevent that there might come a subtle tendency to treat patient as (research) objects." In fact, at the Neuro-psychoanalysis conference in Rome[28], a video-conference with Ramachandran was shown in which while he was asking questions to a patient, he was also shaking her arm and it came over as quite intrusive.[29] I noticed there was some emotion amongst the public about this. In that sense, and in a broader sense, there is a resistance from analysts, sometimes presented as a crusade to save the patient as a subject, to save the patient from scientific objectivation or reduction.

H.S.: I don't know if I would say that neuro-psychoanalysis is a joke but nevertheless they're pointing at a significant problem, that could become worse in time unless something is done about it. But there is also an interesting counter development, when you look at people like Jaak Panksepp[30] and that is to introduce for the first time into neuroscience the importance of the individual animal and the nature of individual animal personality. Anyone who lives with a pet knows you're not simply dealing with a generic animal, it's an animal with individuality, and the more you get to know an animal, and other animals, the more you know that they are not simply clones. They are highly individual and there are reasons for their individuality, not simply genetic in the narrow sense, but also in terms of their development and how they were raised. So people like Panksepp are saying: "If you want to learn about in what ways animals are like human beings, you also have to take into account their individuality." His famous discovery is the discovery that rats laugh: they laugh, just

28. Fifth International Neuropsychoanalysis Congress on Splitting, Denial and Narcissism, Neuro-psychoanalytic Perspectives on the Right Hemisphere held in Rome on 2-5 September 2004.

29. Vilayanur Ramachandran (°1951) is a neurologist best known for his work in the fields of behavioral neurology and psychophysics. He is currently Professor in the Psychology Department and Neurosciences Program at the University of California, San Diego, and at the Salk Institute for Biological Studies. Ramachandran's early work was on visual perception but he is best known for his experiments in behavioral neurology which, despite their apparent simplicity, have had a profound impact on the way we think about the brain. His research includes research on phantom limbs, stroke rehabilitation, synesthesia, capgras delusion and autism.

30. See note 9, p. 274.

like human beings, only they don't laugh as we laugh, their laughter is expressed by a high frequency sound in the fifty K range. He has these marvelous filmstrip (see Fig. 8, p. 378) in which he tickles rats: the rats come over, they want to be tickled, they enjoy it. Now that concept is a little difficult, because a rat is a nasty dirty creature that causes problems, and all that is true, but nevertheless, *rats are also human beings* in a sense: they share with us certain abilities if you give them a chance. There is also another level of sound, which they make when they are annoyed or angry. Rats play with each other, and play is very, very important in the development of, at least, mammals. And they express great individuality which you can observe if you follow them over a period of time. So, in that sense, sort of paradoxically, *psychoanalysis can help introduce the notion of subject into neuroscience* and that would be a great advance if that would be taken seriously. There has already been a lot of work with animals influenced by psychoanalysis: for example, the study of weaning behavior in mammals or the interest in maternal deprivation. Panksepp's discovery of the role of oxytocyn in so-called affiliative behavior is another example. Neuroscientists raised in a cognitive neuroscience tradition would never think of doing these kinds of research. So, it can go both ways. But it can't go both ways if the balance between the two is out of kilter. And right now it is out of kilter. And how to right that is an enormous challenge, an enormous challenge.

There is one other thing that always struck me and fascinated me in some ways, very, very troubling… Supposing we have a pill as powerful as Prozac on the positive side and unlikely to cause negative after effects: no sexual complications and no flattening of affect. It was just perfect. You are unhappy today, you want to kill yourself and you take this pill, and over a few weeks you're a changed person. Is that ok? Would psychoanalysts say "Well, ok it takes me years, but if you can do it in a month, and the person looks happy, and they put marks on a scale indicating that they feel happy, and they don't have any sexual difficulties and no flattening of affect, they just feel good, it's fine"… will that be psychoanalytically "acceptable"? And if not – which I think it isn't – why not? If we have a physical illness, we go to doctor with the expectation that he will have "the magic bullet" that will remove our complaint, that will make us feel good, or have less or no pain. And we have no problem with that. Does that carry over into the sphere of our mental and emotional life? … [silence] could I ask that question?

Pat Jacops (P.J.): I think it would be absurd to be happy in a situation that is completely against happiness. I think not being happy is a symptom of things that you have to say. It would be completely absurd if a person who has lost a child for example would be happy.

H.S.: It would be what?

P.J.: Absurd.

H.S.: Yes, no, yes, but let me be the devil's advocate. This person would say: "Well that's terrible that this has happened", but he wouldn't go into a profound depression. He would deal with it, as we would say, in an adaptive way.

Filip Geerardyn (F.G.): Would he mourn for instance?

H.S.: I know it gets to be – I think you used the right word – *absurd*. But for the sake of argument, let me give you what my thought is anyway. I'll give you an analogy. Supposing that when you were five years old and ready to go to school, you would take a pill and you would know all you needed to know until you were ready to college… very, very tempting. Somehow that wouldn't go over as well because in education we have the concept of "mastery". The opportunity to learn isn't simply to acquire knowledge, it's the process of acquiring it that is important: how to acquire it, how to relate it to other things. This is what is so exciting and important in intellectual growth. I think the same thing is true in the emotional sphere. This is, *when you are depressed and you're in analysis, it isn't simply a matter of finding out "what caused it", but that you achieve a mastery over that which has been happening to you. It's that mastery which serves you in a number of different ways, not only with respect to that issue, but with respect to many issues*. Mastery is very, very difficult to achieve in any field, especially as complicated as oneself. I once had a run in with a musician of a chamber music group that came in over from Sofia. These were very punchy young guys who were excellent musicians. I asked the cellist how this group formed. This was back in the days of heavy communism rule in Bulgaria. He told me that each of them had been talented enough to be selected to go to the conservatory in Sofia. When they were twelve years old, the four of them were brought together. They had never seen each other before and suddenly were told: "You are now becoming a string quartet." They were put in a room eight to ten hours a day. That went on for six years, day in, day out, seven days a week, before they gave a single public performance. I had been dragging his story out of him by questions. It was clear that it was a traumatic experience and not something he would readily talk about. But nevertheless they were

enormously successful, it worked and they went around the world now and they gave these magnificent performances. This young cellist who was a well read guy then asked me: "Why does an analysis take ten, fifteen years? And why would people want to do that?" I was getting irritated with him and I said to him: "You know, you are very critical of people who have to be ten, twelve years in analysis, and look at you, in order for you to master how to play a piece of wood with catgut on it, you worked about fifteen years of your life, and I bet you still don't think you fully mastered it. Why should you be so surprised that in order to master yourself it would take eight to ten years?" That seemed to strike by and he got quiet after that. So what I would emphasize is the experiencing of mastery: you don't have it with a pill. Now, you may not need it with headaches where presumably the causes are mostly very distant from your emotional and mental life. *But when it comes to the emotional and mental life, the experience of mastery of oneself, I think, is central*. And taking a pill isn't going to help you with that.

