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Varela's 'New Science of Consciousness'
at the System-Theoretical Crossroads

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A new thought is not one that has never been thought before
... c'est au contraire une pensée qui a du venir a tout le monde,
et que quelqu'un s'avise le premier d'exprimer.
(Boileau-Despreaux, 1701–1713 , cited in Cassirer, 2007: 304)

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I. Prologue – Where I Am Coming From ...

Friedrich Nietzsche, in a short poem, describes the world as a gate towards a thousand deserts, all silent and chill. He warns his reader: “woe on him who has no home” (Düsing, 2003). Taking Nietzsche’s advice seriously, I would like to, before I start to engage with the various aspects of this thesis, provide a brief account of my own background and motivation; my metaphorical home, where I am coming from. Doing so I hope to enable my reader to sort my writing, my discussion and my reasoning – as inherently bound back to myself – in a wider frame of reference. I am well aware that doing so in the context of a philosophical investigation, one that should strive to produce *a priori* truth, may invite some critical comments. At the end of the day, such a self-locating exercise must appear as a hardly disguised admission of my own situated-ness, and thus entailing the possibility of the situated-ness of my argument. I will say more about this potential situated-ness, but for now I would like to actually locate myself first.

I grew up in a rural environment and always took great joy in being in direct contact with nature. But merely experiencing nature – as enjoyable as it was (and still is) for me – was never enough. I always aimed to gain a deeper understanding of biology, wanted to be able to sort natural occurrences into explanatory frames, trying to understand what was happening around myself and – probably – even to gain some sense of control. However, and as much as I read about everything that stunned, impressed and formed me, the scientific explanation of any such event, as simple as a rainbow, could not substitute the feeling when experiencing such an event. There was always an inherent difference between *accounting for* and *living through* such events.

This wider interest in nature and my specific interest in biology never ceased, but eventually I had to entertain the thought of earning a living. Still young at that time, I joined the police, probably misguided by an early reading of Plato’s *Politeia* and his – to me at that time – glorious portrayal of the guardians. Full

of enthusiasm I devoted myself to the job, but realised quite early that the day-to-day reality was rather different from my own idealised vision and that none of my colleagues had ever read Plato, nor were inclined to do so at any point in the future. One of my supervisors back then rather blatantly captured this experienced dichotomy by explaining to me with a fatherly attitude: “You join the police either because you love people or because you love power.” Most probably unbeknown to himself he thus pointed towards the difference between a genuine concern for other people and their wellbeing on one side and one’s own rule-following conduct out of which a certain power over others results, to be enjoyed by the one inflicting these rules upon others. But that – and I have to admit, not for me at that time – begs the question of how one could ever know what would suit another’s wellbeing the most, at the end of the day, one cannot look into their heads.

I loved the people and enjoyed working with them, even with the difficult ones. I was fascinated by people and wanted to know as much as possible about them and learn as much as I could. So I finished my training and resisted the offers of various desk-jobs but went out instead to work the beat. I thus booked myself the best seat in the great theatre of life with the action unfolding right in front of me. In my time I saw the most wonderful and stunning things but I was also – often enough – the first one on the scene to witness the most horrible events. Despite these ups and downs – and there were more ups than there were downs – I never lost interest in life and the various ways of living, and this despite me not always understanding nor appreciating how people came to behave or react in the way they did. But again, I was driven by my desire to understand what it was that made people behave in these many very strange ways. Their own accounts, provided during initial questioning or formal interviews, seemed to be incomplete, quite often enough appearing like rationalising attempts to explain what remained inexplicable even to themselves.

The job fascinated me and never ceased to surprise me, but after 30 years of service my turn of seeing the great theatre of life unfolding in front of me was over, I gave up my seat in the front-row and retired. Although no longer

watching life from close by, I was nevertheless driven by my curiosity. My hunger to understand life had not eased off and so I sought a meaningful task that would continue to cater for my still active inquisitiveness in life. I started to study psychology and sociology in an attempt to understand – on a theoretical level – what it was that made people behave in the various ways that I had been privileged to encounter over the years. And although I learned a lot, when receiving my BA I was nevertheless left with the feeling that I had barely managed to scratch the surface of what I actually wanted to know. I enrolled to study for an MA in the Philosophy of the Mind and Body and graduated with a research-thesis on the emotions. But still, even that did not satisfy my curiosity.

Here I am: a life-long close observer of human life, well-steeped in a mostly biological perspective upon life with a nevertheless unshakable belief that what humans think and experience matters to them in terms of how they try to conduct their lives, although some are more successful in doing so than others. I do confess that I am convinced that – individually – mediated past and current experiences and thoughts stand in a relation to one's own aspirations and expectations, and that this mediation happens at least partially via conscious deliberations. Probably owing to my law-enforcement past – based around individual legal responsibility – I can just not bring myself to accept a total physical-causal determination of human life as Singer (2004) advocates. If that were the case I would have thrown 30 years of my working life out of the window, chasing people who could not have behaved differently, and that while I could not have done anything about it, as my fate – as much as theirs – would have been determined anyway. And in that respect I admit that I harbour some base-line assumptions regarding:

- the embodiment of human life as a physical pre-condition of being a truly human agent pursuing the project of his/her own life with various degrees of success and
- this individual pursuit of one's life-project as one not entirely determined by the causal laws of science or by socio-structural constraints as postulated by various sociological theories and, finally,

- the belief that human life is an active blend of reactive experiences and cognitive achievements in the pursuit of individual goals within an inherently open future.

But these base-line assumptions of mine seem to necessitate an individual steering ability, one that I take to be realised – in its highest form – via consciousness. Consciousness is thus the topic of this thesis.

II. The Problem to Be Addressed within This Thesis

Consciousness has not always been a major focus of academic investigations but is currently attracting the investigative interest of various disciplines such as psychological sciences, mathematics, physics, chemistry, computer science, biology (see the anthology of Velmans, 2007) and – of course – philosophy (amongst the many others Chalmers, 1996).¹

This, then is where I come back to my own situated-ness. When starting to read about consciousness I found a variety of opposing claims based on mutually exclusive positions. Often enough it appeared as if the maintenance of these carefully established distinctions and divisions was more of an issue than a genuine attempt to reach a solution to the presumably shared problem of finding out how to account for consciousness. It was probably owing to this – quite possibly mistaken – impression of mine that the proposal of Francisco Varela (1996) to develop a new science of consciousness struck a chord with me. Varela's neurophenomenology, as a blend of modern cognitive science and the philosophical tradition known as phenomenology, interested me immediately. But the level upon which scientific *a posteriori* facts establish themselves is fundamentally different from the level of an *a priori* pursuit of phenomenological investigations. Science, as a way of thinking about nature – i.e., about objects – has enabled humankind to engage in explanatory and predictive accounts regarding the surrounding objects and matters of fact to an astonishing extent. However, the undoubted human success in scientifically perceiving and henceforth manipulating the world only highlights the rather limited success of science when trying to account for the brute fact of human experience. Attempts to overcome the scientific limitation have been

¹ The renewed discussion about consciousness is probably most prominently sparked off by Chalmers' 1996 book about the conscious mind, and the ensuing

made by Edmund Husserl in trying to account for phenomena as they appear to consciousness. However, the idea of throwing both approaches together to balance out the limitations of both is hotly debated (see, for example Carel & Meacham, 2013). This is where phenomenologists such as Dan Zahavi (2013), but also Dermot Moran (2013) are to be found, providing arguments that phenomenological accounts cannot – just so – be collapsed into a naturalised account. On the other hand, the scientific protagonists, arguing in favour of a reductive, physicalist pursuit of science, will not grant room for phenomenological accounts (Dennett, 1991; 1996), or reduce the role of these accounts to subsequent confirmation (Wheeler, 2014).

One may thus be left with a (possibly) over-exaggerated mental picture of two separated encampments of phenomenology and science remaining in secure seclusion while engaging in investigations about the same topic, arguing about the respectively claimed investigative priority and the right way to do things. Varela, on the other hand, carries a backpack of biological and system-theoretical foundations with him while, wandering into both of these encampments and in-between them, picking up whatever seems to promise progress.

When it thus comes to Varela's proposal, the scientific and the phenomenological encampment dwellers appear to ask the question if – metaphorically speaking – *Romeo* and *Juliet* would be a good match or not, and if so, under what conditions. Their question is thus one that is driven by the concern of how far *Romeo* or *Juliet* would have to give up on themselves right now to enter this marriage, or, asked the other way round how much could they allow themselves to remain their respective selves when entering Varela's envisaged marriage? This is thus a question regarding the compatibility of the both in relation to entering into Varela's marriage-proposal.

Varela appears to have a different question in mind when it comes to the envisaged marriage of science and phenomenology. Of course marriages are said to be forged from love and burning desire for each other, a motive that is better disregarded for both partners in the case of Varela's plans. But – and

this seems to be where Varela is going – any marriage also has the dimension of a reason- and/or goal-driven union of the two partners. Marriage-partners commit themselves to pool their abilities henceforth. They commit themselves in an attempt to build a shared future together, a future as envisaged in their mutual dreams or visions in relation to the circumstances they find themselves in. If I am right with this interpretation, then Varela's driving question is one regarding the potential future of his marriage-plans, i.e., what and how much can be gained from this envisaged pairing when forcing different approaches into a blend that promises to yield results that otherwise may not be achievable?

The protagonists of a *doable* neurophenomenology (e.g., Petitot, 1999; Petitmengin, 2009; Depraz, 2013) do not unduly procrastinate upon any fundamental differences, but engage in actual research using Varela's neurophenomenological agenda and produce investigative results. However, their actual construal of what neurophenomenology is or ought to be is diverse. Neurophenomenology thus appears to capture a diverse conceptual and methodological extension, while it is being done already without wasting undue time on discussion as to whether it could be done eventually.

And that opens a novel dimension for thinking about neurophenomenology: While I try to avoid locating myself in one of these opposing encampments, arguing against the other or against the trespasser Varela, I intend to accompany Varela on his path, without becoming a follower of his. I will try to capture his attempt to develop the neurophenomenological project and have a look at this newly emerging dimension pointing towards the goal of doing actual research regarding consciousness while utilising experience.

This new future- and goal-orientated dimension brought about by an initial engagement with Varela's biological and system-theoretical underpinnings allows a critical assessment of the neurophenomenological proposal itself, and in relation to science and phenomenology. It is thus no longer an exercise in border-maintenance regarding the earlier mentioned encampments, remaining critical about Varela's suggestion of pairing them up against their

wish. This new investigative access and direction is supposed to pave the way for a genuine attempt to critically locate Varela's overall framework in relation to science and to phenomenology. Hence, my investigation constitutes a critical reflection upon the advantages and limits of the neurophenomenological agenda in its various modes. With this in mind the research-question, guiding the course of this thesis, emerges as:

With Varela's own theoretical foundations as a basis, what sort of opportunities and limitations are there for a neurophenomenological investigation of consciousness?

III. The Structure of This Investigation

In an attempt to answer this over-arching question, I have divided this investigation into seven chapters.

Chapter 1 provides an outline of the historic development of scientific psychology. I argue this development has resulted in a framework unable to account for experiences. The apparent dichotomy between a functional mind, as accounted for by psychology, and the experiential dimension of life is highlighted by Chalmers' formulation of the *hard problem* of consciousness. Chalmers suggests a solution by adding an additional property of *phenomenality*. I argue that Chalmers' suggestion is necessitated by his uncritical acceptance of the psychological-scientific status quo, as outlined in the earlier parts of this chapter.

Chapter 2 provides an account of Varela's own framework. Varela's biologically and system-theoretical account makes autonomy and self-referentiality a basic feature within living systems. But this depends – as I argue – on the presupposition of purpose, and an acceptance of the feature of *being alive*. Varela is suggesting a *biological* foundation for psychology, one that depends – due to the nature of his systems – upon self-observational accounts of internal system-processes. In debate with Dennett I argue that Varela's suggestion is a call to revolutionise psychology.

Chapters 3 and 4 make an attempt to run Varela's account alongside Husserl's phenomenology to assess their general compatibility. Chapter 3 engages with Husserl's psychologism critique. Husserl and Varela's account would not be compatible if Husserl's critique would extend to Varela's account. I argue that this is not the case and that Varela can evade this danger. Discussing Husserl's account in relation to his structural focus, the importance of experiences and the individual constitutive achievement of perception, I conclude, his account is in opposition to the current psychological paradigm. I argue that Varela's framework displays striking similarities to Husserl's phenomenology, but that this proximity is dependent upon a first-person investigative perspective.

Chapter 4 elaborates upon this first-person perspective, which seems to necessitate a self – or ego – to carry out the investigation. I argue that Varela's ego-conception is mostly in accordance with that of Husserl and, even more so, that Husserl's investigations provide good support for most aspects of Varela's system-theoretical account. However, when it comes to Husserl's move to transcendental arguments, Varela makes no parallel move.

Having thus established an initial compatibility between Varela's account and Husserl's phenomenology I utilise chapters 5, 6 and 7 to discuss the practicalities of Varela's neurophenomenological proposal. Chapter 5 discusses Husserl's suspension of judgement as an attempt to reach the constitutive elements of experience, without the assumptions of what Husserl calls the natural attitude. With the proposed suspension of judgment, or the *epochē*, as a genuine phenomenological investigative tool, Husserl brings his claim for the priority of phenomenology over science to the forefront. But as Varela wants to utilise Husserl's *epochē* for his *new science of consciousness*, I assess the possibility of performing this *epochē* within a scientific framework. I argue that empirical evidence supports such a suspension of judgement as a possible first step into a phenomenological investigation.

Chapter 6 focuses upon the next step in Husserl's investigation and the correlative step in Varela's work. The leading back of the investigative gaze –

a reduction – is supposed to reveal the constitutive elements of conscious appearances. Husserl moves from a descriptive phenomenology to a transcendental one. I discuss the relation between the earlier, descriptive phenomenological reductions and the later, transcendental ones, which allow Husserl to trace the conditions of the possibility for emerging *sense*. Varela, on the other hand, wants to link phenomenological accounts to naturalised ones and for this uses only descriptive phenomenological methods. And although Husserl's proximity to biology may provide some hope that biology could thus provide the bridge from phenomenology to science, his transcendental methods and empirical methods remain distinct. In relation to Varela's wish to utilise only the descriptive-phenomenological reduction to achieve a naturalisation of phenomenology I argue that such an approach is not warranted by Husserl's text. It is possible to employ this approach, but it will not achieve universal results, only contingent and situated ones.

Chapter 7 focuses upon the practicalities of Varela's project in relation to the envisaged *deep, pre-linguistic layer of experience* which neurophenomenology is supposed to unearth. I argue that neurophenomenology cannot evade linguistic and other cultural influences when trying to extract data concerning this supposed pre-linguistic stratum. Any attempt to evade these influences would need the given-ness of universal structures of consciousness. I argue that – due to the inherent and on-going system-evolution within Varela's framework – any notion of universal structures becomes problematic, as even the structures of consciousness appear to be partly formed by the surrounding culture. Husserl was exploring transcendental conditions, but as Varela refused to follow here, his results show the influence of the cultural environment. Hence, although Varela may be able to reach essential characteristics of particular experiences, he will find these already culturally shaped.

In the conclusion I argue that Varela's aim to solve the experiential poverty of psychology by linking biology with phenomenology has many promising aspects. In particular his account of how conscious experiences can be a feature of complex biological systems is a remarkable achievement. His

system-theoretical account works well with important aspects of Husserl's phenomenology, but – especially with regard to self-observational necessity – his project is in opposition to traditional scientific methods. I argue that Varela's selective utilisation of Husserlian methods leaves him with only situated and contingent results, but these results may still be informative.

One may be tempted to construe my critical engagement with Varela's proposed neurophenomenology as damaging to or dismissive of his project. However, I understand my contribution as a genuine attempt to locate positive aspects as well as potential problems and dangers. For the sake of Varela's project it appeared imperative to me to avoid mere scientific **or** phenomenological condemnation as much as an uncritical neurophenomenological celebration of the proposal. Ultimately, therefore, I try to develop a clear outline of the successes, the limitations and difficulties to allow for further development where this is possible but to avoid the raising of unwarranted hopes and expectations.

1. Psychology and Chalmers' *hard problem*

1.1 Introduction

In order to assess the possibility of Varela's aim to marry phenomenology and modern cognitive science to form what he calls *neurophenomenology*, suitable to overcome Chalmers' *hard problem*, it is necessary to establish some foundations first. I do this in two distinctive steps.

The first step (see sub-chapter 1.2) is owed to the fact that Chalmers develops what became known as the *hard problem* in relation to a pledge to take (psychological) science seriously. To know what such a pledge entails, it is necessary to establish what exactly he is referring to. However, this in itself would probably not be enough reason to direct any attention towards the historical development of psychology in any greater detail. Nevertheless, a focused discussion upon the specific problems of the scientific quest to investigate the mind and/or consciousness as they emerged over time will be utilised subsequently throughout this thesis. In that respect the brief account of the historical development of psychology serves as a contrast-foil against which I will run Chalmers' account (see sub-chapter 1.3), as well as Husserl's critique of the psychological sciences (see chapter 3) and finally Varela's neurophenomenology proposal (see chapter 5 onwards).