P.J.: There is another phenomenon and that's transference.

H.S.: Yes, that's central to the mastery experience. That is something that psychoanalysis has to offer. Other approaches don't come close to providing you with that experience. I think this is what analysts in neuro-psychoanalysis can offer. By and large, however, the analysts in neuro-psychoanalysis meetings tend to be rather shy and not as willing to step forward with the importance of their own contribution. Partly this is that they are a little intimidated by the wealth of scientific work that neuroscientists can bring to the fore. I think the answer to that is that we have to have more people, who are dedicated to psychoanalysis and who are also trained in what I would like to call "*the basic science of psychoanalysis*" and contribute to it. By the basic science, I mean it to be *more general than simply neuroscience*. Neuroscience is an extremely important part of it, but I don't think it should be limited to neuroscience. I think there should be a really important training in psychology, in sociology, the kind of things that both Freud in his paper on lay analysis, and then later Anna Freud talked about in her dream of an ideal institute. Now the ideal institute of course is simply that, ideal. It's an impossibility to do all of what she set forth in it. But nevertheless, something that moves in that direction is, I think, important for psychoanalysis.

Discussion

Stijn Van Heule (S.V.H.): I was very interested by your work. What I hear is that one effect of the research you're describing is that some psychoanalytical ideas are assimilated into other fields, like the work of Kahneman. I guess that it is something that we can be happy about. It happens. But another question of course is if you have the impression that your research is strengthening the credibility of psychoanalysis in the USA. For example, in the research that you presented yesterday[31] there was a priming effect by the unconscious conflict word. Is this something that has its effects at the political level of how psychoanalysis is perceived within the academic world because, of course, in America, it's a very big problem, that all analysts are disappearing at universities. So can it help?

H.S.: They have disappeared.

S.V.H.: They have disappeared. But you're still there and…

H.S.: There are a few ghosts like myself. When I first came in Michigan in 1973, every important division of the department was headed by a psychoanalyst, inpatient, outpatient, etc. Now there are none… none… But slowly and with gathering speed, the work that we've been doing has began to make an impression, has began to infiltrate into these more cognitive approaches and in neurosciences. But they approach it in a very gingerly fashion. Part of it is, they have to protect themselves politically with the government as far as grants are concerned. But when you are in touch with them through personal contact, they are very interested and want very much to learn about it. So I think it's only a matter of time… The question is how much time – and how can one accelerate that. Neuro-psychoanalysis is one way of doing it, since you bring together people who are already moving in that direction and have them interact with each other. Also, you discover that there are people working in a purely neuroscientific direction who are beginning to embody psychoanalytical ideas, without necessarily identifying them as such. A good example of that is my colleague Kent Berridge who has developed a concept of

31. On November 30th, 2005 Howard Shevrin was invited by Gertrudis Van de Vijver to give a conference at the Faculty of Arts and Philosophy at the University of Ghent. The title of this conference was: "The Dynamic Unconscious: An Experimental Research Program".

"unconscious wanting" in his study of drug addicts.[32] We talk and exchange ideas and he is quite interested, but he is not about to say "This is related to psychoanalysis." Maybe in about three four years he might… if we, on our end, produce more of the work that is necessary and that therefore has to be acknowledged. When you get something published and it is in a recognized in a cognitive or neuroscience journal, and someone else writes an article in the field it is fair scholarship that this person has to know it and has to refer to it, even if he or she objects to it. It can be something like: "Such and such article is published on this and this idea, that is related to X and Y, but there are still some problems in that." That is fine, then you're mentioned into the mainstream of research. That is beginning to happen with our work and actually the acknowledgement of our work has been favorable, not unfavorable.[33] But it goes back to there are so few of us who are doing this, so that the number of studies is small, so our odds are less… At the same time I would add, for those of us who are adventurous and want to take a chance, in a few years it can be very exciting, because you're in on the ground floor as we say. You're getting in on something that is really beginning to happen. And that's a real plus. You're one of the pioneers, and that can be an important career advantage. I mean it, it's a serious consideration.

Bjorn Roelstrate (B.R.): I have a question on the objective conscious threshold. I wonder what is so objective about it, does that mean that no participant ever has detected the one-millisecond stimulus, or is it something else, is it more theoretical?

H.S.: No, it's not theoretical, it's defined quite empirically. But there is a distribution, like with any psychological characteristic; there are individual differences, which in themselves are important. The understanding is – and we keep a very careful eye on this – that the distribution of the detectability (Shevrin, Ghannam, & Libet, 2002*a*; Shevrin, Ghannam, & Libet, 2002*b*), among the group of subjects should be what you would expect in a random distribution. Somebody

32. Kent Berridge is a professor of psychology (biopsychology) and neuroscience at the University of Michigan. Berridge conducts research relating to brain systems of motivation, affect, reward "liking", reward "wanting", emotion, fear, pleasure, drug addiction, eating disorders, and decision utility. He also studies natural syntactical chains of behavior (e.g. grooming; taste response patterns) in animals with colleague Aldridge. With Winkielman, he has investigated the issue of unconscious emotion in humans

33. Some recent papers referring to work of the Shevrin lab: Kunst-Wilson and Zajonc (1980), Babiloni, Vecchio, Bultrini, Romani, & Rossini (2006), Babiloni, Vecchio, Miriello, Romani, & Rossini (2006), Hannula, Simons, and Cohn (2005), Etkin, Klemenhagen, Dudman, Rogan, Hen, Kandel et al. (2004), Block (2005), Pessoa (2005).

who is two or even three standard deviations away from the group mean is, according to the rules of the game, an outlier. This indicates that maybe that particular person doesn't belong to that sample: it isn't drawn from the same population and the rule is that you throw that person out. My own feeling is that you should take a careful look at that person, because you could learn something. If somebody is so unusual that they can detect something at a thousandth of a second, this is remarkable. Over the years we probably ran three-four hundred subjects. Out of that I think there has been one or two that have fallen out two, three standard deviations above the mean. We call them deer hunters.