The second step (see sub-chapter 1.3) focuses upon Chalmers' position. This is necessary as Varela proposes his neurophenomenology in discussion with and against Chalmers' *hard problem*. Therefore it is essential to discuss Chalmers' account in some detail, to get a secure grip on the problem which puzzled Chalmers and which drove Varela to argue against Chalmers. However, this discussion also serves as some kind of stocktaking exercise with regards to attempts to account for the mind and/or consciousness scientifically.

With the first strand sufficiently developed I will argue that psychology is in a difficult position when trying to account for the experiential dimension of

mental life. The second strand of this chapter allows me to point towards Chalmers' un-critical acceptance of the (psychological) scientific status quo. Concluding from these two discussions, I argue that Chalmers' claim for a property dualism does not necessarily follow from the position he develops in relation to the current state of psychological science (see sub-chapter 1.4).

1.2 Psychology

This section follows the historical development of scientific psychology. It does so from the widely acknowledged beginnings of experimental psychology conducted by Wundt until the late 1990s when Chalmers formulated the *hard problem* and Varela offered a remedy for this specific problem. While doing so a certain path-dependent² conduct becomes apparent whereby past methodological decisions appear to force future options along – at least – three important dimensions or themes. These three themes, relevant in this thesis' context, are a) the experiential dimension, b) the experimental method and c) a computational conception of the mind.

However, when trying to provide a historical timeline regarding the scientific pursuit of psychology a word of caution is needed. Any reader less familiar with the developments in psychology may gain the impression that the main stages, exemplifying various investigative approaches in psychology would constitute a rigid sequence dividing one stage clearly from all the others and where one line of enquiry distinctively breaks with the previous one. This is certainly not the case and the various stages and approaches to be discussed are in fact merging into each other, co-existing at times and influencing any subsequent development.³

² Path-dependency is a concept used in sociology/business to refer to a current situation, which is brought about by past decisions, which are now constricting future options

³ For example, while Wilhelm Wundt was setting up his laboratories to engage in experimental psychology, Herman von Helmholtz had already managed to develop an apparatus, called the myograph, allowing him to measure the speed of nerve impulses (Frith & Rees, 2007). Hence, while experimental psychology was just about to emerge, neurological studies were already being conducted. The same picture reoccurs throughout the history of psychology: before Stanley Milgram in 1960 conducted his famous psychological study on obedience,

With this 'disclaimer' in place it is time to outline the route to be taken within this sub-chapter in relation to the three themes mentioned above. A first step provides a very general account of scientific attempts to research mind and consciousness (see section 1.2.1), allowing me to identify some specific constraints owing to the scientific method. The subsequent section will focus upon the emergence of psychology as an independent academic discipline by a strict application of empirical methods (see section 1.2.2). This stage is linked with the work of Wilhelm Wundt and the emergence of the experimental method (the second theme) to investigate experiences (the first theme) as reported through introspective accounts. The next stage considers Watson's behaviourist approach (see section 1.2.3), an attempt to concentrate exclusively upon observable behaviours to such an extent that the conscious experiences (the first theme) appeared no longer required. This section will also consider Skinner's version of behaviourism as a psychological research programme. A gradual weakening of behaviourism saw the rise of cognitive psychology. For the sake of clarity I divide the discussion of cognitive psychology into three distinct steps. First I will consider the re-emerging interest to investigate *causally relevant* mental states once again (see section 1.2.4), albeit stripped of all subjective baggage (the first theme). The possibility of such a re-introduction of abstract mental states is closely linked with a shift from scientific positivism to scientific realism and I will – very briefly – outline the implications of this shift. The next section (see section 1.2.5)

Torsten Wiesel & David Hubel had already managed, in 1959, to link visual stimuli with specific and localised neural activity within the primary visual cortex. Hence a kind of neuroscientific research was well under way while cognitive psychology was just about to emerge (see section 1.2.4 onwards). In this respect the here outlined successive stages of developments are to be taken to highlight specific aspects, and that holds true especially for the neuroscientific investigations mentioned at the end of this account (see section 1.2.6). Although the impression might emerge that neuroscience is a rather late and therefore probably the only currently valid investigative path, such an assumption would not be entirely true. The structuring of investigative currents in relation to widely shared background assumptions within the academic discipline of psychology provides historical constructs, and these capture main-currents with the aim of highlighting the various attempts aiming to gain investigative access to mental states.

focuses upon the cognitive psychological attempt to account for abstract mental states in terms of their causal role as conceptualised along an analogy drawn from computational processing (the third theme). The third section (see section 1.2.6) concerns the proposed interplay of cognitive/mental states as conceptualised in cognitive psychology and the possibility of linking these abstract states to the biological substrate. Before finally leaving this (brief) historic account of scientific psychology, I will establish some of the implications in relation to our identified themes (see section 1.2.7), and these considerations will conclude this sub-chapter.

1.2.1. Brain, Mind, Consciousness and Scientific Approaches

When discussing the concept of science, it is important to realise, that – due to the actual focus of this thesis – I cannot provide an in-depth, comprehensive discussion of science in general. I will thus develop the concept of science in a very general way to serve as a background against which I can sketch the developmental path taken by psychology and – even more so when the time comes – to make sense of Chalmers' position.

Science, as a form of human knowledge acquisition, is a method-driven endeavour whereby proposed theories are corroborated, substantiated or falsified by purposely collected evidence. Although scientific claims may (on occasion) be necessary and/or universal, science is different from pure *a priori* attempts to understand the world in that science aims to provide this understanding via empirical experience (Ruse, 2005: 857). Scientific, empirical evidence is collected via methods yielding quantified data, independent of the subjective experiences of the observing individual, data that can thus be interpersonally verified qua being (in principle) available to a quantifying observation by (in principle) anyone. The relevant literature refers to such an observation as obtained from the *third-person* perspective as opposed to an individual – *first-person* – perspective. Scientific theories propose a causal link between so observed circumstances and predicted results. The overall aim is thus to provide theories, offering a probable explanation for observed results in relation to identified causes.

When it comes to attempts to investigate the mind (and with that consciousness), psychology as a systematic scientific investigation regarding mental events appears to be the first choice. This however was not always uncontested. At the turn from the 19th to the 20th century the *Methodenstreit* emerged in Germany. This academic debate or struggle tried to reach agreement on the correct method to investigate the mind. The emerging discipline of psychology preferred – in the majority – the scientific method and made a clear commitment to a psychology without a soul⁴ (*Psychologie ohne Seele*) as envisaged as early as 1865 by F.A. Lange, i.e., a scientific psychological investigation purified of all mystical connotations (Sommer, 1985: 72), an issue I need to come back to later (see chapter 3).

However, if psychology is defined⁵ as Rohrer (1960: 8) did, as a science, investigating conscious processes and states as well as their causes and effects, or, as Pauli (1926: 12) did, as a science of subjective life-processes, which stand in a law-like relation to objective organic processes, a problem manifests itself as some non-physical connotations emerge. The *conscious processes* or *subjective life-processes* capture what appears to be special about the mind, i.e., the having of an individual, first-person perspective, regarding one's own conscious episodes. Psychology has, throughout its development, battled with the problem to provide a sufficient scientific explanation of these private processes.

The struggle to remain sufficiently scientific while avoiding metaphysical connotations has led to the fact that when addressing conscious experiences as a possible area of psychological interest, science is mostly addressing the *how-question*. This is the question of how it is possible that something like consciousness or conscious states exist at all. Within a scientific framework,

⁴ The German term '*Seele*' (soul) does not exclusively refer to a theological concept, but the term was often used to include the concept of '*Geist*' (spirit or mind) as well. However, Lange uses it here to pledge for a scientific pursuit of psychology, rejecting thus any form of mystical approaches.

⁵ There are endless attempts to define psychology, probably even more than there are textbooks written about psychology. I have settled for two examples of definitions here that reflect the focus of psychology as a natural science.

this *how-question* is asking for an explanatory rather than a descriptive or conceptually clarifying account, which would be a *what-question*.⁶ Although the *how-question* seems to quite naturally fall within the remit of the scientific endeavour (ordering observed data to reach an explanatory theory with sufficient predictive power), as I will discuss later (see chapter 2), some naturalist theories of mind take themselves to answer this *what-question* while providing the *how-account*.

However, following Van Gulick (1995), even this *how-question* is not a simple and straightforward one. The *how*, begging for explanation, could be asked in relation to a) various explananda, b) a range of possible explanans and c) aiming to satisfy different criteria of what would be regarded as a sufficient explanation. Leaving the difference it makes when trying to explain the explananda *basic awareness* as opposed to *self-consciousness* aside for now, the explanans and the criteria for a satisfying explanation are of key-importance here. The *how-question* in relation to the explanans aims to provide an account of how consciousness can be caused by, or realised in non-conscious entities (Van Gulick, 2004).⁷ The criteria of sufficiency for such an explanation constitute a methodological question and have posed a constant problem for psychology, one that we can trace throughout its history.

1.2.2. The Rise of Experimental Psychology – Wilhelm Wundt

Wilhelm Wundt (1832–1920) is widely held to be the father of experimental psychology (Gregory, 1987: 816), i.e., the one who introduced a method-driven empirical investigation regarding psychological states. Wundt gave psychology an experimental character and divorced psychology as an empirical (*a posteriori*) endeavour from philosophy with which psychology had

⁶ With its particularising view psychology has – as, for example, in the case of attention-dependent processes – indeed attempted to address the *how-question* without considering the *what-question* in relation to the attentive processes. Hence, the question of *what* sort of consciousness must be in place to have attention directed individually in one way or another was mostly left unanswered.

⁷ Van Gulick (2004) provides examples of these non-conscious entities: neuronal processes, biological structures, physical mechanisms, functional relations or even non-conscious mental states.

previously been closely tied up. Interesting for this thesis is Wundt's differentiation between a physiological and an experiential dimension, leading to what he called a *psychophysical parallelism* and to the methodological connotations such a position implied for him.

Wundt (1913: 5) took mere physiological attempts to account for sense-experiences as insufficient. Such investigations would objectify experiential states and drain them of their experiential quality. As this experiential dimension influences action but also constitutes a web of interrelated connections amongst these various experiential states, Wundt claimed that this experiential dimension is inaccessible to mere physiological investigations. Because of this natural-scientific access problem, Wundt proposed an "academic division of labour" (Petersen, 1925: 59): i.e., a division that leaves the natural sciences to investigate the world, and with that the brain, under their specific perspective while abstracting everything subjective from their conduct. Psychology, however, ought to engage in an appropriate scientific investigation of psychic (mental) states by applying its psychological perspective upon the individual experience.

It is this background against which Wundt (1913: 394) develops his principle of psychophysical parallelism (*Psychophysikaischer Parallelismus*). This is a position whereby the world is constituted of one substance only, which possesses two distinct kinds of properties, namely physical and mental ones. While applying their respective focuses and methods the natural sciences as well as psychology are concerning themselves with the same basic substance but they do so in relation to their respective properties. This position allows Wundt to reject meta-physical as well as mere physiological accounts regarding psychologically relevant events. In the light of Wundt's parallelism principle, Gregory's (1987: 817) claim that Wundt was neither a dualist nor a reductionist seems to be in need of some refinement to such an effect that Wundt was certainly not a Cartesian or substance dualist, but takes a position

that is nowadays known as property dualism.⁸ Interestingly enough such a property dualism entails exactly that sort of irreducibility of mental states that Wundt had claimed earlier.

Wundt understands the soul (mind) as being constituted by the multitude of relevant mental events or properties. In an Aristotelian manner, Wundt's soul is not a separate entity to be found somewhere, but it is nothing other than a supporting figure of speech (*Hilfsmittel*) to capture all psychological experiences of an individual consciousness (Petersen, 1925: 57).⁹ To gain the ability to provide a sufficiently scientific account of these mental states, Wundt (1913: 25) proposed introspection together with an experiment-based method, while steering the investigative focus away from the physical processes to concentrate specifically upon the experiences instead.

Prior to Wundt, experiential accounts had worked mostly upon only one individual reporting, so the results were next to worthless in terms of their scientific explanatory value. Wundt, however, conducted experiments with large samples of participants, divided into sub-groups (experimental group and control group) each being subjected to clearly defined – but different – conditions. Wundt was thus able to identify the data-distribution of each group and to compile frequency graphs. Such data processing allows for the calculation of statistically established differences between both groups, i.e., between the experimentally altered and the normal (control) condition (Wundt, 1913: 243). This statistical difference thus provides the means to make empirically derived, probability-based inferences regarding the causal mental states in relation to the experimentally provided conditions. However, to keep the focus firmly upon conscious experiences Wundt took the experiential dimension as the independent variable in his experiments. This independent variable was deemed to be accessible to the one undergoing the experiences

⁸ I will need to come back to this issue within the later parts of this chapter (see sub-chapter 1.3) in relation to Chalmers' position.

⁹ This somehow puts Wundt's conception of the mind in the neighborhood of Hume's (1739/1969) "bundle theory of the self" and Brentano's account of the mind as receptive and a mere possibility until it actually starts to think (George & Koehn, 2004: 31).

via introspection (*Selbstbeobachtung*). Wundt used these self-assessments of trained participants reporting relevant experiential states in relation to the mental representations of perceived objects or matters of fact.

Wundt (1913: 27) was thus trying to gain the needed scientific rigour by formalising the introspective element within experimental designs to obtain an appropriate method to investigate conscious experiences. Hence, Wundt challenged the natural-scientific aim to explain how mental properties emerge from physical properties as misguided because of the inherent inaccessibility of experiential states for any physiological investigation. His *psychophysical parallelism* allowed Wundt to direct his investigation – and this is important in the current context – towards mental instead of physical properties while trying to account for *how* these mental states emerge in relation to stimuli and/or other mental states. So Wundt proposed a method, deemed to be appropriate by him, to provide a sufficient explanation.

Nevertheless Wundt is nowadays seen to have not reached the minimum requirements for scientific rigour. Gregory (1987: 817) summarises the modern stance of scientific psychology towards its founding father thus:

Whether, however, such an approach to scientific psychology is truly applicable to the investigation of human personality and its development [...] is an altogether different and far more controversial affair.

This critical overall-assessment rests partially on the bad reputation of the introspective method as a data-source. Titchener (1909/10) already pointed towards the introspective method's dependency on high linguistic abilities of participants, to enable them to successfully formulate their introspectively assessed experiences and to subsequently communicate these to the experimenter.¹⁰ Away from this limitation there is a more general question of what would/could count as a scientific account of subjective experience. Such experiences – as long as they are not mine – always seem to escape my

¹⁰ I will have to come back to this specific problem in chapter 6.

grasp when made available to me as mere descriptions.¹¹ Scientific reports never seem to convey the experiential quality itself, and it is this background against which the question emerges: What should the task of a scientific account of subjectivity be?

In an attempt to answer this question the so-called *Würzburger Schule*¹² engaged in intentionality-focused psychology, questioning participants (*Ausfrageexperiment*) undergoing controlled experimental trials in Germany during the early 20th century. Their aims bear some similarity to Varela's and it is therefore worth mentioning that the *Würzburger Schule* tried to widen the focus and reliability of experimental introspection, developing a declarative-method (*Methode der Kundgebung*), influenced by Husserl's phenomenological method of the *epochē*. The underlying idea was to direct the introspective focus away from the perceived objects towards the inner processes leading to the experience of a perceived object (Ash, 1999: 64). However, despite its influence on educational psychology, the proposed methods of the *Würzburger Schule* never made it into main-stream scientific psychology,¹³ while the movement in Germany itself – due to political influences¹⁴ – lost momentum.¹⁵

¹¹ This is the point made rather compellingly by Frank Jackson (Ludlow, Nagasawa & Stoljar, 2004) with his thought-experiment about the colour-deprived scientist Mary.

¹² A psychological institute, founded in 1904 in the German town of Würzburg, with its most prominent protagonists being O. Külpe, N. Ach, K. Bühler, O. Selz and K. Marbe (Janke & Schneider, 1999).

¹³ Ash (1999) speculates that this is due to the fact that core-texts were only available in the German language, while the method of introspection as such, despite the remarkable methodological differences, had become obsolete as a result of Titchener's considerations regarding the introspective method.

¹⁴ The phenomenological movement as such and other movements influenced by phenomenology found themselves suppressed by the Nazi regime, as for example Husserl, who lost his academic post, while his and the writings of others (G. Misch for example) were no longer allowed to be published.

¹⁵ Some of the leading figures (especially Karl Bühler) also engaged in speech and thought psychology (*Sprach- und Denkpsychologie*) and in doing so provided – at the time mostly unnoticed – important foundations for the later emerging cognitive psychology, while Bühler and others were turning their attention to Gestalt-psychology (Heister, 1995: 397). A number of German scholars from the

1.2.3. Watson's Behaviourism – Skinner's Behaviourism

In what later became known as the *Behaviourist Manifesto*, Watson criticised Wundt's introspective attempts to account for individualised experiences as unreliable. His main point was the impossibility of translating experiential accounts gained by this method into scientifically valid and verifiable descriptions. Watson (1913: 158) replaced Wundt's methodological quest for the experiential dimension with his proposal for psychology to be "a purely objective, experimental branch of natural science", one that "must discard all reference to consciousness" and, additionally, one that must "never use the terms consciousness, mental states, mind, content, introspectively verifiable." With such a strong rejection of quite a good sample of terms that seem to be intuitively important for psychology one could wonder why Watson deserves mentioning in the current context of this thesis at all. Nevertheless, Watson's proposal for a psychology as a positivist science with its clear shift from Wundt's property-dualism towards a physicalist commitment is important here. The notion of physicalism refers to the doctrine that the *real world* contains nothing but matter and energy and that objects have exclusively "physical properties such as spatio-temporal position, mass, size, shape, motion, hardness, electrical charge, magnetism and gravity" (Davies, 2005: 716) i.e., properties which are objective and can be characterised from a third-person perspective.