A.B.: But one of them was a deer hunter?

H.S.: Yes, yes, he saw flashing things at a thousandth of a second, then he was telling me what was there. So I was astounded, I felt: "Oh my goodness this is a mutant. This is the next step in visual evolution." Then I discovered that he was a very successful deer hunter. He could see a little movement in the trees and he knew immediately what it was, and boom. But they have been very rare, as I say, two, three out of hundreds of subjects.

A.B.: Methodologically, the term objective threshold comes in contrast to the subjective threshold. When the first subliminal research was done, it was done with subjective methodology. This implied that the experimenter would start with a presentation time where a stimulus is readily seen and then would decrease stimulation time progressively until the participant *subjectively* says: "I can't see it anymore." At that time the experimenter would stop and then he would repeat the procedure the other way around. He would start with a presentation time where the participant doesn't see anything and would then progressively increase presentation time till the first time when the person *subjectively* says: "I am seeing something." And out of these times the experimenter would take the lowest and that would be your presentation time for the subliminal priming. But this is relying on the subjective judgment of the participant, while Michael Snodgrass[34] (see Snodgrass, Bernat, & Shevrin: 2004) has shown that this is unreliable and that the objective detection threshold should be determined by a separate elaborate procedure in each experiment, called the detection part of the experiment. In that detection study, a number of stimuli are presented in a random order, half of which are

34. See p. 220-221.

blank, half of which are stimuli. These stimuli are exactly the same as those used in the main experiment, the experiment one is actually interested in. The experimenter does not ask: "Do you see something?" or "When do you see something?" but forces the participant to say if it is a blank or if it's a stimulus. For example, he has to say "blank or word". For example, you could have 32 presentations. You would force the participant to make the best possible guess resulting in 32 answers and then you check if there is any kind of correlation between the presentations and the answers. If the correlation is random, then you are sure that the answers have nothing to do with the presentations and that therefore nothing has been detected, i.e. that the presentation time was as at the objective threshold. If there is a slight bias, like fifty five or sixty percent of the time the participant gave a correct answer (instead of the expected 50% by chance), there is slight detection. So that's the objective procedure to check if someone is not detecting. It is an important part of the experiment because it's based on that part that we claim that the stimuli are processed unconsciously, since there is no detection.

*H.S.:*At the same time, it is a real challenge, theoretically, to understand what is going on – especially with some of our findings that might be evidence for inhibition going on at the objective detection threshold. There are people whose *d'* is literally below chance.[35] This is one of the controversies we've been engaged in and I think we're winning it. Indeed, how you conceptualize that is very important, because to most cognitive psychologists either you detect something or you don't detect something. There is no such thing as detecting below chance, it doesn't make sense. If you think of detection in very concrete terms, either you see something there or you don't. The notion then that you could see something and inhibit it, inhibit the actual act of detection is something that is very difficult to convince most cognitive psychologists of, not all, but most.

Gertrudis Van de Vijver (G.V.d.V.): I have a question in relation to that, because in the beginning of your interview you said that attention is a psychological mechanism. Later on you proposed the idea of animals having individuality and personality. In that sense, we agree that they also have the capacity of attention, that they are psychological beings to that extent?

H.S.: Yes.

35. See note 5, p. 221.

G.V.d.V.: Now, would you also agree that attention is a process by which part of the stimulus is ignored or neglected – or a process by which the stimulus is treated selectively?

H.S.: Yes.

G.V.d.V.: So the capacity to be attentive to something is a capacity to negate or ignore or select parts of the stimulus and not the complete stimulus?

H.S.: Yes.

G.V.d.V.: So you could call it a form of inhibition too?

A.B.: A choice.

G.V.d.V.: You could call inhibition a process that can be understood in exactly the same terms. I'm asking this because I think it is important to understand the nature of living systems, of complex dynamical systems. If we really want to understand these systems we have to understand them in terms of the capacity to negate part of the stimulus. That's what Merleau-Ponty (1967) describes in *The structure of the Behaviour*. This is an issue that is also important for biological sciences. In molecular genetics, for instance, it is important in the discussions about genetic determinism and reductionism. Indeed, if you think differently, for example in terms of selectivity and negation, it results in another picture of biological organism, of psychic organisms, of psychic systems.

A.B.: It reminds me of my experiment.[36] The results of it have led us to a lot of discussion about choice, about unconscious choice, because we have one remarkable finding, which I find absolutely fascinating. I'm delivering a one millisecond prime with a tachistoscope and then 750 milliseconds afterwards comes the target also at 1 ms. The prime is for example the printed word "DOOR" and the targets are for example the printed words "ROAD" and "GATE". The participant has to choose which choice is most similar to the first word. The question then is: will the participant chose the phonetic couple "door/road" or will the participant choose the semantic one "door/gate" in the subliminal condition? What we find is that within the first one hundred milliseconds after the presentation of the target, the N100 component significantly predicts, with more than twenty percent of the variance, the response that the participant is going to give two seconds afterwards in a conscious mode… Remember that

36. This is a post-doctoral study called "PhonoCat", run in the Shevrin lab at the University of Michigan from 2003 to 2005, thanks to support from the Belgian American Educational Foundation, Howard Shevrin and the International Neuro-Psychoanalysis Society.

N100 indicates which channel I am going to attend – I am maybe going to choose to attend? So, is it inhibition or maybe it is choice?