Watson (1913: 177) was concentrating only on what is accessible to scientific methods and thereby eliminating "states of consciousness as proper objects of investigation." The task of psychology was, for Watson, to arrive at predictions about resulting behaviours in relation to presented stimuli, both of which could be described scientifically. Watson endorses a claim not unlike that of Carnap. Carnap (1932: 107), an important member of the Vienna Circle, argued

that every psychological discourse could be formulated in a physical discourse [...] This is part of the general thesis of physicalism, that the

Würzburger Schule emigrated to the US and took their ideas with them to influence further generations of cognitive psychologists.

physical discourse is the universal discourse, i.e., the discourse into which any other discourse could be translated.¹⁶

In this respect Watson's behaviourist account is based on a claim regarding psychological discourse and physical discourse, whereby the former is to be reformulated into a more basic physical discourse. This leads to a remarkable position in terms of the *how-question*, for there appears to be no explananda (consciousness, mind, mental states) in relation to which this question could be asked. The behaviourist's claim leaves no need to explain *how* consciousness (the explananda) may relate to non-conscious/non-mental entities.

Although Watson's account appears to satisfy the requirements for scientific validation, it runs into problems when it comes to describing wilful behaviours, exceeding mere reflexive responses. I will not explore this difficulty too deeply here, but – in a nutshell – Watson's behaviourist proposal cannot exhaustively explain human action (behaviours), without having to make some sort of reference to mental states.¹⁷ Nevertheless, and much closer to my current concerns, Watson's *Behaviourist Manifesto* marks an important watershed in relation to at least two issues which are of key-importance to this investigation. These are

- a) the shift away from subjective experiences, while
- b) focusing solely upon the scientific description of specified antecedents in relation to an assessment of experimentally evoked resulting behaviour.

Watson thus replaced the introspective method, which focused upon an account of the participants' experiences, by the behaviourist's methods, refined to adhere to the natural science paradigm.

¹⁶ "dass jeder Satz der Psychologie in physikalischer Sprache formuliert werden kann [...] Dies ist eine Teilthese der allgemeinen These des Physikalismus, dass die physikalische Sprache eine Universalsprache ist, d.h. eine Sprache, in die jeder Satz übersetzt werden kann." (My translation)

¹⁷ I may display observable scratching-behaviour, and I may do this in relation to a stimulus (itch) but I seem to act out of the fact that I find this itch annoying and that I want to get rid of it (experiential assessment of myself in relation to this stimulus and a subsequently emerging want).

However, before leaving behaviourism altogether, I must briefly mention Skinner's version of psychological behaviourism as that still yields influences upon today's psychology (Wallace, 2007). This approach utilises behaviour, including linguistic behaviour, displayed by participants within experimental settings and acknowledges the difficulty of describing human action without reference to mental states. Skinner (1987: 74) himself explains his position:

“Methodological” behaviourists often accept the existence of feelings and states of mind, but do not deal with them because they are not public and hence statements about them are not subject to confirmation by more than one person.

Hence, quite in opposition to Watson's claim, Skinner explicitly allows for the existence of mental states and an experiential first-person perspective for heuristic purposes. But nevertheless, Skinner maintains that these psychological states are captured by their relations to observable behaviours, while they are taken to be theoretical entities, defined only by their explanatory link to observables and not by any causal role. However, due to their private nature, these states remain inaccessible to any direct scientific assessment.

1.2.4 The Emergence of Cognitive Psychology

The weakening of Watson's original behaviouristic claim saw, between the 1950s and 1970s, the emergence of a new direction in psychology.¹⁸ What became known as cognitive psychology, still considers observable behaviour as its main source of data, but endorses a position of scientific realism, allowing a focus upon the causal role of mental states once again. This approach aimed to reveal how the mind is organised in order to be able to produce intelligent behaviour, and how this organisation is realised in the brain (Anderson, 2010).¹⁹ Nevertheless, before I can elaborate on this any further, I

¹⁸ This emergence of a new current does not, as discussed earlier (see 1.2.1), replace all other, still prevailing previous currents, but such a new current is running – a bit more strongly, attracting more followers – alongside the others.

¹⁹ When it comes to statements like this particular one here (*how something is realised*), one could take the *realisation of cognitive processes within a brain* as a straightforward ontological commitment. This however is not always the case. Philosophical accounts regarding this realisation issue are to be taken as ontologically ambiguous, while psychological accounts sometimes display less attention to the conceptual difficulties. In this respect psychological discourse regarding the *realisation issue* is probably best taken as some sort of *an*

first need to concentrate upon the aforementioned shift towards scientific realism, which replaced Watson's scientific positivism (see section 1.2.3).

Cognitive psychology utilises experiments whereby (scientifically) quantified stimuli are presented, stimuli which are supposed to evoke specific mental states within the participants who are thereby forced to make choices in relation to the so evoked experiential states. This design allows the experimenter to take the observable behaviour as a direct result of the participants' mental states in relation to their experiences. Hence, these mental states are taken to have a causal role in the resultant behaviour, and they are (at least indirectly) accessible. Such a conceptualisation is possible because cognitive psychology is leaving the behaviourist realm of scientific positivism in favour of a scientific realism. The latter is a position that allows for metaphysical assumptions (mental states in this case) and takes the status of scientific theories (psychology) as being a good approximation if the theory's central concepts and tenets are relating to actually existing objects or processes (brains and physical states).

Such an approach comes with the beauty that the nature of these theoretical mental states can momentarily be left as ontologically ambiguous, while cognitive psychology nevertheless views these theoretical entities as actually existing objects and processes. Hence, the overall account rests on the acceptance of the claim that all mental states are somehow physically realised in the brain, and in this respect one ends up with an acceptable version of a physicalist account, albeit one, which is nevertheless in need of a convincing explanation of how this link between mental states and their physical realisation is to be thought of. But before it is possible to discuss the difficulties of establishing such a link, I first need to follow the development of cognitive psychology a bit further.

ontological non-committing commitment, expressing the hope to find – someday – an underlying ontological basis for mentality, one that has not been discovered yet.

1.2.5 Cognitive Psychology as Representational Computation

Cognitive psychology – by name – puts an emphasis on cognition, so I will start with a brief consideration of this concept. Cognition, as recently understood, is not only the capturing of pure thought and inference, but its extension also entails representational states in relation to sensory data, used to control and guide behaviour while enabling thought and lingual report about objects of the surrounding world (Smith, 2005: 145). With this focus the term cognition is, especially in Anglo-American philosophy, used to set issues pertaining to perception, thought, language- and higher-level visual processing apart from other mental occurrences relating to will (conation) or to feelings and emotions (Wimmer, 1995: 416; Stich, 1994: 500).

Exactly this concept of cognition lies at the heart of the cognitive revolution, as being brought about by:

- a) earlier studies concerning the possible enhancement of human performances along information-processing neural or functional pathways,
- b) the usage of computers to understand/simulate computational information-processing and
- c) the growing impetus of linguistics, i.e., the investigation of the syntactical structure of language that allows for the processing of information (Anderson, 2010: 9).

Uniting these three strands, cognitive psychology aims to explain *how* the mind could be understood as a means to compute representational information following a syntactical structure. This approach goes beyond what behaviourists would have accepted, but it still faces severe limitations when it comes to accounting for the mind. To assess these limits I will attend to these three contributing influences upon cognitive psychology.

Influenced by Gibson's work,²⁰ the emerging cognitive psychology recognised the need to offer scientific explanations for mental complexity. Locating the

²⁰ Gibson conducted perceptual research regarding moving objects and subjects and to account for such fluid perceptions the mere stimulus – response chain, as

mind as an information-processing unit between stimulus and response, the mind and its various mental states gained the centre stage of psychology again. To account for the processes of the mind as generating appropriate responses in relation to environmental stimuli and/or other mental states, the idea of a functional nexus was developed. Mental states were taken to serve a specific function just as the physical counterpart of these mental states did. It thus became possible to claim an *a posteriori* identity in terms of the functional work both states (cognitive/functional and physical/neural ones) were doing. Although cognitive deliberations remained, qua being mental states, inaccessible to scientific observation, the results of any cognitive work could be conceptualized along the notion of these abstract functional states.²¹

If a system is supposed to generate appropriate functional states, causally leading to suitable behavioural responses in relation to its environment (and in relation to its own states), then the system's performance will be dependent on relevant information regarding these circumstances. Cognitive psychology thus

assumes that the mind has mental representations analogous to computer data structures, and computational procedures similar to computational algorithms. Cognitive theorists have proposed that the mind contains such mental representations as logical propositions, rules, concepts, images, and analogies, and that it uses mental procedures such as deduction, search, matching, rotating, and retrieval. (Thagard, 2010)

Such a concept of mind can – as any other computer – only work by following an ordering structure, a set of rules, whereby information is utilised according to its position within the process-chain, and that regardless of its actual semantic content. Following this assumption, the important feature for the mind's working is not the semantic content, i.e., not that which the data could mean nor the affective/emotional attitude that the one extracting this data from her environment would undergo. Representations are encoded as data and

endorsed by behaviourism – appeared to be too limited to account for resulting complexity.

²¹ This abstract notion of these cognitive/functional states will be discussed below.

this data is to be processed, by a receptive mind/brain, following the rules according to which datasets are generated, clustered and processed.

This cognitive framework thus allows a match of physical with mental states in terms of their similar contribution to bringing about a specified result. Wallace (2007) states that the cognitivist investigation of these functional states is currently the predominant approach for the scientific study of the human mind. However, it needs to be very clear that if one buys – so to say – the cognitive/functional states, one also finds an added representational, syntax-driven computational account in the shopping bag.²² And although such a cognitive approach may often suffice to explain ensuing action,²³ this account of the mind must remain inherently incomplete. This is because the cognitive work follows computational algorithms with little or no regard for the semantic content, i.e., what the cognitive state is about from the first-person perspective. However, conscious qualities do not play any role within such a syntax-driven cognitive economy. The absence of the experiential dimension is owed to the fact that these experiences seem to resist the representational digitalisation that would allow axiomatic computation. Cognitive/functional states thus exclude connotation and emotion qua definition.²⁴

Within the cognitive framework this exclusion is necessary. If the functional states are supposed to suffice to do the causal work within a cognitive economy then there is no place for a qualitative dimension. If experiences would influence resulting action, then the results of cognitive labour, deemed sufficient to do the work, would be over-determined, being brought about once by the cognitive states and a second time by the qualitative dimension.

²² This is not supposed to claim that the representational account is the only possible or currently available explanation. But for the sake of providing a brief historical account of psychology, I will here only focus upon what Wallace (2007) calls the predominant account.

²³ As I discussed earlier, psychological science establishes inferential probabilities of causality (see 1.2.2).

²⁴ See the discussion at the beginning of this section. However, this exclusion is not a total one, as these experiential states are sometimes re-introduced into functional accounts but they are then operationalised, i.e., reduced to their functional utility.

However, if one allows that these qualitative states are mental states as well, these cognitive/functional states, conceptualised as an array of enabling and interrelated parts, contributing to the whole of an overall function, turn out to be nothing but sub-sets of mental states *simpliciter*, sufficient for the job at hand, but not providing a complete picture of the mind.

However, when separating experiential/qualitative and cognitive/functional mental states a problem emerges. The mental work, necessary to evoke resulting behaviour, is – qua definition – done by functional states. But if one takes experiential quality to be the main ingredient of human conscious life, then it appears as if cognitive psychology has – in opting for the functional account – neglected the experiential dimension. This affects its ability to make claims regarding these experiential (and potentially conscious) states, as they are outside its remit. On the other hand – and equally owing to its scientific status – cognitive psychology cannot work with a naïve and uncritical acceptance of individual statements regarding one's own experiences, as these statements escape the reach of the necessary rigorous scientific (i.e., public) observation.

To highlight the result of this discussion so far: When it comes to accounting for the mind, cognitive psychology seems to lack the necessary explanatory reach to go beyond functional states and thus to provide an exhaustive account of *how* the overall mind is realised upon the non-mental. When it comes to accounting for consciousness itself, the limitation is even more severe. Due to the methodological constraints of the scientific approach, any claim regarding the conscious nature of a given state is beyond its scope. These limitations may well be the reason why cognitive psychology avoided the issue of consciousness and conscious experience in its past, and only recently found a renewed interest (Velmans, 2007).²⁵ However, there is one issue left to investigate here; this is the question as to whether cognitive

²⁵ This renewed interest initiated scientific-psychological research specifically aimed at experiential qualities and consciousness. As the neurophenomenological approach, which is the theme of this thesis, is one of these attempts, I will not discuss these rather recent currents here.

psychology can succeed in trying to link at least its cognitive states to the underlying biological substrate.

1.2.6 Cognitive Psychology and Cognitive Neuroscience

Indeed, the further development of cognitive psychology, brought about by the availability of technological and procedural advances in the biological, chemical and medical sciences, nurtured the hope of solving the ontological problem by somehow locating the proposed cognitive states within the biological substrate. The merger of these new investigative techniques and procedures with cognitive psychology enabled a new development in psychology influenced by neuroscience. And although neuroscience itself is interested in various levels of analysis regarding the human nervous system and the brain, the most important investigative direction within the current context is cognitive neuroscience. The overarching idea is that observation on the neuronal level gains data about experimentally induced changes in neural activity to allow the testing of pre-formulated hypotheses in a replicable manner between control and experimental groups. This data is (in principle) accessible to any other observer, enabling her/him to verify and validate the data and the subsequent interpretation (Bear, Connors & Paradiso, 2001). Such a neuroscientific, third-person perspective enables the development of theories about the signal-transmission at the synaptic gap, but also about the workings of single or clustered neurons and/or neural structures by observing the emerging neural processes directly. In relation to a cognitive neuroscience such a fine-grained observation frees the researcher from his/her previous dependency upon actually displayed behavioural sequences and makes available the internal workings that eventually would lead to such behaviours. In this respect neuroscience abandons the main data-source of the methodological behaviourist and exchanges it for the observation of processes internal to the subject. The particular aim of cognitive neuroscience is the investigation of where cognition is localised within the brain. Hence, cognitive neuroscience can be seen as an attempt to overcome the initial ontological indifference of early cognitive psychology (see section 1.2.4 and 1.2.5) by providing a richer and more detailed assessment of the biological underpinnings. This emerging biological picture in relation with the

experimental method, providing quantified stimuli to participants while they are being scanned, should eventually cater for a successful reduction of mental to physical events.

In light of the neuroscientific ambitions to link the neural basis to cognitive processes Schröter (2011) critically assessed cognitive neuroscience as such. Cognitive neuroscience, as having emerged from the cognitive sciences, is aiming to determine processes and structures in the form of mental representations and computational processes (initially characterised as abstract) within the human brain as functional localisations by assessing the biological substrate. In this respect cognitive neuroscience, Schröter explains, is utilising the theoretical frame of cognitive psychology, i.e., the idea of a computation in the form of a syntactic, rule following manipulation of physically implemented representational content. And this is where Schröter sees a problem emerging. If cognitive psychology is taken to offer a computational theory of the mind, cognitive neuroscience cannot be taken to offer a computational theory of the mind **plus** a localisation of the relevant neural events within the brain. Away from the danger that the localisation of neural events may not match cognitive structures, thereby rendering these theoretical structures as irrelevant, Schröter's argument concerns the level of description. The level of implemented computational processes and structures and that of the underlying substrate upon which these processes and structures are supposed to be implemented results in the fact that the explanatory reach of any so-derived hypotheses cannot warrant one making statements about the mind anymore. The (neuronal) level of description would only warrant claims about ensuing neural processes and their locations. And such a verdict seems to – despite all the investigative effort – leave the proposed cognitive/functional states still dangling in an ontological vacuum.

1.2.7 Implications of the Scientific-Psychological Quest

If one takes the challenge for psychological science as an attempt to match its own investigation regarding the workings of the mind/brain with the accuracy, the reach and the predictability of the natural sciences it is possible to make sense of the sketchy historical account provided here. This scientific pursuit

has led to the emergence of – at least – three important aspects, which have re-appeared throughout the discussion. These are:

- a) the (loss of the) experiential dimension,
- b) the exclusive utilisation of the experimental method and
- c) the computational conception of cognition.

With this historic overview in place, it turns out that current mainstream psychological science comes with a specific set of problematic limitations. Owing to historic decisions to pursue psychology within scientific methodology and within a realist framework, psychology has become essentially a reductive, physicalist endeavour. Experiential qualities find no greater consideration within this account. The experimental method, trying to reveal how the functional sub-set of mental states may be instantiated by the physical comes thus with an inherent blind spot regarding the experiential dimension of human life.