G.V.d.V.: Well, that's the same… it's another way of saying it. But the interesting thing about all these experiments, I find, is that there are levels of choice, and that there are timescales, they are related to time also. So certain choices are not possible at certain levels, timescales, or organizational levels you could say.

A.B.: Maybe what I am trying to say is that if you have different levels of processing, maybe you choose which one you attend.

G.V.d.V.: It is possible, but it's not necessarily so that all the processes are possible within the same time range. It's possible that certain processes are excluded, it's possible that there are processes at which all the levels are included and then you have a different interpretation of choice.

H.S.: Clearly this is a very challenging question. In a historical context the one theory of conscious and unconscious processes that has been generally accepted until recently in cognitive psychology is the Shiffrin and Schneider model of automaticity, which speaks to your point: in this model when something is being processed outside of consciousness, it is automatic in the sense that attention isn't involved, choice isn't involved, it is not controllable from a conscious waking direction.[37] What determines what is going to happen is the structure of what they call "the semantic network". Following the work of Rumelhart and the connectionist theorists, the semantic network is made up of nodes and connections.[38] These nodes are the weights that developed across experiences for the different concepts or rather the different words or whatever it is that is part of the network, and in fact, the network itself, according to this approach, is

37. The "dual-process" information-processing model of Schneider and Shiffrin: (1) Controlled search can be set up readily, whereas extensive training involving a consistent stimulus-response (S-R) mapping is necessary for forming an automatic process, called "automatic detection". Practice: the more experience, the better you get so that: the task switches from 'controlled' to 'automatic'. (2) Controlled search and automatic detection are qualitatively different activities. (3) Automatic tasks are done quickly, without attentional resources (can be done in parallel) and without conscious control. The automatic-detection process is mediated by an automatic response, the activation of a node in the long-term store.

38. Connectionism is an approach that models mental or behavioral phenomena as the emergent processes of *interconnected networks of simple units*. Networks change over time. At any time, a unit in the network has an activation, which is a numerical value intended to represent some aspect of the unit. For example, if the units in the model are neurons, the activation could represent the probability that the neuron would generate an action potential spike. If the model is a spreading activation model, then over time a unit's activation spreads to all the other units connected to it.

the concept. So a concept "dog" it is made of an array of nodes and connecting links: "bark" is one and "tail" is another etc. That is Rumelhart's solution to the problem of how our concepts are represented in the brain. According to Shiffrin and Schneider that work goes "automatically": there is no choice, no attention and no consciousness. If you have choice and if you have attention, it is a controlled conscious process. Motivation therefore plays no role with these automatic processes. While this approach is still followed to some extent, but with fewer adherence, it has become subject to a great amount of criticism. Many findings, like our own, don't fit with that model. They suggest that attention, choice can go on at unconscious levels, which is a very nice thing from the psychoanalytical standpoint. The automaticity model really is a modern version of the classical habit theory of the nineteenth century. When you read James's chapter on habit and you read Shiffrin and Schneider, the words are different, but essentially the basic concepts are the same. This automaticity model is now going out of the window. What is going to replace it, is now what is going on. There is one author I'd recommend. He has written, I think, the most trenchant criticisms of the automaticity model, and that is a man by name of Allen Allport (1989), which we cite very much in this book because we simply cannot buy the whole automaticity principle in the light of our own findings and theories. Now, this leads to a very challenging question, which was raised by Doug Watt at one of the neuro-psychoanalysis conferences, when I was presenting some of this stuff.[39] He said: "This is great work," but having a bit of narcissism I didn't realize till afterwards that he really was saying "What you're finding is impossible." It took me a while before turning it over in my mind. The question is: *can all that happen within one hundred milliseconds*, what Ariane just described? *My answer is that not only does the evidence say that – which one can't dismiss – but in fact, one can make good sense of it because we are not dealing with something de novo. We're dealing with a prepared brain, with a brain that has been fashioned by experience and by personality. It is not like the brain is doing something for the first time; it actually has been*

39. Douglas Watt is a senior neuropsychologist at Boston Harvard Medical School. His practice focuses on the behavioral, cognitive, and emotional effects of neurodegenerative, trauma-based, cerebrovascular and other diseases or dysfunctions of the central nervous system due to a wide variety of illnesses and factors. Current research areas are depression (with Jaak Panksepp), empathy and delirium and confusional states.

organized and fashioned on a very individual basis. And we know that once a subject is prepared, his time of response can be very much smaller, that is true for any neurophysiologic phenomenon. When you have choice and attention operating within a hundred milliseconds, this means that the brain is prepared to respond in that way, that the attention mechanisms, the decision making mechanisms are in place, ready to respond, they're not created *de novo*. But this is often overlooked, and that is why Doug Watt was saying "Hey… wait a minute, we know about the brain… how could that happen in a hundred milliseconds?" Yes, it could happen if you have a brain that is already fashioned by experience, by its genetic make up, to respond and to do so both in terms of attention and in terms of choice, and like in one of our studies, with pre-existing conflicts. Although, as Ariane also illustrated, how this is going to then ultimately impact on the end result, i.e. on the behavior when the person says: "I think it's one and not two,"[40] that is going to take time, because this depends on how it percolates through and enters into the response and this is again subject to all of these factors. Those processes of creating a response take longer but the initial process of dealing with the information can take milliseconds.

A.B.: One hundred milliseconds is a time that is often used in psycholinguistic research. It's not such an astonishing thing in the psycholinguistic domain.[41]

H.S.: Yes, but they wouldn't include attention or choice necessarily. My guess is they use an automaticity principle, that the networks work automatically.

A.B.: In his research Amir Raz gives the instruction to people doing the Stroop task under hypnosis not to attend to what is written, but only to the color.[42] The way people are going to respond is also predicted by the N100. This N100 is coming back.

---

40. Since the participants didn't see anything (subliminal presentation of both primes and targets) they said 'one' if they thought it was the upper choice and 'two' for the lower choice.

41. There is a time lapse of about 100 milliseconds after the language train has hit the tympanum where all possible semantics associated with this fragment are activated before active inhibition of non contextual meanings leads to disambiguation. See also Bazan (2007: 63-80).

42. Amir Raz was a research fellow of Psychology with Michael Posner and became assistant professor of Psychology at Cornell University in 2002. Currently, he holds the Canada research chair in the cognitive neuroscience of attention in the Faculty of Medicine at McGill University. Raz is a clinical neuroscientist: an interdisciplinary cognitive neuroscientist with a strong experimental approach and a strong neuropsychological thrust. Having studied the neural correlates of developmental psychopathology in impulse control disorders, Raz has worked with clinical populations including Tourette syndrome, attention-deficit/hyperactivity

H.S.: That's interesting, I didn't know that.

F.G.: Unconscious perception, does that equal all perception which involves no consciousness?

H.S.: This is touching on a model that I use as a guide, which is Fisher's model (Shevrin, 2003; Fisher, 1954, 1957), that has generally been bought by cognitive psychologists in terms of their own particularly way of understanding it. One part is that you make the assumption that every external stimulus – let's leave aside internal stimuli which complicate matter considerably – initially registers preconsciously. This is different from a model, where there is immediate conscious registration, but all the evidence from subliminal research and from straight cognitive research, suggests that the initial phase of every incoming stimulus, goes through a pre-conscious phase. What happens during that pre-conscious phase is that, at the very least, for example, recognition occurs, that is contact with a memory trace. What happens after that initial registration depends on a number of factors. Most of time supraliminal stimuli register pre-consciously and immediately follow the path into consciousness, because of their intensity and as a factor of intensity and duration. But there is also a choice point for these stimuli, and under extreme circumstances even supraliminal stimuli don't enter the path into consciousness. We know this clinically and in fact, my colleague, Linda Brakel, published two papers on this, which she calls "negative hallucinations" (Brakel, 1989*a*, 1989*b*). The example she cites is that you encounter a patient outside the analytic situations. You pass each other and you are looking at the patient and the patient is looking at you, and you start to acknowledge the patient and he goes right by. Now somebody who is looking right at you, is seeing you: your face etc. is registering. Then you have a session with him, and you're prepared for him to talk about how he saw you, and he doesn't say a word about it. To make matters more interesting, he then has a dream, in which there is something of that encounter. Fisher called this an indirect recovery of which he has many examples in an experimental setting. But when you finally decide that you're going to tell him, he looks at you absolutely surprised: "No, it never happened." So what

---

disorder, obsessive-compulsive disorder, substance use disorders, bulimia nervosa and pathological gambling. His active research interests span the neural and psychological substrates of attention, self-regulation, effortful control and hypnosis. He is also conducting research into the cognitive neuroscience of authorship processes, altered consciousness and atypical cognition.

you have here is an extreme instance where something supraliminal that has registered in the initial phase and that ordinarily would become conscious, is almost immediately drawn out of that pathway due to powerful dynamic unconscious forces, goes into a dynamic pathway and ends up in a dream. What's going to happen to that initial registration of the stimulus is depending on the status of what is going on in the dynamic unconscious and whether the stimulus touches upon some conflict – which in the instance of a patient encountering a therapist, depending on the status of transference, can well happen. So if you have that model in mind, there are really three directions that the stimulus can go after that initial point. (1) Most of the time, stimuli go right into the conscious ("oh I remember I saw you at the market…") (2) Stimuli can also stay preconscious. To go back to attention, in that case attention is not given to the stimulus, or better still to use Rapaport's term, a hypercathexis is not given. Indeed, *every stimulus is attended to, including unconscious stimuli. But in order for it to rise to the level of consciousness, Rapaport posited an additional attentional process, which he called "hypercathexis"*, and which we now might think of as related to reflexive awareness. So that if that happens, then it becomes conscious, but if it doesn't happen, for whatever reason – e.g. distraction – that that stimulus although registered could remain pre-conscious. It has not yet entered into any unconscious dynamic conflict and then withdrawn, but it is simply latent which is true of most of things that go on pre-consciously. For example, I now think of my wife, her name comes to mind, a picture comes to mind, I didn't created it this instance, it was there, it was latent: it was pre-consciously latent and then I can summon it. One of the important characteristics of pre-conscious, as opposed to dynamic unconscious processes, is that they're voluntarily accessible, most of the time. So that's the second pathway for stimuli, remaining in the pre-conscious until there is reason to give them a hypercathexis. (3) And finally the other pathway is, that they're withdrawn from either the direct pathway to consciousness, or from staying in the pre-conscious, and they are entering into dynamic unconscious processes, and can only be retrieved then through fee associations, through dreams, through images. They are not recognized as such, and only the analyst, knowing something about the overall context, and not in that instance as inhibited as the patient, can see, like Linda Brakel saw.

A.B.: … cannot recognize this as coming from external, from the outside?

H.S.: Yes, then it's all part of their internal life, if you will. So even though there is an external stimulus, it's not acknowledged or recognized as such, which gets into another theory about the nature of consciousness, but nevertheless, if you have that model you can begin to make some sense of a number of these things. If you use this model that every stimulus from the outside registers initially pre-consciously, a lot of things can be better understood. Also, in the model it can be withdrawn from either the pre-conscious or from the consciousness if it is conflict-based at that time, like with Linda's patient, where some phase of the negative transference is at work or perhaps an intensification of an erotic transference and that would be a conflict. It can be done, but I think the challenge is still to understand how it happens in psychological terms, because Fisher did not work out this part. What are the means through which this happens? Again, *I think we need a very sophisticated attentional theory, and we don't have that yet*.

A.B.: But do we have to say the first entrance is pre-conscious? Couldn't we think that it was unconscious at first? We do this research with one-millisecond stimuli: couldn't there be an ecological validity of this research with little things of one-millisecond, we see all around and which enter our unconscious. So one might have had a one-millisecond glimpse or something and this would be unconscious?

H.S.: When you have a glimpse of something in the environment, it is certainly more than one millisecond. But it is also shown in research that people's faces change at the rapidity of one millisecond, things you wouldn't be able to pick up consciously at all. This indeed could have some ecological validity with our model indicating that we do pick this up unconsciously. This would give us our so-called feeling or intuition of someone's state of mind. Moreover, I think the other end of it is that you can also begin to make sense out of what Freud called: *one unconscious speaking to another*.