1.3. Chalmers' Hard Problem

Chalmers (1996) set out to search for a fundamental theory of the conscious mind.²⁶ I cannot assess all his writings, and thus concentrate mainly upon his 1996 book *The Conscious Mind* by first outlining Chalmers' motivation (see section 1.3.1). The subsequent sections will concern the mind body problem (see section 1.3.2), supervenience (see section 1.3.3) and Chalmers' zombie argument (see section 1.3.4). This will allow me to trace important issues with Chalmers' position (see section 1.3.5).

1.3.1. Chalmers' Motivation

In his quest for a fundamental theory of the conscious mind Chalmers commits himself to three important constraints.

1. The first is his pledge to take consciousness seriously, i.e., he is refusing any attempt to render consciousness as a process without any causal importance.

²⁶ It needs to be kept in mind that Chalmers does not claim to have found such a fundamental theory, although he hopes that his book will help to eventually develop such a theory.

2. The second constraint to his efforts is his aim to take science seriously; i.e., in trying to investigate the conscious mind Chalmers wants to stay within the confines of what somehow fits with contemporary science.
3. Alongside this scientific pledge, Chalmers holds – as a third constraint – the belief that consciousness is essentially a natural phenomenon, to be accounted for by natural laws.

In this respect Chalmers has already positioned himself in opposition to substance-dualist accounts of a Cartesian hue which differentiate between a) extended matter, following the laws of nature and b) an elusive *res cogitans* or thinking matter which is apparently free from the constraints of these natural laws. However, Chalmers equally rejects mysterian accounts as prominently voiced by McGinn (1991) holding the position that, due to an epistemic irreducibility, there can be no explanation of consciousness available to us. Chalmers maintains that McGinn's proclaimed *a priori* inaccessibility is due to the ontological poverty of the sciences of consciousness, an issue to be discussed a little later.

Before engaging with these specific issues, I will follow Chalmers' overall account. He explains:

Conscious experience is at once the most familiar thing in the world and the most mysterious. There is nothing we know about more directly than consciousness, but it is far from clear how to reconcile it with everything else we know. [...] We know consciousness far more intimately than we know the rest of the world, but we understand the rest of the world far better than we understand consciousness. (Chalmers, 1996: 3)

This apparent dichotomy between a presumably secure understanding of the world outside of us, while remaining rather naïve about our own consciousness, enables Chalmers to differentiate between two distinct concepts of mind. One concept – the psychological or functional mind – is concerned with the role mental states – conscious or not – play in a cognitive economy (Chalmers, 1996: 11) and this concept is basically the one I arrived at as a result of the earlier provided history of psychological science (see sub-chapter 1.2). Chalmers' second concept – the phenomenal mind – captures the experiential quality for the experiencing subject.

Chalmers (1996: 11) thus differentiates phenomenal or experiential states as being characterised by *the way they feel* from functional-cognitive states as being characterised by *what they do*. However, even these functional-cognitive states, regarding the *things that appear*, run close to the *things that are thought of*. Hence, even these functional cognitive states about something are experientially permeated, or in Chalmers' (1996: 10) own words "there is something it is like to have these thoughts [about something] ". But Chalmers (1999a: 435) is not concerned to provide a clear-cut differentiation of specific states here. For him every mental state is either a phenomenal state or a psychological state or a mix of both. Therefore the problem of clearly differentiating phenomenal from functional states can be neglected as long as one bears in mind that the differentiated states belong to distinct phenomenal or psychological concepts of mind, whereby both – pure or hybrid – are nevertheless mental events. In this way Chalmers seems to be able to adhere to his first two commitments, taking consciousness and science seriously.

Nevertheless, there is a terminological issue in Chalmers account. When it comes to these phenomenal states Chalmers (1996: 10) speaks of an added quality to his own "phenomenology", and when trying to explain avoiding or desiring attitudes he talks of the exertion of a "phenomenological tug". When encountering these phenomenon-related expressions, one has to bear in mind that the meaning of Chalmers' terminology is quite distinct from that of the philosophical movement known as phenomenology and its phenomenological investigations, which I will discuss in the following chapters. However, the way Chalmers uses these experience-related terms seems to imply that for him phenomenal experience is something over and above, something to be added to mere functional states, which is probably the reason for him avoiding a clear-cut differentiation between these states.

1.3.2 Two Mind–Body Problems

Chalmers point, regarding his proposed differentiation of mental properties into phenomenal and psychological properties is the fact that such a distinction leaves the mind–body problem divided into two mind–body

problems. For Chalmers (1996: 24) the psychological aspects of the mind, i.e., the aspects in focus when applying a scientific-psychological concept,

pose many technical problems for cognitive sciences, and a number of interesting puzzles for philosophical analysis, but they pose no deep metaphysical enigmas.

This psychological perspective is concerned with functional properties, causal roles and the question of how psychological properties are instantiated on a physical system. But these questions are, although serious, “puzzles rather than mysteries” (Chalmers, 1996: 24).

On the other hand Chalmers (1996: 25) claims that the phenomenal concept leaves the mind–body problem “as baffling as it ever was” and that no real insight has been gained into how and why cognitive processes are accompanied by conscious experience. This differentiation of the mind–body problem along Chalmers’ two concepts of mind gives rise to an easy problem of having to solve technical problems and puzzles regarding the psychological mind and its relation to the physical basis on one side. On the other side, however, the real difficulty, Chalmers’ *hard problem*, arises when trying to forward our understanding about the link between the psychological mind and the phenomenal mind (Jackendorff, 1987). In this respect Chalmers’ *hard problem* appears to occur as a specific – the difficult – sub-problem of the mind–body problem, when it is assessed in relation to Chalmers’ proposed two concepts of mind.

1.3.3 Excursus: Supervenience

As the notion of supervenience holds a central place in Chalmers’ account it is necessary to discuss the concept and its utilisation in Chalmers’ argument. Cartesian Dualism, which proclaimed two distinct substances, faced the problem of having to account for the possibility of one of these substances causally interacting with the other one. Therefore the aim of linking the mental and the physical by reducing mental events to an assumed physical basis is probably the most dominant current in the philosophy of mind (Quante, 1998). Supervenience tries to account for such a relation between the mind and body, with an assumed primacy and priority of the physical (Kim, 1995: 578),

and in this respect it is basically a physicalist account (see section 1.2.7). The idea of supervenience is based on an assumed covariation of mental and physical properties, in such a form that an indiscernibility of physical properties entails an indiscernibility of mental properties as well. Kim (2006: 9) explains this supervenience thesis as a necessity-claim whereby the mental supervenes upon the physical

just in case if anything x has a mental property M , there is also a physical property P , such that x has P , and necessarily any object that has P has M .²⁷

The supervenient claim is then: every mental property has a physical basis on which it supervenes. This can be read as an affirmation of a dependent or determining relation between the mental and the physical. Hence, mental properties must have an appropriate physical substrate to arise or emerge. Kim (2006: 12) however makes clear that “strictly speaking the supervenience thesis [...] only makes claims about how mental properties *covary* with physical properties.” (Italics in original) Nevertheless, most physicalists interpret the claim to entail mind–body dependence and thus gain an “explicit affirmation of the *ontological primacy*, or *priority*, of the physical in relation to the mental” (Kim, 2006: 12, italics in original). If endorsing the physicalist interpretation, the mind–body supervenience thesis results in possibly the weakest form of a physicalist mind–body dependence claim, or as Kim (2006: 13) calls it a “minimal physicalism”.

Before leaving this clarification attempt, I need to mention another form of supervenience that appears in Chalmers’ argument. This is the claim of global supervenience. This thesis applies indiscernibility considerations globally, i.e., to whole possible worlds as units and not to the individuals inhabiting these worlds. But this must suffice, as I do not wish to make Chalmers’ argument the main focus of this current project.

²⁷ I have provided Kim’s definition of *strong supervenience*. Kim (2006: 9) differentiates between a *weak* and a *strong* form of supervenience, but explains that both concepts are only kept apart by “subtle differences.” Kim therefore proposes – for practical reasons – to consider both claims as equivalent. In that respect – and to bring this discussion forward – it seems safe for me to neglect these subtle differences and to follow Kim’s suggestion.

1.3.4. Chalmers' Zombies

This account of Chalmers' position is supposed to provide a mere steppingstone for a further discussion of Varela's position as he provides his proposal in relation to Chalmers' claims. Therefore, I will not spell out every aspect of Chalmers' argument; instead I will only concentrate on some aspects to provide an idea of his charge against supervenience. Although Chalmers (1999b: 476) himself claims that his zombie thought experiment is only one of five arguments to forward his point, I will nevertheless concentrate on this well-debated argument to get to grips with Chalmers' claims as this argument is seen by many as a cornerstone of Chalmers' anti-materialist claims (e.g. Shoemaker, 1999; Yablo, 1999; Hill & McLaughlin, 1999).

Chalmers invites his reader to imagine a world which is a physical duplicate of our actual world, inhabited by creatures sharing all functional and physical features that we as conscious beings possess, but without any sort of phenomenal consciousness. Chalmers takes the fact that we can conceive of such a world as sufficient to establish such a world's possibility. The inhabitants of such a conceivable, hence possible world, Chalmers calls them "zombies", lack any phenomenal properties, or *qualia*. And that is the crux of Chalmers thought experiment; if such zombies are indeed possible, then phenomenal consciousness cannot supervene on physical facts and – even more so – phenomenal consciousness itself cannot be physical (Yablo, 1999: 455).²⁸ On accepting Chalmers' counterexample to psychophysical supervenience as the possible weakest form of a materialist theory, one would need to give up physicalism, thus opening up the gate for Chalmers' claims.

Chalmers' argument to show that a supervenient relation cannot hold is far more complex and multi-layered. The key-aspect in this context is, however, the question as to whether consciousness could be reductively explained.

²⁸ The concept of supervenience as used in this context here is the one which goes beyond the mere covariance as outlined in section 1.3.3, i.e., I am talking about the physicalist interpretation of supervenience which entails an ontological priority. A mere covariant supervenience claim may even suffice to capture Chalmers' property-dualism claim – but that would be another story.

Chalmers argues (by means of his zombie argument, amongst others) that phenomenal properties are not entailed *a priori* by physical properties. Hence, there is no way of telling what sort of phenomenal state one is undergoing based on a (complete) assessment of the relevant physical properties. However, Chalmers takes this point further by claiming that phenomenal properties are not necessitated by physical properties.

Contrary to McGinn, Chalmers claims that there is no *a priori* connection between the physical and the phenomenal, one that just happens to be inaccessible to us, due to our cognitive limitations. Instead Chalmers (1999b: 436) proposes to expand the materialist ontology of science

by new fundamental properties (phenomenal or protophenomenal properties) and new fundamental psychophysical laws

to capture emergent phenomenal properties in order to arrive at a fundamental theory of consciousness. Chalmers' overall position is thus a form of dualism, which Chalmers (1996: 125) calls

a kind of *property dualism*: conscious experience involves properties of an individual that are not entailed by the physical properties of that individual, although they may depend lawfully on those properties. [Italics in original]

Although there are still questions regarding Chalmers' property dualist position, the account provided so far must suffice within the current context.²⁹ Nevertheless, with such a position one cannot avoid being struck by the apparent similarity between the accounts of Chalmers and Wundt (see section: 1.2.2), both holding that – at least some – mental events are irreducible and calling for a property-dualism (Chalmers) or psychophysical parallelism (Wundt). But nevertheless, Chalmers has positioned himself differently. While Wundt was proposing psychological investigations to focus on the experiential/phenomenal domain, Chalmers is left to try to approach this domain from the realm of empirical psychological science as it was

²⁹ See for example Quante (1998: 624) who points towards the unclear ontological status of these phenomenal properties which still allows the classification of Chalmers' property dualism either as an ontological monism or dualism

developed in the previous sub-chapter with all its apparent difficulties (see sub-chapter 1.2).

1.3.5 Issues with Chalmers' Position

Chalmers' account has raised a lot of critical engagement and this is – as mentioned earlier – not the place to provide an overview on the still on-going debate. However, some critical points need attending to in order to understand Varela's proposal correctly. I will concentrate on two problems of key-importance within this project. One concerns the danger for Chalmers' account of leaving the mind as a mere epiphenomenon; while the second concerns a problem that Chalmers has inherited from his commitment to take science seriously.

To start with the first issue, Yablo (1999: 455) comments on Chalmers' naturalist dualism with its contingent correlational laws as moving “scarily close to casting consciousness as an epiphenomenal by-product of its physical basis.”³⁰ In relation to theories about the mind–body relation the term *epiphenomenalism* was introduced by Scheler³¹ to polemically refer to such theories which took consciousness as a mere by-product of physiological processes (Mittelstraß, 1995: 564). Yablo takes issue with the fact that Chalmers is not able to provide a coherent account of how the contingent correlational laws of mind–body interaction are supposed to work, while on the other hand Chalmers firmly cuts any supervenient ties when arguing for his property dualism. Indeed, without establishing such a link consciousness seems to take a form whereby it solemnly produces causally irrelevant phenomena with no significance for further physical processes. However, Chalmers (1996: 127) seeks to evade this danger with his claim that “new fundamental properties” and “new fundamental laws” will eventually specify “how phenomenal properties depend on physical laws” to formulate a “relevant fundamental theory”, but “at this stage we have very little idea” what this theory will look like. This might sound less than satisfying at this very

³⁰ Beakley (1999: 664) takes a similar position claiming that: “Chalmers argues for a dualism which is epiphenomealist...”

³¹ Max Scheler's *Der Formalismus in der Ethik und die materiale Wertethik I-II* 1913/1916 reprinted by Elibron (2007)

moment, but Chalmers never claimed to provide a complete theory. He offered a mere starting position from which to think along different ways to provide some impetus into scientific research regarding consciousness on the basis that there is a lawful relation between the world and conscious states. In this respect Yablo's concern seems to lose gravity and fails to invalidate Chalmers' project, a project that claims the need for an amendment of the scientific ontology to be able to capture the phenomenal properties and their lawful relation to a physically instantiated functional structure.

Nevertheless, if Chalmers is hoping for a lawful relation between natural and mental states in the form of a relation between two distinct properties then his proposal somehow seems to merge into a supervenient account again. But this supervenience was what Chalmers set out to argue against. However, one needs to be careful here – Chalmers argued against the physicalist construal of supervenience (see section 1.3.3). But that does not solemnly commit him to a position of mere supervenient co-variance, a position that would leave him vulnerable to Yablo's charge. Chalmers, when pledging to take science and consciousness seriously also stated that he holds the conviction that consciousness is essentially a natural phenomenon, to be accounted for by natural laws. The naturalist position taken by Chalmers here is wider than the physicalist standpoint. Naturalism, assuming that everything that is, is essentially natural, i.e., belonging to the world of nature, does not necessitate the strict application of the physicalist constraint, aiming to provide exhaustive and purely physical accounts. In that respect – although it looks as if Chalmers wants to have his cake and eat it – Chalmers can actually break with the physicalist supervenience without slipping into an epiphenomenal account by maintaining a (weaker) naturalist position. But to do so he needs to hold that the relevant phenomenal properties are natural properties and thus propose his property dualist claim.

In relation to this property-dualist claim there is a second serious issue. Quante (1998: 616) formulates a general critique regarding cognitive-psychological/functional accounts of the mind in relation to Chalmers. Quante explains that the need to produce methodologically acceptable and verifiable

interpretations of subjective data has resulted in an exclusive focus on functional roles and causal laws governing mental states occurring in relation to conscious occurrences. That is the position developed earlier after discussing the history of psychology (see sub-chapter 1.2). Quante explains that the current methodological focus cannot capture the mental aspects relevant to phenomenal consciousness, i.e., the experiential and subjective character of these states. For Quante, the motivation of functionalism is thus an ontological one, striving to attach a causal role to mental states to integrate functionalism into a physicalist ontology. Quante's analysis is, that this ontological motivation is paired with what he calls a *methodologically motivated anxiety* regarding subjectivity and the experiential character of conscious states, which was – as outlined earlier – the reason to discard Wundt's introspective methodology.

With Quante's assessment in mind it is time to look at Chalmers' two concepts of mind again. These two concepts are the direct product of his commitment to a) take consciousness and b) science seriously. While a) leaves him with the phenomenal mind, the outlined history of b) leaves him with the functional mind. The division of these concepts, separately applied to the mind–body problem, results in Chalmers' *hard problem* when trying to link the psychological/functional mind and the phenomenal mind. However, Chalmers' proposed division may prove to be a fertile ground for philosophical debate, but it remains questionable as to whether his suggestion of putting these two concepts in opposition to each other makes sense at all. Philosophical and psychological investigations into the emergence, the processing and the cognitive/experiential effects of emotions make it highly unlikely that phenomenal states have no causal role to play within a functional cognitive economy.³² There is thus good reason to doubt the explanatory completeness of an exclusively functionalist concept as proposed by Chalmers.³³ Even

³² E.g.: Baier (1990), Goldie (2000), LeDoux (1993; 2000), Prinz (2003; 2004a; 2004b) and Scherer (1999) amongst many others.

³³ Baars (1998) takes a similar line, questioning the appropriateness of Chalmers' proposed division from a scientific point of view – stating that this division does

Chalmers' proposed hybrid states (functional plus phenomenal ones) will not be able to solve this problem, as this option only serves as a confirmation of the objection against his clear-cut conceptual differentiation. Despite the fact that there are hybrid states, Chalmers needs to uphold his differentiation by insisting on the theoretical possibility of pure non-functional, phenomenal states according to one concept of mind as opposed to non-phenomenal, functional states as entailed by the other concept. If he does not do so, his distinction between the two concepts becomes pointless. And if he loses this clear differentiation, then he has lost the two perspectives, supposed to result in an easy and a hard outlook on the mind–body problem.

In a later paper Chalmers (1999b: 495) appears to acknowledge this intrinsic hybrid character of mental states – at least half-heartedly – by claiming “I have gradually become more sympathetic with the idea that phenomenology plays a role in constituting intentionality”, and that seems to imply that Chalmers now allows for a minimal functional role of phenomenal states. This is quite remarkable as Chalmers' property-dualism claims depend upon the division of intentional and phenomenal properties. As the intentional properties can be accounted for functionally they pose no problem for physicalism. But this weakening of Chalmers' position adds to the picture that the phenomenal properties have not yet been sufficiently incorporated into the sort of scientific-psychological conduct that Chalmers wishes to take seriously and that he utilises to develop his functional concept of mind. And if this is the case, then the question arises about the characterisation of Chalmers' *hard problem*. This *hard problem* may thus be one of acknowledging the shortcomings of current psychological science by allowing phenomenal states *per se* to be functionally pertinent.

1.4 Chapter Summary

When Wundt – the founding father of scientific psychology – proclaimed his psychophysical parallelism, i.e., a property dualism, he – as a true pioneer – was in the fortunate position of not having to pay heed to a century of scientific

not reflect the natural scientific (cognitive and neuroscientific) approach correctly.

psychological research along the physicalist paradigm. Chalmers, however, found himself in a more precarious position. He is arguing for a property dualism, and while doing so he puts himself in an opposition to psychological science, which had already rejected Wundt's psychophysical parallelism nearly a hundred years ago as methodologically and ontologically insufficient. However, while making his claim, Chalmers also pledges to take science seriously, and he has to do so.

His resulting claim for property dualism is what I want to focus upon here. In relation to this claim two questions emerge:

- a) In light of Chalmers' initial pledge to take science seriously, is he justified in making his property dualist claim?
- b) And is property dualism a reasonable position to accommodate experiential mental events – or consciousness in general?

I will – while summing up the discussion so far – attempt to develop an answer to both.

The journey through the history highlighted psychology's difficulties in accounting sufficiently for experiential mental states and with that for conscious life. The focus on functional roles within a cognitive economy with its physicalist commitment takes (currently abstract) mental states as reducible to a physical basis. This is where one may ask whether the apparent incompleteness of the psychological account is owed to the scientific, physicalist approach itself. This is a problem already formulated by Wittgenstein (1953/2003: §308):

We talk about processes and states and leave their nature undecided. Sometime perhaps we shall know more about them – we think. But that is just what commits us to a particular way of looking at the matter. For we have a definite concept of what it means to learn to know a process better. (The decisive movement in the conjuring trick has been made, and it was the very one that we thought quite innocent.)³⁴

³⁴ *“Wir reden von Vorgängen und Zuständen, und lassen ihre Natur unentschieden! Wir werden vielleicht einmal mehr über sie wissen – meinen wir. Aber eben dadurch haben wir uns auf eine bestimmte Betrachtungsweise festgelegt. Denn wir haben einen bestimmten Begriff davon, was es heißt: einen Vorgang näher kennen*

In order to answer the first of the above questions it is thus necessary to check if Chalmers has fallen for what Wittgenstein calls a *conjuring trick*, i.e., the uncritical acceptance of a physicalist position in terms of mental states and processes.

Chalmers accepts the psychological scientific status quo, he pledges to take this science seriously, and he accepts the currently pre-dominant functionalist/cognitive account, only to then argue that something is missing from the picture – something so important that ignoring it would violate his pledge to take consciousness seriously. By accepting what psychological science has produced so far in an unquestioned manner, Chalmers ends up with his functional concept of the mind, a concept that rests on a – methodologically motivated – system-immanent exclusion of the experiential dimension. But as Chalmers wants to take consciousness seriously, he creates another idealised concept of the mind: the phenomenal mind. In some sort of a hierarchy Chalmers suggests a) linking the biological wetware with the functional mind (*easy problem*³⁵) and b) somehow trying to establish a link between the functional and the phenomenal mind (*hard problem*). Such a hierarchy appears to leave the functional mind as the more basic concept, with – at times – some phenomenal occurrences added on, but for these the functional account can have no explanation to offer unless the *hard problem* is solved.

However, one cannot avoid wondering if the toughness of Chalmers' *hard problem* is essentially owed to the application of the two mind concepts to the mind–body problem. Or, put differently, the *hard problem* is as hard as one's willingness to maintain a strict distinction between the ideal concepts of the phenomenal and the functional mind. Chalmers shows no critical engagement with the possibility that the current state of psychology could be the result of

zu lernen. (*Der entscheidende Schritt im Taschenspielerkunststück ist getan, und gerade er schien uns unschuldig.*) (Translated by G.E.M. Anscombe)

³⁵ And I already hinted that even this problem is not so easy at all (see section 1.2.6).

the discipline's path-dependent insistence on solving the problem of the mind by a reductive physicalist quest. By not limiting the scientific approach to a mere functional/cognitive endeavour with an exclusion of experiential elements, one may (or may not) find that the experiential aspects of mental life can well be accounted for without the need of additional properties. But Chalmers remains silent about this weaker option and we can thus take it that Chalmers' property dualist claim is founded upon the fact that he accepts psychological science with all its apparent limitations as a given.

In that respect it looks as if Chalmers has indeed fallen for what Wittgenstein called the *conjuring trick* (*Taschenspielerkunststück*). It turns out that with Chalmers' initial pledge to take science seriously, he has uncritically accepted the underlying physicalist assumptions of scientific psychology which now appear to leave only the property-dualist option to him.

Nevertheless, care is needed here, as I was only trying to provide an answer to the first of my earlier questions. So there is a possibility that Chalmers could be right with his property dualism claim, but that he would be right for the wrong reasons. Or to put it differently: Chalmers may still make a worthwhile suggestion, but one which is not necessarily warranted by the position he takes to develop this claim. This possibility leads back to the second of these earlier questions, i.e., as to whether property dualism is a reasonable position to accommodate experiential mental states.

Any answer to this second question is invariably tied up with a) the explanatory reach of physicalism and b) the characterisation of these experiential states. I discussed the difference between a physicalist and a naturalist position earlier (see section 1.3.5) and it became clear that the physicalist position exclusively focuses upon properties that can be characterised from a third-person perspective. While the – wider – naturalist position assumes that everything belongs to the world of nature. That is where the problem for Chalmers' property dualism emerges. If one takes the experiential dimension to be an essential characteristic of any individualised access to the world, then it looks as if both concepts – physicalism and the

experiential properties – cannot be reconciled easily. Exactly this was Chalmers' motivation for the property dualist claim. However, Chalmers considers consciousness to be an essentially natural phenomenon. And Chalmers can, with this naturalist commitment, avoid Cartesian substance dualism. But to achieve this, he has to – at least partially – backtrack on his earlier acceptance of physicalism to now find recourse with the wider, i.e., naturalist, position to accommodate for consciousness. Hence, Chalmers implicitly acknowledges the limitations of the explanatory reach of physicalism when consciousness is concerned. But as Chalmers set out to search for the conscious mind, his pledge to take (physicalist) science seriously appears to preclude the successful conclusion to his quest. To thus answer the second of my initial questions, it would appear questionable as to whether Chalmers' proposed property dualism – almost necessitated by his shifting between physicalist and naturalist commitments – constitutes a good enough solution to accommodate for consciousness.

Now – as this chapter comes to a close – it is time to quickly spell out what has been discussed and established so far. Aiming to provide the ground for the subsequent discussion of Varela's proposal I first discussed a history of the psychological quest, and that indicated a strong physicalist commitment (see sub-chapter 1.2). At the end of the first section I discussed the shortcomings and limitations inherent in such a commitment. In the second part I accounted for Chalmers' position and his property dualist claim (see sub-chapter 1.3). I focused upon two problems with his account in terms of his claim to reject mind–body supervenience and to develop a concept of the functional mind as being based upon an incomplete scientific account of the mind. I argued that, in light of the history of psychology, Chalmers appears to have committed himself to a property dualist claims that is not necessarily warranted by the position he develops for himself (see sub-chapter 1.4). And with all this in place it is now time to turn to Varela's account to see if he can provide a solution to overcome the problematic division of the functional and experiential properties of mental states.

2. Varela's Remedy for the *Hard Problem*

2.1. Introduction

Within the previous chapter I developed a brief historical timeline of psychological science. This allowed me to highlight how the experiential/phenomenal dimension of mental states was divided from their functional/intentional content. Although cognitive science claims to be able to account for the intentional content, there is still an unsolved problem when trying to incorporate the phenomenal content. With this historical background in mind it became clear where Chalmers finds his motivation to split the mind into a functional/cognitive and an experiential/phenomenal one. The former one could – eventually – be accounted for naturalistically, thus constituting the *easy problem* of consciousness. However, trying to account for the latter one leaves Chalmers with the *hard problem*, i.e., the difficulty of naturalising the phenomenal content.

This chapter is about Francisco Varela (1946–2001), a Chilean biologist, neuroscientist and philosopher who was not prepared to wait for Chalmers' vision regarding a new fundamental theory of consciousness to become a reality. Already in 1996 he published a reply to Chalmers' *The conscious mind* (1996) in the *Journal of Consciousness Studies*, proposing a methodological remedy for the *hard problem*. Varela (1996: 330) called his suggested solution “neurophenomenology” – a name chosen

to designate a quest to marry modern cognitive science and a disciplined approach to human experience [...] in the lineage of the continental tradition of Phenomenology.

Varela's proposed neurophenomenological project may thus come across as if it would offer a merely methodological remedy, solemnly designed to overcome Chalmers' *hard problem*. But the reach of Varela's project is much wider, and any attempt to assess the neurophenomenological project must remain incomplete when discussed without his wider theoretical focus.

For this reason I will use most of this chapter to provide an account of Varela's biological, system-theoretical underpinnings. I do this in broad strokes to provide a basic understanding of Varela's account of how complex biological systems could be conscious.

First and most importantly, Varela's framework does not allow for a differentiation between intentional and phenomenal content. Varela takes the fact of *being alive* as his starting point and identifies the concept of *autopoiesis* as the core feature of this fact. Therefore I will clarify this concept in relation to living organisms and in relation to system-theoretical considerations first (see sub-chapter 2.2). This enables me to locate Varela's account of living organisms within the philosophical landscape (see sub-chapter 2.3).

However, Varela's proposed remedy was supposed to solve the *hard problem* of consciousness. Therefore it cannot suffice if Varela merely accounts for living organisms in the most general fashion. But when following Varela in his account of increasing system-complexity it is first necessary to discuss Varela's remarkably different conception of cognition in relation to basic autopoietic systems (see sub-chapter 2.4). This serves me as a basis upon which to discuss the relation between cognition and a nervous system as realised in increasingly complex systems (see sub-chapter 2.5). My discussion will reveal how Varela carefully avoids any split between functional and experiential content, a move that is central to his account.

Following Varela's further considerations it may appear as if he jumps from *cognition* to *mind* and then to *consciousness*. But these seemingly distinct stages of increasing system-complexity have to be understood in relation to Varela's use of these concepts. To clarify this I discuss Varela's conception of the relation between the *mind* and *consciousness* (see sub-chapter 2.6). Varela is quite clear about the difficulty of gaining access to system-internal (cognitive/experiential) processes, and I discuss this in more detail while introducing Varela's concept of the *linguistic domain* (see sub-chapter 2.7).

Both the autopoiesis-related issues and the problem of gaining access to system-internal processes give rise to a specific set of methodological difficulties that I will discuss (see sub-chapter 2.8).

Having thus provided a basis upon which to understand Varela's motivation for his neurophenomenological agenda it will be time to outline the proposal that is supposed to bring about the methodological remedy for Chalmers' *hard problem*. But, as mentioned earlier, Varela's methodological proposal cannot be understood without his surrounding theoretical framework that I will – by then – have introduced and (initially) discussed. This first sketch of Varela's proposal will leave some details unaccounted for, but the aim of this first introduction is to provide the foundation, upon which further discussions regarding these specific aspects will follow throughout the subsequent chapters.

The concluding chapter summary, will thence recap Varela's position by characterising it as revolutionary, while I will also – albeit very briefly – outline a set of objections that could be raised against his proposal as those will find considerations in the following chapters (see sub-chapter 2.9).

2.2. Autopoiesis as the Feature of Living Systems

Varela's conception of human mental life is founded upon his notion of autonomous, living systems with an inherent ability to sustain their existence via continuous processes unfolding in an interrelated manner within a complex, autonomous system. Such a framework is quite close to what is known as a system-theoretical account and has historic roots in Bertalanffy's (1949) important book *Das biologische Weltbild*. Owing to the complexity of this framework I will clarify the foundational issues of such a system-theoretical account in relation to reductive attempts before I discuss the implications for human mental life

Autonomy, self-referential adaptation, and the having of a point of view are issues entailed in Varela's concept of *autopoiesis*. The term, a combination of the Greek *auto* translated as 'self' and *poiesis* translated as 'creation' or

'production', is used by Maturana & Varela (1980) to denote a system's ability to maintain and reproduce itself over time within a changing environment whereby internal processes safeguard the constant replacement of defunct parts and an ongoing adaptation to the external surroundings. Maturana and Varela hold that this autopoiesis manifests itself in all living systems, be they single-celled or multicellular organisms.³⁶ Varela & Maturana (1980: 79) themselves define autopoietic systems as:

organised (defined as a unity) as a network of processes of production (transformation and destruction) of components that produces the components which: (i) through their interactions and transformations continuously regenerate and realise the network of processes (relations) that produced them; and (ii) constitute it [*the system T.F.*] as a concrete unity in the space in which they [*the components T.F.*] exist by specifying the topological domain of its realisation as such a network.

This definition highlights Varela's effort to provide an explanation of these autopoietic, living organisms, with their constituent parts as firmly rooted within physics. Varela (1979) thus perceives living systems as *machines* in which autopoietic processes unfold. And although these processes are dependent on the system's physical layout, they cannot be reduced to a system's physical constituents. Hence, a mere description of a system's physical layout, i.e., its components or its various states, can neither provide an exhaustive account of the dynamic, autopoietic processes, nor of the overall system itself. Autopoiesis thus resists reductive attempts as it manifests itself within the dynamics of sustaining and maintaining the system of which it is a feature (Maturana & Varela, 1980: XIII). The gain of these autopoietic processes is the system's own maintenance over time. But to achieve this, these processes must be sufficiently *self-referential*, i.e. these processes must achieve that the system in which these processes unfold maintains itself. This is because the system's prolonged existence provides the benchmark against which potentially positive or negative implications of any autopoietic process is

³⁶ Human beings are multicellular organisms as well. Varela & Maturana build their case by starting at the cellular level and move towards more complex systems such as humans are. This shift may sometimes appear a bit abrupt and I will try to highlight whenever such a shift appears, and separate the issues out (see sub-chapters 2.4, 2.5, 2.6).

pitched. It is this notion of *self-reference* that implies that such a system needs to be clearly distinct from the environmental surroundings, so that unfolding autopoietic processes remain internal to the system that they are supposed to maintain.

To account for the system's distinctiveness Varela declares autopoietic systems to be organisationally closed. This closure is the drawing of a border between the system itself as opposed to other systems or the environmental background. Closure thus provides the very important distinction between a system's *inside* and a system's *outside*. This differentiation will play an important part in the further discussions. Therefore it is warranted to emphasise that the system-theoretical differentiation between *inside* and *outside* is dependent upon the border that demarks what belongs to/happens within an autopoietic system and everything else that lies or happens outside of this border.

This *inside-outside* border, separating the system from its surroundings, leaves such an autopoietic system as autonomous in terms of its strived-for self-maintenance. Hence, autopoietic processes unfold in relation to the system's internal whereabouts. It is in this respect that the enclosing border, with the resulting system-autonomy, enables a system's self-referential distinction between that which belongs to itself (i.e., what needs to be maintained) and that which does not. Of course, when talking about this distinguishing feature of a border, differentiating the inside from the outside, one could think about a clear and probably even physically existing demarcation. But Varela offers a different solution to capture the distinctiveness of autopoietic systems in relation to which the self-referential maintenance is supposed to unfold. Instead of trying to capture the essence of this border itself, Varela accounts for this border with reference to the system itself. For him this border is constituted by what he calls the system's *wholeness*. This has to be thought of in such a way that everything that belongs to a system's *wholeness* constitutes the system's inside – or to put it the other way round – lies within the system's border. However, in order to gain some traction, Varela's solution to account for the system's *inside-outside*

border necessitates a clear definition of what this *wholeness* is supposed to be. Varela & Goguen (1977: 294) explain that a system's *wholeness*

is embodied in its organizational closure. The whole is not the sum of its parts, it is the organizational closure of its parts.