G.V.d.V.: Unconscious communication…

H.S.: Unconscious communication, because we also have evidence – like in this study with the frowning muscle – that one can pick up very minor evidences. For example, when you present unpleasant words subliminally at 1 ms there will be a systematic increase in tension in the frowning muscles, which can be picked up by electrodes. So there is an expressive indicator of what is going on entirely unconsciously, and my guess is that even though that is very small, we pick that up without being aware of it. So it's essentially a way of defining what we mean by one unconscious speaking to

another. Maybe the intriguing question is that when that information – and this always gives me a problem with projective identification – is very small, and it is registered unconsciously, how do I know its source? Is it me, or is it the patient?

G.V.d.V.: It's you, definitely.

H.S.: All right, that's one answer, but the source of it is out there. That goes back to the issue you were raising before, which we've struggled with and that is: when something is registering at that very fast speed, one of the things that happens, especially if it interacts with dynamic unconscious factors, is we have no sense of its source.

G.V.d.V.: The notion of internal and external becomes much more problematic and it is perhaps too easy to say "It is me or not me": which me?

A.B.: But you could say that there is some external source but you do not recognize it as coming from the outside world.

G.V.d.V.: Yes, but you say it is external through the view point of your pure biological organism, being demarcated from the environment, but it is not external for your psychic system from the moment that it enters. It enters, because you receive it, you see it, you perceive it, consciously, unconsciously, pre-consciously. So in a sense the issue of being me or having a real view point of perspective from which to say "This is me", is only something that you can affirm positively from a conscious view point. But unconsciously there is, I think, communication all over, that's Leibniz.

A.B.: If there is a subliminal negative stimulus, like these negative words or, in a situation with people interacting, someone is 'subliminally' frowning, this can induce some movement in your own frowning muscle. When this happens it might be difficult to say what is me and what is not me, since the proper frowning can also be the result of the mirror neuron system. Moreover, then the frowning is going to interact with the proper memory traces. Also, one could say that we are all registering this and that this becomes part of the "common" unconscious, simply by registering and acting upon what is happening around us. But, still, doesn't it make a difference that the first impetus for the proper frowning has an external origin?

G.V.d.V.: I wonder whether one is able to say whether the stimulus is coming from the outside and that someone else is frowning, whether this is the relevant psychoanalytical question, I'm not sure.

H.S.: What you're saying is that the notion of inside/outside loses its relevance at that point.

G.V.d.V.: It is a distinction that you can acquire, it doesn't exist. It's a person's differentiation that goes on and that you can situate at different levels. It is not possible to talk about a "me" that would cover all the levels in one stroke. That's the tricky thing in those discussions, perhaps also in experimental situations, that you start from some evidence, from "this is internal, that is external", and I'm not sure one can start from this a priori distinction… I'm not saying it's not relevant to make this point, it has to be questioned from which perspective one makes it.

A.B.: But isn't it any way an important criterion? As soon as one is "being able to distinguish if it is external or not", then the stimulus is pre-conscious or conscious. If you're confused about the source, or if it's not important anymore, then it's touching at another level of psychic organization.

G.V.d.V.: Yes, where the distinction inside/outside is, hasn't the same relevance, and where to make this distinction in a quite objective way and to take it as a starting point for a biological organism, is, I think, not relevant.

H.S.: To go back to the example of Linda's patient. The other thing that happens that is important to understand this phenomenon, is that not only has the actual experience registered, and actually accurately registered, but instead of it becoming either immediately or later on conscious, it enters into a dream. And it enters into a dream in such a way that even though the content of the dream can easily be identified with the actual experience for the patient, it has no such relevance. That is, it's simply a dream about X and Y, and that's a very important difference: it takes someone else who knows the full contents to know where that came from. But the person does not know where it came from, in fact the person is believing, and to some extent correctly, that it came from a dream. That it is a dream experience. Even when the connection was pointed out by the analyst, the patient just simply said: "I don't know, you may be right, but that is not what I remember." Now that is not an uncommon experience. In the earlier subliminal research complex pictures were presented. This is Fisher's original work based on the original Pötzl procedure that Freud very much liked incidentally.[43] In Pötzl's original procedure the person sees one part of the picture, but not the other part. In those days a person would be flashed a picture relatively slowly compared to what we have done

43. See note 8, p. 235.

since.[44] Then the person comes back the next day, and lo and behold, they dream about the part that they didn't see. They would get reports in which the person describes the things in the dream, and to the experimenter, who knows exactly what the picture was, it's immediately clear that that part of the dream is coming from that part of the picture that the person didn't report seeing. But to the person, when that is pointed out, they don't have the experience of saying "Oh yes! That's right, I remember, I saw that yesterday." Not at all. Not at all, it's *as if they can acknowledge the connection, but it is not the experience of recalling something experienced*. It's the experience of accepting, in a sense intellectually, a relationship that's apparent, but it doesn't connect with the actual experience. I think that that speaks to what you're talking about in terms of what is the status of that experience: even though accurately registered – it isn't distorted – it's registered as an unconscious perception, but it cannot be ever experienced that way, because of the manner in which it registered.

G.V.d.V.: Well I think that this is what the mirror-stage says about the way in which we capture what goes on unconsciously... The Me captures something, but it is also deceiving. So it captures something but not what has to be captured, it has another function. We have a relation to the unconscious, because we speak about it, we have experimental evidence of the unconscious etc. But our access to it is from outside: we can assume that there is indeed something like the unconscious, we have to accept it. But the way in which we speak about it, this conscious perspective has a relation to it, but it's not covering, it's not adequately accounting for it.

A.B.: So it's an intellectual operation to accept it is like that?

G.V.d.V.: Yes.

Wouter Smits (W.S.): Do you see an importance in the neuro-psychoanalytic research with patients with sustained brain injury, for the advancement of theory of neuro-psychoanalysis and to help people in that way?