It is thus evident that a mere stocktaking account of a system's physical constituents cannot provide a sufficient explanation of a system's *wholeness*, as autopoietic systems appear to be more than just their constituent parts. Instead of this an autopoietic system's *wholeness* is defined by its organisational closure. Hence, Varela's *wholeness* is the result of the organisational arrangement of these physical constituents, organised towards each other in such a way that the self-referential and self-maintaining processes of autopoiesis can unfold in relation to this specific and thus autonomous system. This results in a closed autopoietic system, whereby the autopoietic processes are dependent on closure and that closure is brought about by the autopoiesis-enabling organisation of the parts that form this system. As I mentioned already, it is important to notice that this border-providing feature of the organisational closure (*inside* versus *outside*) in relation to the autopoietic processes cannot be accounted for with sole reference to natural kinds. And although this limits any attempt to reduce autopoietic systems to their physical basis, it is important to notice that the autopoietic organisation appears to provide a *surplus* beyond the mere presence of the relevant parts.

Up until now I have focused upon the *self-maintaining*, *self-referential* and *autonomous* aspects of Varela's closed autopoietic systems and the internal processes that safeguard system maintenance over time. However, these living systems are also constantly exposed to environmental challenges, threatening this strived-for prolonged self-maintenance. To capture the notion of ever changing environmental demands upon a system the relevant literature speaks of *fluctuations*. It is with this concept in mind that Rudrauf et al. (2003: 25) explain that despite an autopoietic system's closed coherence, these autonomous systems must nevertheless have a capacity "to maintain their identity in spite of the fluctuations which may affect them." Hence, although Varela wants the autopoietic system to be an autonomous and a

closed one, he nevertheless allows for environmental effects upon these systems, effects that potentially threaten its further existence. To gain some flexibility as a means for the autopoietic system to react appropriately (i.e., maintaining itself) to the fluctuations of an inherently instable environment Varela uses the concept of organisational variance. This variability of its organisation allows for reactive and adaptive processes. Hence, the organisational closure does not pose an insurmountable hurdle to system-processes' absorbing (nutrient) or expelling (waste) parts of the system to respond to challenges while nevertheless sustaining the system. The system may change – within the parameters of the organisational variance – but nevertheless maintains its existence.

This adaptive capacity provides the biological roots for some form of (proto-) *individuality* (Rudrauf et al., 2003: 25) in what is probably its most simple form. Due to their necessarily unique spatio-temporal location Varela's autonomous systems gain an indexical position in relation to any encountered fluctuations. The self-sustaining, self-referential and closed system thus prolongs its existence over time by individually reacting to registered and potentially threatening changes via adaptive processes along its organisational variance, in relation to the autopoietic process of strived-for self-maintenance.

Such an account would probably still accommodate a merely reactive system that is not necessarily in need of some primitive form of individuality. But that is where things get a little bit more complex. It is important to bear in mind that, apart from this perspectival aspect upon external fluctuations, these systems also assess any fluctuation in relation to their own internal whereabouts, while constantly maintaining their existence. Hence, any of these diverse fluctuations is imposed upon a system that is itself inherently dynamic. Varela does not always offer a clear view regarding the implications of his own system-theoretical account; therefore it appears to be helpful at times to draw on the work of other system-theorists. One of them, Luhmann (1984), offers a good description of what Varela's systems have to achieve: according to him an autopoietic system has to have the ability to reduce the plethora of environmental contingencies to cope with them in an effort to

maintain itself. Applying Luhmann's description, the autopoietic system thus gains a perspectival outlook, a – so to say – proto-individual viewpoint by, first and foremost, reducing environmental stimuli or potentialities into actualities for itself, sorting them as advantageous or detrimental to its own existence **and** in relation to its own internal whereabouts. Such a system can take itself – and that sounds strange on a single-cell level, but probably not on the level of larger cell-assemblies – as a zero-point from which it gains a discrete perspective in the form of a (proto-) *individual* outlook towards its environment in relation to its autopoietic processes.

Varela (1981) emphasises that the autonomous, self-maintaining organisation of autopoietic systems is where the initial occurrence of *indexical self-reference*, the *having of a point of view* and with that of an emerging *individuality*, originates. Autopoiesis is thus at the centre of Varela's account. And this provides a basis for understanding the difficulties that scientific psychology and Chalmers' concept of the functional mind face in terms of the first-person perspective and experiences (see chapter 1). Viewed from Varela's perspective these problems appear to be due to the fact that the fundamental feature of living systems – autopoiesis – was not taken into account.

But if autopoiesis is supposed to be “the invariant feature of living systems”, the universal and necessary feature whereby “we could recognise living systems when we encounter them” (Maturana & Varela, 1980: XIII), then it looks as if Varela has a potential problem on his hands.³⁷ The difficulty here is that autopoiesis is supposed to be the defining feature of living systems, but these living systems are to be recognised by their displaying this autopoiesis. So one is left with a feature (autopoiesis) that demarks living from non-living matter, albeit one, that cannot be accounted for by reductive attempts regarding the constituent matter. Nevertheless, the feature of autopoiesis is then deemed to be recognisable only with recourse to the distinction between the living and non-living, a distinction that was – in the first place – based

³⁷ This account of autopoiesis appears almost as the rather unsatisfying attempt to define *madness* by saying that one knows it when one sees it.

upon this irreducible feature of autopoiesis. Although this potential problem may be brushed aside by pointing towards the descriptive nature of the biological sciences,³⁸ in the context of this philosophical thesis, I intend to pay more and careful further attention.

2.3. Locating Autopoiesis within the Philosophical Landscape

Varela (1979) is providing a physical explanation of living organisms in terms of their constituents, but he adds the concept of autopoiesis to capture the related issues of *self-reference*, *autonomy*, *closure* and *variance*. However, autopoiesis cannot be sufficiently accounted for by recourse to the physical constituents only. And although it looks as if such an account may be able to provide – if it could reach far enough – a solution to the individuality-related conundrums of scientific psychology, it is imperative to unpack the concept of autopoiesis a bit further by trying to locate Varela's account correctly in relation to the cognitive sciences.

The concept of autopoiesis is supposed to characterise the work necessary to keep a system maintained over time, i.e., to keep it alive while the system itself reacts to environmental demands. But such a strived-for self-maintenance, as it is supposed to be brought about by autopoietic processes, implies a purpose-driven conduct. And indeed these living systems are striving towards the goal of prolonged self-maintenance, i.e., to stay alive. The concept of *vitalism*, developed within the context of the scientific study of life and living organisms, i.e. within biology, maintains that there is an autonomous, specific purpose of the forms or processes of *living* or of *being alive*. Such a vitalist position can manifest itself

- a) ontologically, i.e., by insisting on *vital forces* or substances to bring about life, or
- b) epistemologically in the form of the claim that living systems cannot be accounted for by purely physicalist accounts.

Hence, when it comes to physicalist-reductionist attempts, any account developed under the biological, epistemological-vitalist conception would not be invalidated by the fact that the processes of life remain irreducible.

³⁸ And as I mentioned right at the beginning of this chapter, Varela is a biologist.

With these more general considerations in mind, it is time to return to Varela. Without the need to discuss this any further, it appears as if Varela, as a scientist, cannot accept the ontologically vitalist conception a). Varela's account is a materialist one and as such incompatible with any kind of elusive and scientifically un-accountable substances as the source of life. But it is nevertheless necessary to see if Varela commits himself to the epistemological-vitalist option b).

Varela & Maturana are quite clear about the irreducible nature of autopoiesis (see sub-chapter 2.2), but the issue is more complex. To capture the extent of Varela's position in relation to this irreducibility it is necessary to go back to the distinction between the system's *inside* and *outside* as it was developed earlier. Varela now utilises this distinction in relation to observations of system-processes from the *inside* (system-internal) and from the *outside* (system-external). And Varela (Maturana & Varela, 1987) is very clear about the fact that it is always very important to maintain a clear division between external and internal descriptions in the form of a *logical accounting*, keeping the descriptive results gained from the *inside* separate from those derived from the *outside*. Keeping track of this distinction is important as any attempt to externally observe system-internal – i.e., autopoietic – processes will not yield valid results. System-internal processes are not accessible in their entirety to an *outside* investigation, focusing upon *inside* components or relations. The purposive autopoietic processes – qua being autopoietic – unfold around the unique and indexical position such systems have. This – earlier I called it proto-individual perspective – leads to unique system-dynamics unfolding in relation to any encountered fluctuation **and** in relation to the system-internal processes.

Of course one could try to capture some of these internal processes with recourse to the (functional) work they are supposed to do, i.e., one could try to single out specific processes of the overall-dynamics to capture these by their function. But as soon as these states are assessed from the *outside* the observed system forms one part of what Varela calls a *greater machine*

(Varela & Maturana 1980: 78). This means that these so singled-out functional states are being coupled with a now (via observation or assessment) interacting (via the act of observation) environment. Hence, functional descriptions from the *outside* regarding processes or constituent parts on the *inside* of an autopoietic system cannot account for these processes' pure system-internal relevance. Every such account would be – at least partially – owing to the workings of the *greater machine*. The meaning or value of these functional descriptions would be dependent upon the (pre-supposed) interaction between *outside* observer and *inside* sub-system together forming this *greater machine* (Varela & Maturana, 1980: XXI ff.).

The notion of the *greater machine* that is formed by scientific assessments of system-internal processes is a perspective that makes Chalmers' concept of the functional mind untenable. Chalmers' functional mind was – as discussed earlier (see sub-chapter 1.3) – developed upon his pledge to take science seriously, and that left him with merely functional descriptions from the *outside*. Varela – with his concept of the *greater machine* – deems such descriptions to be insufficient when trying to account for the indexical nature of the autopoietic dynamics and emerging processes. But, and this is the most important issue here, Varela's metaphor of the *greater machine* does nothing short of introducing the epistemic impossibility of assessing these self-maintaining purposive dynamics in purely physicalist terms. The standard methods of physics or chemistry cannot account for these autopoietic dynamics. Sure enough, they are mechanical, physical processes in that they unfold in relation to the ontic basis of a living organism, but they remain elusive, biological processes, intrinsically linked to the feature of being alive. And that amounts to an epistemological vitalist position as outlined earlier as option b).

With this epistemological vitalist position Varela can manage to avoid the *Scylla* of a causally determined mechanism and the *Charybdis* of an all too strong (ontological) vitalism. Varela thus follows Bertalanffy (1949: 22 ff.) who, almost 30 years earlier, developed his non-mechanistic, non-(ontologically)

vitalist but *holistic Organizismus*.³⁹ As Bertalanffy before him, Varela takes the fact of an autopoiesis-induced, indexical and *proto-individual* perspective as an inherent achievement of all living (biological) systems. But by committing himself to such a position, Varela also commits himself to the inherently purposive nature of autopoiesis. Varela's systems need the purpose, the goal, the end or the *telos* to strive for prolonged self-maintenance, necessary for steering the system, to qualify as autopoietic.

This then demands that I discuss the problem of a self-serving purpose for autopoietic systems. When it comes to the explanatory utilisation of purpose (*Zweck*) Kant (1790/2009: B367), already in his *Kritik der Urteilskraft* (*Critique of the power of Judgement*⁴⁰), explained:

It is thus rational, indeed meritorious, to pursue the mechanism of nature, for the sake of an explanation of the products of nature, as far as can plausibly be done, and indeed not to give up this effort because it is impossible in itself to find the purposiveness of nature by this route, but only because it is impossible for us as humans – since for that an intuition other than sensible intuition and a determinate cognition of the intelligible substratum of nature, which could furnish the ground for the mechanism of the appearance in accordance with particular laws, would be necessary, and this is entirely beyond our capacity.

If, therefore, the investigator of nature is not to work entirely in vain, he must, in the judging of things whose concept as natural ends is indubitably established (organised beings), always base them on some original organisation, which uses that mechanism itself in order to produce other organized forms or to develop its own into new configurations (which, however, always result from that end and in conformity with it).⁴¹

³⁹ Bertalanffy's *Organizismus*, as outlined in "*Das biologische Weltbild – Band*", is known in English as 'organismic biology'. This is a non-reductive position maintaining that the methods of physical sciences cannot provide a sufficient explanation of living systems. Bertalanffy does not need to insist on specific vital forces or substances; i.e., a weaker epistemological vitalism brought about by purpose, which is supposed to be intrinsic to these dynamic living systems, will do for him. However, Bertalanffy proposes his living systems as open, which is a significant difference to Varela, who proposes these living systems to be closed. Varela's closed systems – as discussed earlier – do not face the problem of explaining the inherently self-referential character, which Bertalanffy's account struggled with (Luhmann, 1984: 58ff.)

⁴⁰ This is the title of the newer Cambridge translation.

⁴¹ *Es ist daher vernünftig, ja verdienstlich, dem Naturmechanismus zum Behuf einer Erklärung der Naturprodukte soweit nachzugehen, als es mit Wahrscheinlichkeit*

Kant is thus taking a position favouring mechanistic explanations, but as he takes a mechanistic account of purpose to be impossible, he allows teleological assumptions and explanations for heuristic reasons when it comes to living beings. But although the natural scientist – when accounting for living beings – has to, nolens volens, make use of teleological principles, for Kant it nevertheless remains against reason to assume that life emerges from the lifeless (Kreme, 2009: LXXXV). So, when it comes to Varela's concept of autopoiesis it looks as if there is no *final* or *ultimate justification* (*Letztbegründung*) for the purposive nature of autopoiesis.⁴²

This negative verdict in relation to the missing *Letztbegründung* (or ultimate justification) of purpose opens a completely different area of discussion concerning the emergence of purpose in relation to non-teleological physical objects, and another one regarding the relation between the biological and the physical sciences. Although it is – at this moment – not necessary to discuss this in depth, there are attempts to provide such a justification nevertheless. Recently Thompson (2010) has tried, with recourse to Jonas' philosophy of

geschehen kann, ja diesen Versuch nicht darum aufzugeben, weil es an sich unmöglich sei, auf seinem Wege mit der Zweckmäßigkeit der Natur zusammenzutreffen, sondern nur darum, weil es für uns als Menschen unmöglich ist; indem dazu eine andere als sinnliche Anschauung und ein bestimmtes Erkenntnis des intelligiblen Substrates der Natur, woraus selbst von dem Mechanismus der Erscheinungen nach besonderen Gesetzen Grund angegeben werden könne, erforderlich sein würde, welches alles unser Vermögen gänzlich übersteigt.

Damit als der Naturforscher nicht auf reinen Verlust arbeite, so muss er in Beurteilung der Dinge, deren Begriff als Naturzwecke unbezweifelt gegründet ist (organisierter Wesen), immer irgend eine ursprüngliche Organisation zu Grunde legen, welche jenen Mechanismus selbst benutzt, um andere organisierte Formen hervorzubringen, oder die seinige zu neuen Gestalten (die doch aber immer aus jedem Zweck und im gemäß erfolgen) zu entwickeln. (Translation by Guyer & Matthews)

⁴² Recently Thompson (2010) offered an attempt to somehow join the Kantian notion of purpose with the autopoietic system as proposed by Varela. However, Thompson's (2010: 129 ff.) view – which is not the focus of this investigation, as it is a further development and/or (later) construal of Varela's position – is dependent upon the acceptance of sufficient advances in our explanatory abilities to capture dynamic systems. I will discuss these explanatory advances in relation to an attempted mathematisation of phenomenology in chapter 6.

life, to provide a foundation for biological science within the more fundamental sciences of physics, mathematics and chemistry. Jonas (1977: 169) explained that life could only be known by life, but he nevertheless located the foundational problem – the one that Thompson has tried to solve – within a general human attitude. According to Jonas, human being concerned itself in a pre-scientific era with life but the gradual increase of scientific success brought a change in focus. Henceforth inanimate objects – to be accounted for and to be wilfully manipulated – became the main interest of human life. Following Jonas here, any subsequent attempt to explain life out of an array of otherwise lifeless objects (physicalism) cannot succeed. To overcome this explanatory dualism between life and lifeless objects, Jonas (1977: 32–36) maintains that the human attitude in general – currently focusing solemnly upon lifeless objects – has to change. Thompson, however, tries to solve the problem with recourse to recently achieved advances in our explanatory abilities to capture dynamic systems.

But when taking Varela's account as it was developed, one is left with a biologically founded description. And with or without the possibility of providing a *Letztbegründung* (or ultimate justification) it is an account that has – so far – painted a picture regarding the possibility for the emergence of *self-reference*, *indexicality* and even *proto-individuality* for living organisms. He has done so without making the relation between physics and biology his problem and, in order to do him justice, I equally will – for this thesis – not make this a point for further critical engagement. Varela thus endorses a partially materialist/monist position, but he nevertheless insists upon purpose-driven processes which are founded in biology.

Taking Varela's autopoietic processes of sufficiently arranged matter as a manifestation of the property of *being alive*, then, it is possible to contrast Varela's position with Chalmers' property-dualist position. The difference between him and Chalmers is that Varela implicitly introduces the property of being alive at the earliest possible stage of his considerations. For Varela (proto-) individuality is thus a general feature/property of even the most basic autopoietic systems; it is located at the very core of any sufficiently organised,

living matter. For Chalmers on the other hand, individually experienced phenomenality (as he calls it) was the feature or property of that bit of mentality that escapes functional explanations. Nevertheless, both need an additional property: *being alive* for Varela, *phenomenality* for Chalmers. But Varela's additional property of being alive qua sufficiently complex and organised organic matter seems to be the more straightforward account. Chalmers' proposal of current science's ontological poverty was what left him no other choice but to call for an additional property to bring about the sought after phenomenality. Varela's systems can make do without this by the sheer and empirically well-established fact that his systems are alive.

However, so far I have only focused upon the autopoietic system in general and its core-features as they apply to all of these systems. But Varela wants to apply this autopoietic framework to human consciousness, and therefore it is necessary to assess whether his account provides the sufficient resources for him to do so.

2.4. Autopoiesis and Cognition

Varela utilises a very general concept of cognition, a concept that applies to **all** living systems, while only a sub-group of all these systems may have a nervous system, which – if present – enhances cognitive abilities. To avoid confusion, I will discuss both aspects of cognition separately, starting with the general concept first.

Autopoiesis brings with it the fact that the very processes sustaining a system's existence need to originate within this system. Hence, all identity-preserving self-maintenance is a result of system-operations in relation to the autopoietic purpose. It is against this background that Maturana (Varela & Maturana, 1980: 3) claims: "all living systems are cognitive [...] with or without a nervous system." Of course, such a claim only makes sense if a rather wide construal of the concept of cognition is applied – much wider than defined in the previous chapter (see section 1.2.5). Varela's concept captures any sort of self-maintaining reaction of a system in relation to internal and external fluctuations. It thus appears as if any pursuit of autopoietic purpose is

captured by Varela & Maturana's concept of cognition, and as such it cannot be exclusively dependent upon the existence of a nervous system (Varela & Maturana, 1980: 13).

Cognition and cognition-initiated reactions/behaviours are operational phenomena, emerging within a system in relation to its own internal autopoietic dynamics. Cognition thus appears as a physical process, but one that nevertheless cannot be reduced to a physical basis due to the earlier discussed epistemologically impossibility of capturing the relevant autopoietic processes.

The dynamics of these internal processes change in relation to environmental stimuli. And as I have already mentioned, this sort of interaction, which Varela calls *deformation* or *fluctuation*, places an environmental demand upon the system. The domain of possible interactions is determined for each single system by its particular mode, i.e., its current states as realised in the space of its components, and bound in relation to these components.⁴³ Varela & Maturana (1980: 119) explain the interplay between the domain of interactions and the cognitive domain:

The domain of all the interactions in which an autopoietic system can enter without loss of identity is its cognitive domain; or, in other words, the cognitive domain of an autopoietic system is the domain of all the descriptions which it can possibly make.

This is probably best illustrated by an example: primitive organisms – such as amoebae – interact with their environment by either avoiding unsuitable objects/obstacles or by absorbing objects/potential nutrients. If amoebae were to absorb unsuitable objects, they would cease to exist. Amoebae can thus register a *description* of their environment in differentiating obstacles from

⁴³ To illustrate this limitation of the domain of possible interactions I utilise Dretske's (1986) example of arctic, anaerobic marine organisms. They use the terrestrial magnetic field to locate themselves, trying to avoid oxygen-rich water. Such an interaction with the environment, as based upon information derived from the magnetic field is, to use another example here, not possible for single celled amoebae, as these do not possess the needed components (magnetosomes) to interact with that sort of magnetic information.

nutrients. The space that allows for these primitive descriptions is what Varela & Maturana take to be the cognitive domain.

Varela thus provides an account of a self-sustaining, closed system that directly interacts only with what is part of itself, but that nevertheless has the ability to surpass this limitation via its cognitive domain. Hence, that which has not been absorbed yet can be *described* within the cognitive domain as *absorbable* or as *to be avoided*. This domain thus allows the internalisation of the relevant external stimuli encountered as *deformations* posed upon the overall system. But these demands affect – or deform – the system as a whole in such a way that they change the overall internal dynamics.

When it comes to these internalisations of external *deformations* via the cognitive domain the earlier discussed distinction between a system's *inside* and *outside* reappears (see sub-chapter 2.3). While trying to assess these internalisations from the system's *outside*, i.e., when engaging in an external observation of the relevant processes contributing to these *descriptions*

an observer can consider the way in which an autopoietic system compensates its deformations as a description of the deforming agent that he sees acting upon it, and the deformation suffered by the system as a representation of the deforming agent. (Varela & Maturana, 1980: 119)

But as the *deformations* yield influences upon the overall system, any attempt to capture the system-dynamics in relation to such a *deformation* must – according to Varela – be made from the *inside* of such a system. Observations from the *outside*, separating a particular stimulus in relation to a specific set of presumably representative states in relation to this stimulus, ignore that such a particularising assessment from the *outside* invariably forms a *greater machine* (see sub-chapter 2.3). And such a *greater machine* is unable to sufficiently capture a system's overall dynamics in relation to the deforming environment, processed as possible alterations of an already individual dynamic. The problem of *outside*-observations – as developed by Varela & Maturana – thus appears to match the difficulty that functional/cognitive psychology faces when focusing upon particular states or processes. The autopoietic *surplus of indexical proto-individuality* is something that is

available within the overall dynamics of such living systems, and this is – according to Varela – something that gets lost via particularising observations made from *outside* the system.

2.5. Cognition and the Nervous System

Although Varela & Maturana (1980: 13) do not insist on a nervous system as a necessary pre-condition for a cognitive domain, they hold that the availability of a nervous system enhances the cognitive domain of an organism. I will discuss the biological implications of such a nervous system first before assessing the wider implications of such an account in relation to scientific accounts of cognition.

Although any single-cell neuron constitutes the anatomic unit of the nervous system (Varela & Maturana, 1980: 125), it – in itself – is not a functional unit within a nervous (sub-) system and neither are certain neuron-clusters or the overall nervous system. Functional descriptions based upon such a particularisation would be inherently incomplete, owing to exactly that particularising assessment that renders any such attempt as insufficient to capture all the relevant system-internal processes. Varela therefore holds that neurons and neural connections are part of an overall living system, phylogenetic acquisitions shaped by ontogenetic processes and with a potential to expand the cognitive domain to enhance the success of system-maintenance. When unpacking such an account one ends up with an *intrinsic cognition* as a result of being alive, enhanced by a nervous system, allowing for finer grained descriptions of encountered deformations.⁴⁴

Such a view of the nervous system (and with that the brain) leaves it as an embodied sub-system, bound by necessity to follow and contribute towards the autopoietic processes of the overall system. Hence, the nervous system's dynamics unfold – first and foremost – in relation to the overall system, thus safeguarding system-maintenance. With these steps undertaken, it becomes

⁴⁴ These finer grained descriptions result from advanced external but also internal sensory devices, allowing for a more complete and comprehensive assessment of the system-internal processes in relation to a stimulus and to its own dynamics.

possible to understand Varela's cognitive domain, or the mind,⁴⁵ as the sum total of the processes of a cognitive engagement resulting from environmental deformations as apparent via non-representational descriptions, located within the overall system's dynamics and facilitated by a nervous system or brain.⁴⁶ Thompson & Varela (2001) are very clear about the fact that the mind cannot be found in mere brain-bound neural events but only in the wider interplay of the nervous (sub-) system within an overall system, providing a web of related and dynamically evolving processes internal to the organism.

On first sight one could be tempted to take Varela's cognitive domain as an emergent property. That would be a property of a complex system arising from constituent parts and relations while the emergent property can neither be predicted from, nor reduced to these underlying constituents (Kim, 2005: 239). If such a view were taken, it would be necessary to discuss the relation of these emergent properties to their underlying basis and to decide as to whether it would fit with a weak physicalist construal of supervenience or an even weaker naturalist construal.⁴⁷ But I save myself this job with a clarifying view on how Varela's account is constructed:

- Living systems are characterised by purposive autopoietic processes.
- In order to steer these processes in relation to the inherently strived-for self-maintenance, every autopoietic system is also a cognitive system and that does not depend on the availability of a nervous system.
- The cognitive domain manifests itself (in sufficiently complex systems) as dynamic processes enhanced by a neuronal sub-system in relation to the overall-system's goals.

Following this sequence, it is clear that a cognitive domain, (at least partially) based upon a nervous-system, which might have – at first sight – appeared to be an emergent property was already entailed in the very first step. With Varela's biological, system-theoretical approach came the necessity to pre-

⁴⁵ I will discuss the issues around Varela's concept of the *mind* in more detail within the next section.

⁴⁶ Such a view on the mind, as unfolding itself in the presence of the relevant processes evokes a specific array of time-related problems which I will discuss in great detail in chapter 4.

⁴⁷ See discussion in chapter 1, especially in the section on Chalmers.

suppose the goal of strived-for self-maintenance in the form of purposive autopoiesis. Exactly this purposive feature of all living organisms is now re-appearing as a seemingly emergent cognitive property – but it was there all along, contained in the theoretical underpinnings of Varela’s account.

Varela’s conception of (autopoietic) cognition is thus different from Chalmers’ functional (mechanistic) mind. For Varela the mechanics of the cognitive domain seem to be nothing but the overall workings of a system carried forward by autopoietic system-processes that guarantee an inherent and irreducible *indexicality*, *self-reference* and some form of *individuality*.

2.6. Mind and Consciousness

While following Varela’s account so far, it became apparent how the basic concept of autopoietic systems become increasingly complex in relation to the cognitive domain and the enhancing effects of a nervous system. However, when it comes to the relation between mind and consciousness Varela adds a further and massive step to this complexity. Varela explains that he wants to start his

systematic exploration of the only link between mind and consciousness that seems both obvious and natural: the structure of human experience itself. (Varela, 1996: 330)

The way Varela puts his overall methodological aim might lead to the impression that Varela commits himself to the same mistake that he accuses Chalmers of having made. Chalmers had differentiated the concept of the functional and the phenomenal mind (see sub-section 1.3.1) while Varela now seems to differentiate between mind and consciousness. At first glance that might produce – depending on how one defines the concepts – a gap not unlike the one Chalmers had utilised to arrive at his *hard problem*. The lurking danger of Varela appearing to follow Chalmers’ path provides the opportunity to discuss Varela’s concept of mind and consciousness.

If the mind is taken to do the thinking, perceiving and feeling, then Varela might indeed appear to work on a narrowed-down concept of mind: a concept devoid of experiential elements, thus necessitating a search for a link between

mind on one side and consciousness, as the domain of experiences on the other. Such a view would probably shift Varela's mind-concept a bit too close to the functionalist/cognitive concept of mind.

But Varela's concept of mind is the

more general domain of cognition, which includes conscious and unconscious phenomena while always being rooted in a self. (Rudrauf et al., 2003: 23)

It thus follows that Varela's concept of mind is not narrow, but much wider than Chalmers' functionalist concept of mind. Varela (1999a: 71) explains:

Here by 'mind' I mean anything that has to do with mentality, with cognition and ultimately with experience.

Although Varela thus works with a very wide concept of mind, it nevertheless appears necessary that the more demanding achievements of such a wide concept of mind in particular would depend upon a sufficient complexity as realised within such a minded system, but Varela remains silent on this issue.

With this concept of mind in place, Varela defines the difference between mind and consciousness in such a way that the field of consciousness is constituted by a system's ability to assess – or to experience – internal processes from within, i.e., that such systems can carry out an *inside*-observation regarding some of its own processes. Again, Varela does not provide much detail here, but it seems safe to assume that increasing system-complexity thus allows for system-internal observations of system-operations, i.e., that these systems can register descriptions of their own experiences. Hence, within sufficiently complex organisms the purpose-driven, autopoiesis-generated self-referential indexicality of the mind enables the emergence of conscious processes in relation to some cognitive processes.⁴⁸ I will discuss these issues around consciousness in much more detail (see chapter 3), but for the moment I would like to emphasise one specific aspect in relation to this discussion. Varela's emerging consciousness provides access to the experiential dimension of some processes of the cognitive domain, which is nothing but an

⁴⁸ It is important to bear in mind that these cognitive processes are based upon the wider concept of cognition as Varela introduced it.

autopoietic process of a physical system. But if that is so, then any mind and consciousness is always and by necessity situated. A mind is always some system's mind, i.e., mind is intrinsically linked to an organism and to that organism's experience.⁴⁹

It turns out that Varela's concept of mind has not much in common with the functionalist concept upon which Chalmers built his case. Varela's mind is an all-encompassing, embodied mind (Varela et al., 1991b) and one that incorporates experiences (Thompson & Varela, 2001). Varela's sought after link between mind and consciousness can thus not be a connection between two different concepts, but an attempt to account for the occurring and recursive, reflective ability within the cognitive domain (the mind) and the subjectively accessible experiences (consciousness) in relation to these and/or the overall system. In this respect it appears that:

- Varela's autopoietic systems gain, with increasing complexity, not only an ability to register descriptions of external *fluctuations* or *deformations*, but also to register descriptions of system-internal processes.
- Varela's mind–consciousness distinction is thus a differentiation based upon the privileged access to experiential processes as they occur within an autopoietic system
- But due to the system-theoretical necessity to engage in *logical accounting* (see sub-chapter 2.3), i.e., to differentiate *inner* from *outer* assessments, these conscious episodes are exclusively assessable from within such an autopoietic system.

Varela (1996: 330) is aware that his project will not necessarily fit within the current framework of cognitive/functionalist accounts and proposes to provide the “pragmatic tools for the development of a science of consciousness.” But as I have already discussed (see sub-chapters 2.3 and 2.5), such a ‘science of consciousness’, as resulting from Varela's marriage plans, would place

⁴⁹ See the earlier discussion about autopoietic systems as being inherently autonomous and individual in sub-chapter 2.2.

demands upon the role that ‘modern cognitive science’ would/could play in such a pairing. On accepting Varela’s marriage-plans the modern cognitive scientist would have to commit him/herself to the biologically founded concept of autopoiesis as the *conditio sine qua non* for the subsequent occurrence of consciousness. In doing so it would be possible to leave the search for some – yet undiscovered – property to Chalmers and his followers. Alternatively attention would need to focus upon the difficulty of getting hold of individualised conscious experiences as experienced, as these are – according to Varela – private and thus only available from the system’s *inside*. This shift brings the experiential dimension of subjective life to the forefront of any attempt to account for consciousness, and within such a framework Varela cannot be accused of separating mind and consciousness as Chalmers did.

2.7. The Linguistic Domain

Any solution to gaining access to this experiential dimension of subjective life as it unfolds within an autopoietic framework is burdened with a difficulty. Environmental stimuli are not represented in a 1:1 fashion within the autopoietic system. They only pose a deforming strain on the overall processes of a closed system (see sub-chapter 2.4). Because of this – and due to the relational character of any cognitive engagement – a system can only provide a descriptive account (i.e., acquire knowledge) by providing a *description* in relation to its own internal states and within its own cognitive domain. Within this sub-chapter I will unpack two issues surrounding these *descriptions* a bit further. I do this by first discussing the danger that individualised descriptions may be merely illusory (see section 2.7.1). In the next section I will utilise Wittgenstein’s Private Language Argument⁵⁰ to introduce Varela’s account of the *linguistic domain* (see section 2.7.2).

⁵⁰ Although there is some debate (Candlish & Wrisele, 2008) as to whether the relevant sections (*Philosophische Untersuchungen*, §§ 244–271) do actually display a unified structure which would make them identifiable as a sustained argument, I will nevertheless refer to the relevant passages as the ‘private language argument’.

2.7.1. Illusionary Descriptions?

According to Rinofner-Kreidl (2002: 13) the notion of system-internal descriptions may cause a problem. These autopoietic systems could merely “operate under the illusion of an external contact.” And that could leave any experience of the “actual reality” to be nothing more than internal autopoietic system-processes that stand in no relation to this actual reality. Such a danger, that these descriptive processes may lose their relevance in terms of the system’s outside, could indeed pose a problem for Varela’s account: Might his closed and autonomous systems be losing their connection to the world?

Rinofner-Kreidl’s outlined danger of merely *illusionary* system-internal *descriptions* is brought about by the closed nature of these autonomous systems. And indeed, when focusing only upon a single system such an extreme construal may gain some traction, facilitating the assumption that these systems may never reach the *real, subject-independently existing* objects. But such an assumption would be owing to the misguided focus upon one specific system while neglecting Varela’s wider framework. Varela clearly maintains that these autopoietic systems are, as biological systems, situated within an environment. And it is against this background that Maturana & Varela (1987: 23) can claim:

We do not see the “space” of the world; we live our field of vision. We do not see the “colours” of the world; we live our chromatic space. Doubtless [*following Varela’s account, T.F.*] we are experiencing a world.

Hence, Maturana and Varela want their systems to have this inner perspective to enable an indexical point of view, while their systems remain firmly situated in a world that matters.

Nevertheless, the indexical nature of these systems’ relation to this world necessitates that any (conscious) ‘knowledge’ that such systems could ever acquire (where some descriptive account actually fits with what is described) is always relative with regards to the ‘knower’ and the ‘knower’s’ current internal states. Varela (Varela & Maturana, 1980: 119) explains:

Intrinsically, then, no absolute knowledge is possible, and the validation of all possible relative knowledge is attained through successful autopoiesis.

According to this picture, then, any valid 'knowledge' is that which serves the prolonged system-maintenance, while non-valid is what endangers a system's future. *Knowledge* thus gains its value in relational terms for the specific system's own maintenance. To capture this sort of relational knowledge, Varela uses the term *sense*. This concept of *sense* as well as Husserl's concept of *meaning* – which I will discuss later – will reoccur frequently. Therefore it seems warranted to introduce both concepts here. I start with Husserl's term *meaning*, as this provides a good way to explain the underlying issue, to then focus upon Varela's equivalent term *sense*.