H.S.: Oh yes, I think one of Mark Solms's important contributions is the study of lesions of different parts of the brain and what effect it then has on the dream process: the availability of it and whether dreaming occurs or not. Also, it has been the source of his controversy with Hobson[45] over whether the dreaming is limited to REM sleep,

44. For example, in a 1956 study, Fisher flashed his stimulus (a parakeet perched between two Siamese cats) for 10 ms.

45. see note 13 p. 263.

whether it is a brain stem activated activity or whether it comes from higher parts of the brain.[46] So yes, lesion studies have been quite important in that particular area, and can be important in others as well. I also think it's one very important method, it has advantages, like all methods, it has disadvantages. There are also other ways, but certainly neuropsychological lesion studies, if they're properly done, can make a real contribution into neuro-psychoanalysis.

W.S.: I thought that the work of Mark Solms was sometimes a little bit too speculative; maybe he is a little bit too fast with his hypotheses sometimes? Also, do you know of someone else, who has an interesting research or clinical frame for people with brain injuries?

H.S.: The person that comes to my mind is Todd Feinberg[47] who has worked on anosognosia.[48] He has published a book (Feinberg & Keenan, 2005) on it. It is very careful work and he uses a lot of Damasio in his effort to understand the symptomatology of anosognosia and its relationship to where lesions are – which is usually on the right side, but not always. Now, on the work of Mark Solms, actually there has been some verification of his work from imaging studies, so it hasn't only been speculative. Ok, he stretches things here and there, but we all do that. But I think you're right to pick it up and to reserve your skepticism about the claims that he is making. One claim he makes that I'm not happy with – and I think there is evidence against it – is his insistence that there really isn't essentially any difference between REM sleep and stage-two sleep. In fact, the study that I described yesterday would suggest that there are qualitative differences.[49] I believe it's a position that Jaak Panksepp also would subscribe to and in fact Jaak has said so in his commentary on Mark's work. So, in that sense, he has been too quick to make that assertion, that there is no difference, that they are all dreams, that the brain stem is simply another way of activating the dreams. It's not only our study, but also other's, that suggest that the brain stem really

46. The running battle between activation-synthesis theorist Hobson and psychoanalytic theorist Solms since 1997 heated up in a special issue of *Behavioral and Brain Sciences* in 2000, continued in books they separately published in 2002, and spilled into the pages of *Scientific American* in 2004 (Hobson, 2000, 2002, 2004; Solms, 1997, 2000, 2004).

47. Todd Feinberg is professor of clinical neurology and psychiatry at the Beth Israel Medical Center in New York – see bibliography.

48. Anosognosia: impaired awareness of severe mental illness.

49. H. Shevrin (30.11.2005), "The Dynamic Unconscious an Experimental Research Program", conference for the "Post-Academische Vorming: Psychoanalyse, Fenomenologie, Neurowetenschappen: Wetenschapsfilosofische en Klinische Perspectieven" at the University of Ghent.

plays a crucial role, in what we ordinarily consider to be dreaming. But it leaves open the question about what is going on in other states, like stage-two sleep. What is the nature of that activity, where is it coming from? If it can't be readily assimilated to what we mean by dreams, what is going on? Is it simply that we're thinking? If you're awaken from stage-two sleep and you are asked to describe what was happening just before and you say: "I was standing on a corner waiting for a bus", one could say that that's a dream. It is a matter of definition – but it is different from REM-dreams. Now, with the exception of our study, the sleep/dream researchers have not addressed the dreaming process itself, all the research has been state-related, stage-two state or REM state. There is one man[50] who has tried to introduce the notion of a process in order to save some of Hobson's theory. This was not from a psychoanalytical standpoint and it countered Solms's position. This man was maintaining that maybe what produces the stage-two brain experience is that there is this previous REM-state, which is influencing what is going on in stage-two sleep. So, stage-two is still an offshoot of brain stem activation but delayed in time and in that sense, there is an ongoing process. This is the only study I know of, other than our own, that introduces that kind of consideration.

A.B.: Thank you very much, Professor Shevrin, for this vivid and rich conversation.

H.S.: I thank you all, I appreciate your listening for hours.

[Applause]

In gesprek met Howard Shevrin III

Samenvatting: Howard Shevrin's interesse in neurowetenschappen was eerst methodologisch: dit veld bracht onafhankelijk bewijsmateriaal over wat onbewust gebeurt. De fundamenten van de geest hoeven niet geheel neurofysiologisch te zijn: het is mogelijk de mechanismen te beschrijven in psychologische termen. Maar we zijn nog ver verwijderd van een ééngemaakte theorie van brein en geest. Wanneer men in analyse gaat, gaat de theorie niet langer enkel over ideeën, het eigen leven staat als het ware op het spel. Er is een enorme ongelijkheid tussen de neurowetenschapper die zijn bevindingen publiceert en de analyst die patiënten behandelt, maar niet publiceert. Als neuro-psychoanalyse enkel zal bouwen op de neurowetenschappen, dan zal het zijn belangrijke doel niet bereiken. Mensen in het veld van de psychoanalyse zouden gevormd moeten worden in "de fundamentele wetenschap van de psychoanalyse", die zich niet tot

50. This is most probably Nielsen, see note 15 p. 265.

neurowetenschappen zou moeten beperken maar ook een heel belangrijke vorming in psychologie, sociologie, enz. zou moeten omvatten.

Sleutelwoorden: Shevrin, Psychoanalyse, Neurowetenschappen, Neuro-psychoanalyse, Geest.

Bibliography

A. Allport (1989), "Visual attention", in M.I. Posner (ed.), *Foundations of cognitive science*, Cambridge, MA, MIT Press, pp. 631-682.

C. Babiloni, F. Vecchio, A. Bultrini, G.L. Romani, & P.M. Rossini (2006), "Pre- and poststimulus alpha rhythms are related to conscious visual perception: A high-resolution EEG study", *Cerebral Cortex*, vol. 16, pp. 1690-1700.

C. Babiloni, F. Vecchio, M. Miriello, G.L. Romani, & P.M. Rossini (2006), "Visuo-spatial consciousness and parieto-occipital areas: A high-resolution EEG study", *Cerebral Cortex*, vol. 16, pp. 37-46.

A. Bazan (2007), *Des fantômes dans la voix. Une hypothèse neuropsychanalytique sur la structure de l'inconscient*, Montréal, Éditions Liber.

N. Block (2005), "Two neural correlates of consciousness", *Trends in Cognitive Sciences* vol. 9, p. 2.

L.A.W. Brakel (1989*a*), "Negative hallucinations, other irretrievable experiences and two functions of consciousness", *International Journal of Psychoanalysis*, vol. 70, pp. 461-489.

L.A.W. Brakel (1989*b*), "Negative hallucination: toward a developmental classification of disturbances in reality awareness", *Journal of the American Psychoanalytic Association*, vol. 37, pp. 437-463.

L.A.W. Brakel & H. Shevrin (2003), "Freud's dual process theory and the place of the a-rational. Continuing Commentary on Keith Stanovich & Richard West (2000) Individual differences in reasoning: implications for the rationality debate", *Behavioral and Brain Science*, vol. 26, pp. 527-528.

A. Damasio (1994), *Descartes' Error: Emotion, Reason, and the Human Brain*, New York, Putnam Publishing.

M. Edelson (1988), *Psychoanalysis: A Theory in Crisis*, Chicago, University of Chicago Press.

A. Etkin, K.C. Klemenhagen, J.T. Dudman, M.T. Rogan, R. Hen, E.R. Kandel, & J. Hirsch (2004), "Individual differences in trait anxiety predict the response of the basolateral amygdala to unconsciously processed fearful faces", *Neuron*, vol. 44, pp. 1043-1055.

P. Fédida (avril 2000), "Le canular de la neuropsychanalyse", *La Recherche*, numéro hors série 3.

T.E. Feinberg (2007), "The 'hard problem' of anosognosia: Delusional confabulation and anosognosie", *Cortex*, vol. 43, pp. 1099-1101.

T.E. Feinberg & J.P. Keenan (2005), *The Lost Self: Pathologies of the Brain and Identity*, New York, Oxford University Press.

T.E. Feinberg & D.M. Roane (1997), "Anosognosia, completion and confabulation: The neutral-personal dichotomy", *Neurocase*, vol. 3, pp. 73-85.

T.E. Feinberg, D.M. Roane, & J. Ali (2000), "Illusory limb movements in anosognosia for hemiplegia", *Journal of Neurology, Neurosurgery, and Psychiatry*, vol. 68, pp. 511-513.

T.E. Feinberg, D.M. Roane, R.J. Schindler, P.C. Kwan, & L.D. Haber (1994), "Anosognosia and visuoverbal confabulation", *Archives of Neurology*, vol. 51, pp. 468-473.

C. Fisher (1954), "Dreams and perception: the role of preconscious and primary modes of perception in dream formation", *The Journal of the American Psychoanalytic Association*, vol. 2, pp. 389-445.

C. Fisher (1957), "A study of the preliminary stages of the construction of dreams and images", *The Journal of the American Psychoanalytic Association*, vol. 5, pp. 5-60.

S. Freud (1939*a*), *Moses and Monotheism: Three Essays, S.E.*, XXIII, pp. 3-137.

D.E. Hannula, D.J. Simons, & N.J. Cohn (2005), "Imaging implicit perception: promise and pitfalls", *Nature Reviews Neuroscience*, vol. 6, pp. 247-255.

J.A. Hobson (2000), "The ghost of Sigmund Freud haunts Mark Solms's dream theory", *Behavioral and Brain Sciences*, vol. 23, pp. 951-952.

J.A. Hobson (2002), *Dreaming: An introduction to the science of sleep*, New York, Oxford University Press.

J.A. Hobson (2004), "Freud returns? Like a bad dream", *Scientific American*, vol. 290, no. 5, p. 89.

D. Kahneman (1973), *Attention and Effort*, Englewood Cliffs, NJ, Prentice-Hall.

W. Kunst-Wilson & R. Zajonc (1980), "Affective discrimination of stimuli that cannot be recognized", *Science*, vol. 207, pp. 557-558.

M. Merleau-Ponty (1967), *The Structure of Behaviour*, Boston, Beacon Press.

J. Panksepp (1998), *Affective Neuroscience: The Foundations of Human and Animal Emotion*s, New York, Oxford University Press.

L. Pessoa (2005), "To what extent are emotional visual stimuli processed without attention and awareness?", *Current Opinion in Neurobiology*, vol. 15, pp. 188-196.

B. Rubinstein (1997), *Psychoanalysis and the Philosophy of Science. Collected Papers of Benjamin B. Rubinstein [1952-1983]*, Psychological Issues, 62/63. Edited and annotated by Robert R. Holt, with an Introductory Essay by Morris N. Eagle. Madison, CT, International Universities Press.

H. Shevrin, J.H. Ghannam, & B. Libet (2002*a*), "A neural correlate of consciousness related to repression", *Consciousness and Cognition*, vol. 11, pp. 334-341.

H. Shevrin, J.H. Ghannam, & B. Libet (2002*b*), "Response to commentary on 'A neural correlate of consciousness related to repression'", *Consciousness and Cognition*, vol. 11, pp. 345-346.

H. Shevrin (2003). *Subliminal explorations of perception, dreams & fantasies: The Pioneering Contributions of Charles Fisher*, Madison, CT, International Universities Press.

M. Solms (1997), *The neuropsychology of dreams: A clinico-anatomical study*, Hillsdale, NJ, Erlbaum.

M. Solms (2000), "Dreaming and REM sleep are controlled by different brain mechanisms", *Behavioral and Brain Sciences*, vol. 23, pp. 843-850.

M. Solms, (2004), "Freud returns", *Scientific American*, vol. 290, no. 5, pp. 83-88.

K.E. Stanovich (2004), "Balance in psychological research: The dual process perspective", *Behavioral and Brain Sciences*, vol. 27, pp. 357-358.

K.E. Stanovich & R.F. West (2000), "Individual differences in reasoning: Implications for the rationality debate?", *Behavioral and Brain Sciences*, vol. 23, pp. 645-726.

W.R. Uttal (2001), *The New Phrenology: The Limits of Localizing Cognitive Processes in the Brain*, Cambridge, MA, MIT Press.