When trying to translate the German term *Meinung* (meaning) and those that are related to this, such as *meinen* (to mean) or *das Gemeinte* (that which is meant), into English a problem occurs. As much as these terms could be used to refer to a referent (the word tiger stands for or *means* an animal with certain characteristics), the German usage of *Meinung* (meaning) also allows for what would be translated into English as opinion or belief. This second alternative is the relevant sort of *meaning* in the current context, and this concept of *meaning* is what – in system-theoretical terminology – Varela refers to as *sense*. And that is where a problem appears: Although Varela makes use of the term *sense* as a central concept to characterise the individual importance of his system-internal descriptions, he does not develop this concept in sufficient depth.

However, Luhmann (1984: 111), as another system-theorist, provides a detailed explanation of how the system-internal generation of *sense* is to be understood within a system-theory account. For him *sense* emerges as a result of a referential relation (*Verweisungszusammenhang*) that these systems encounter. This referential relation is formed by *a single realised actuality* (I – and not necessarily in a cognitively mediated manner – experience *this*) together with all the other (not actualised) potentialities for which the plethora of environmental stimuli might equally have catered for.

Hence, *sense* is the relation of a currently actualised *description* with other possible, but not actualised ones. This leaves *sense* as something that is not exhaustively captured within an actual cognitive process alone, but as realising itself within a referential relation to these actual processes and the multitude of other – potential – processes.

This sort of *sense* is highly system-specific, i.e., individual to a particular system in relation to its own process-dynamics.⁵¹ I do not – for example – see a chair, but I see the chair I need or want to sit on or I see an obstacle that happens to be the same chair, standing in my way. Hence, objects appear to be experienced in relation to system-internal purposive (goal-directed) processes. And that is important in relation to Rinofner-Kreidl's concerns of potentially illusionary system-operations. As much as emerging *sense*-constituting system-processes stand in relation to the current state of a specific system (I am tired and want/need to sit), they also always stand in relation to the overall autopoietic goal of prolonged self-maintenance. It is thus important to bear in mind that Varela limits any over-reaching internalist construal of *sense*-constitution via the necessity that knowledge has to be validated by the goal-attainment of prolonged system-maintenance. Hence, all sense-constituting freedom of these systems is restricted by an externalist need to pitch the overall appropriateness of these *descriptions* as sufficiently close to the objects of the environment these systems find themselves situated in.

The *knowledge* of such system-theoretical, embodied minds is thus validated by the successful system maintenance over time, but remains relative to the *knower*. But this *knower* remains inseparably linked to its body via which it is located in the world that matters: hence, Varela's systems appear to be fortified against all too illusionary descriptions.

⁵¹ I use the attribution *individual* here in the widest possible sense to refer to a particular and indivisible (closed and autonomous) system.

2.7.2. The Private Language Argument and the Linguistic Domain

However, this relative *knowledge* is the source of another possible problem in relation to the possibility of gaining individual access to one's own conscious states. Varela's system-theoretical consciousness may be – in general – shielded from illusory descriptions, but may still face the problem of not being able to sort occurring deformations into those that are similar to and those that are different from previous ones. This is a problem that Wittgenstein (1953/2003: 151) addressed with his private language argument by inviting the reader to

imagine the following case. I want to keep a diary about the recurrence of a certain sensation. To this end I associate it with the sign "S" and write this sign in a calendar for every day on which I have the sensation.⁵²

Wittgenstein continues to explain that, in the absence of a definition, any *inner pointing* towards the relevant sensation must necessarily be dependent upon the individual's correct memory regarding the connection between sensation and sign to safeguard appropriate future usage. Wittgenstein continues:

But in the present case I have no criterion of correctness. One would like to say: whatever is going to seem right to me is right. And that only means that here we can't talk about 'right'.⁵³

In relation to the system-theoretical project, Varela is thus in the position that the danger of illusory descriptions, which would have rendered any validation of scientific claims problematic, has been avoided. But the individual character of system-theoretical knowledge in relation to Wittgenstein's considerations might make it impossible to simply assert *p* in the absence of a reference according to which the *p*-ness of a potential *p* could be established. An object *p* can thus no longer serve as a clear beacon, as a reference point,

⁵² *Stellen wir uns diesen Fall vor. Ich will über das Wiederkehren einer gewissen Empfindung ein Tagebuch führen. Dazu assoziiere ich sie mit dem Zeichen "E" und schreibe in einen Kalender zu jedem Tag, an dem ich die Empfindung habe, dieses Zeichen. (Translation by G.E.M. Anscombe, interestingly enough Wittgenstein uses the letter "E" in his writings and for whatsoever reason Anscombe decided to utilise the letter "S" instead in her translation)*

⁵³ *Aber in unserm Fall habe ich ja kein Kriterium für die Richtigkeit. Man möchte hier sagen: richtig ist, was immer mir als richtig erscheinen wird. Und das heißt nur, das schier von 'richtig' nicht geredet werden kann. (Translation by G.E.M. Anscombe)*

as it becomes part of a system's lived and internally constituted world, deriving its meaning from the individual context. This is where the danger in Wittgenstein's private language argument is located: what could provide the criterion of correctness when asserting p ?

To avoid this threat, Varela allows for what appears to be a social dimension: the *linguistic domain*.⁵⁴ The claim is that autopoietic systems with an ability to interact with their own internal states and of a sufficient complexity are capable of developing a linguistic domain with other such systems. I will first discuss how that is supposed to work and then see what this linguistic domain can do in relation to Wittgenstein's threat.

Similar systems may interact with each other, resulting in a behavioural coupling, i.e., an interaction whereby one system's conduct provides a source of deformation for another system and vice versa. Varela can thus maintain the constitutive independence of the interacting systems and explain how this recursive and expanding domain of communicative interactions leads to consensual conduct.⁵⁵ The resulting consensus, developed from coupled interactions, brings about the linguistic domain. This domain is socially created, but individually acquired and physically incorporated via the ontogenesis of a constantly evolving organism. Varela is rather brief on this important aspect that seems to capture all of the moulding and shaping effects of individually realised social evolution, but there are two aspects to this linguistic domain worth mentioning here.⁵⁶

⁵⁴ The emergence of a linguistic domain is not dependent upon the utilisation of a language, but the linguistic domain is the precondition for a language. I will have to discuss this linguistic domain in more detail later.

⁵⁵ Varela (1987) acknowledges that any account about the actual emergence of the linguistic domain is rather lacking in any supporting evidence and is mostly speculative, trying to paint a picture of what must have gone on by considering the apparent results.

⁵⁶ Within their original account *Autopoiesis – The organization of the Living*, Varela & Maturana (1980) spend a mere page to unfold the genesis of the linguistic domain.

Firstly the individual aspect: appropriate systems can treat their own linguistic states as a source of deformation, i.e., these (cognitive) linguistic states possess the ability to influence the system, and with that thought (as that is basically what I am talking about here) is able to cause action. Even more so, “through recursive interactions with its linguistically generated states”, an autopoietic system with a developed linguistic domain is able to treat some of its own linguistic states as “consensual distinctions that appear to an observer as the domain of interaction with representations of interaction” (Varela & Maturana, 1980: 121). This is nothing short of claiming that systems within a sufficiently developed linguistic domain are able to adopt an observer-role in terms of interactive deformations brought about either by the system itself or by an interacting, coupled system. Hence, Varela’s claim is that these systems are capable of conceptualising encountered deformations brought about by themselves or caused by another system via observation from the system’s inside.

This allows Varela to evade the problem of Wittgenstein’s private language argument. If one takes, in the widest sense, concepts to be cognitive acts, contents or ideas resulting in abstractions of what is given within sensible or empirical intuition, then the linguistic – consensual – discriminants seem to provide a basis for concepts. These concepts serve to achieve a sorting of the individually experienced under the general as provided by the socially evoked but individually formed, consensual distinctions.⁵⁷ In that respect Varela’s account does not fall victim to Wittgenstein’s argument. However, as evading this danger necessitates a social background, I need to discuss this briefly.

This is then the second, social aspect: Varela & Maturana (1980: 120) maintain that the linguistic interactions are not informative in character. Any deformation upon a receiving system is “necessarily and unavoidably determined” only by the recipient’s own organisational states. This is where the *inside–outside* dichotomy (see sub-chapter 2.2) appears again, this time in the form of the impossibility of determining the conduct of the recipient,

⁵⁷ Remember here Luhmann’s description of the task of autopoietic systems to reduce environmental contingencies in order to cope with these (section 2.2).

although the linguistic encounter could be described – when viewed from *outside* the interactive encounter – as if it were an information-exchange. This two-fold structure of the linguistic domain as essentially social but necessarily individual appears to burst out of the merely individual considerations that Chalmers applied when refuting mind–body supervenience (see section 1.3.3). Varela & Maturana (1980: 120) explain:

Phenomenologically the linguistic domain and the domain of autopoiesis are different domains, and although one generates the elements of the other, they do not intersect.

This leaves a linguistic domain as superseding, albeit dependent upon, the individual autopoietic system. It appears as if Varela’s linguistic domain supervenes upon the autopoietic whereabouts of a subvenient system that – for this to happen – depends on an individually achieved incorporation of this very linguistic domain via ontogenesis.

This recursive – or circular – genesis of the linguistic domain appears to pose a difficulty.⁵⁸ This problem is constituted by an available consensual, linguistic frame of reference in relation to which individual system-processes can be sorted and can unfold. These processes are not carrying mere information as in the computational construal of cognitive psychology. Due to the autopoietic generation of Varela’s cognitive descriptions (see sub-chapter 2.6) these descriptions are already individualised in terms of the system’s current states. Hence these descriptions carry individual *sense* or *meaning* for the system that produces them (see section 2.7.1). As this aspect will find more consideration in the later chapters, I will leave this issue and the social dimension for later. For now it is important to be clear about two facts

1. Varela’s embodied cognition provides the means to avoid the danger of merely illusionary descriptions emerging within autopoietic systems.

⁵⁸ The translator’s preface to the German edition of Maturana & Varela’s *The tree of knowledge* provides an anecdotal account of Maturana enjoying telling the story, that he, when facing these essential recursive moves in relation to all knowledge acquisition, felt like losing the floor under his feet so much so, that he started to have doubts about his own sanity (Ludewig, 2012: 12).

2. Varela's linguistic domain allows evasion of the negative consequences of Wittgenstein's private language argument by enabling the individual acquisition of and a subsequent application of socially derived concepts that still allow for individualised *sense* or *meaning*.

2.8. Methodological Problems and Varela's Solution

So far I have described Varela's account as essentially different from Chalmers' position. For Chalmers a scientific explanation was deemed to be sufficient to account for the functional mind, but these explanations remained unable to explain the phenomenal mind. In order to achieve an exhaustive overall explanation Chalmers proposed an additional property. Varela (1996: 330) attacks Chalmers for this search for an "extra ingredient" in his quest to overcome the self-created *hard problem*. Varela's (1996: 345) alternative system-theoretical account rests upon the claim that individual experiences, although instantiated by a physical system, "represent an irreducible ontological level" because they are instantiated by autopoietic systems. Varela thus utilises the feature of *being alive* to get his account going through various steps of increasing complexity. These reach from:

- a) basic, purposive and self-maintaining – living – systems, to
- b) systems that are able to utilise individual, system-internal descriptions within a nervous-system assisted cognitive domain, to
- c) even more complex systems that can become aware of some of the encountered deformations and the resulting system-internal descriptions, and finally to
- d) those systems that can individually acquire and utilise a collectively generated linguistic domain to sort individual experiences according to this domain's categories.

Varela has thus provided an account that is supposed to avoid the division of functional/intentional from experiential/phenomenal content. And he avoids this by locating the relevant processes within a living – autopoietic – system of sufficient complexity.

Although Varela's account is not always developed in full detail, his overall framework – as much as the work of other system-theorists – provides the resources to fill these gaps.⁵⁹ However, what Varela is very clear about are the methodological problems that surround these autopoietic systems, and he has developed a strategy to avoid these. Within this sub-chapter I will focus upon these problems and Varela's proposed solution. As a first step I will account for what Varela (Varela, Thompson & Rosch, 1991a: 3ff) calls the "fundamental circularity". As this *fundamental circularity*, within Varela's overall framework, provides the reason to advocate a self-observational method these issues need further attention (see section 2.8.1). The second step will focus upon Varela's proposed solution to these problems (see sub-chapter 2.8.2).

2.8.1. The Fundamental Circularity

The empiricist framework takes knowledge about one's surroundings as being based upon sense-experience, i.e., sense data being conveyed into a receptive cognitive system somehow represents what is sensed.⁶⁰ This is supposed to allow for a scientific quest aiming to discover the neuronal correlates of these mental representations (see section 1.2.6), but – as I discussed – these are then devoid of experiential qualities.

However, Varela's sufficiently complex systems – qua being autopoietic – experience individually by recognising deforming patterns in relation to a unique web of current and reverberating dynamic system-internal states. The coherent whole of these processes as they unfold do not allow for a clear-cut representational neural correlate to be found (see sub-chapter 2.4). The indexicality and individuality of Varela's non-representative account adds something to what is going on in these processes. Thus, Varela's perceptive processes cannot be – as Chalmers' two concepts seem to imply – merely functional/intentional states with a subsequently *added sprinkle* of phenomenal quality. Indeed, Varela is trying to capture something that goes

⁵⁹ As I did earlier when referring to Luhmann to account for the individual constitution of *sense* within an autopoietic system (see section 2.7.1)

⁶⁰ That is, as I discussed throughout sub-chapter 1.2., still predominant within current scientific psychology.

beyond the physicalist account of cognitive science. Varela is interested in the *sense or meaning* as it manifests itself within an autopoietic, purposive system in relation to a) the system's surroundings, b) the system's current states and c) the system's own past as incorporated within the system's on-going ontogenetic evolution. And Varela takes it to be impossible to trace emerging *sense* with a particularising view from a system's *outside*.

To make his case, Varela (Varela, Thompson & Rosch, 1991a: 3ff) engages in a very general assessment of attempts to yield sufficient scientific descriptions. But when it comes to the scientific investigation of human experience, Varela refers to these specific difficulties as the *fundamental circularity*. As this is quite important, so I had better spell it out once more: Varela's *fundamental circularity* concerns scientific investigations concerning human experience. Interestingly enough, Varela has by now partially changed his previous system-theoretical terminology to fit his investigative focus upon consciousness. Now he refers to experiences, while these were previously captured as *deforming strains* that a sufficiently complex system became conscious of.

As discussed throughout this chapter, Varela's essentially embodied mind resulted in an unfolding of the relevant system-processes in relation to this body and its environment. Against this background Varela develops the *fundamental circularity*. Usually scientific investigations of human experience are structured approaches, allowing inductive claims about experiences based upon observable variables.⁶¹ But Varela stipulates that:

a) any investigative result may reflect the method or design of the investigation;

even more so, that:

b) the structure of the investigation as well as the interpretation of the results appears intrinsically dependent upon the structure of the investigating scientist's cognition;

⁶¹ Within the previous chapter (see sub-chapter 1.2 ff.) I have already discussed the limitations of such an approach, especially in relation to psychological science.

while— still following Varela here:

- c) the latter is shaped by a background of pre-existing biological, social and cultural beliefs and practices.

This set of three stipulations serves Varela in developing the *fundamental circularity*. At first glance this may appear to be nothing more than the presumed result from a list of rather general and mostly uncontested statements. But Varela's fundamental circularity regards the scientific investigation of human experience. And – this is the crux here – these experiences are, according to Varela, irreducible, while they are supposed to be available exclusively from the *inside* of the experiencing system.

When it thus comes to scientific attempts to capture these experiences, when they are observed from *outside* the system – i.e., without the background of the internal *sense*-providing referential relations – the very act of observing experience-relevant processes alters the appearance of these processes for the observer. This alteration happens because the investigated process is – via particularising observation – deprived of its original system-internal referential web, while now instead being surrounded by the multitude of background-assumptions as summarised by the *fundamental circularity*. I mentioned these interferences earlier when briefly introducing the formation of a *greater machine* via a particularising assessment (see sub-chapter 2.3) from the *outside*. There, the *inside–outside* differentiation served Varela in accounting for his closed, autonomous systems to achieve an individual constitution of *sense*. But in relation to scientific attempts to investigate the experience-based constitution of *sense*, exactly this crucial *inside-outside* differentiation forces Varela now to try to get hold of these experiences from the system's *inside*. For him an *outside* account, i.e., one from *outside* the experiencing system – as employed by psychology ever after Wundt – cannot suffice due to the problem of the *greater machine* and the *fundamental circularity*. In this respect Varela's *fundamental circularity* points to much more than to the – probably uncontested – epistemic situated-ness of every scientific investigation.

2.8.2. Taking Experience as a Starting Point

Any disciplined investigative approach to human experience faces two immediate problems: a) the potential reach of such an investigation and b) the ability to report such experiences. Both aspects will be re-occurring issues within this thesis in relation to a proposed application of Husserl's phenomenological methods. In this respect it must suffice – at this point – to roughly introduce the problem to get an initial idea of the difficulty that guides Varela's proposal.

Experience as experienced by the experiencing system itself is the only possible source to a) evade the problem of the *greater machine* and b) achieve the assessment of private states. However, such a first-person perspective has to make do with what is available to the experiencer, i.e., that which becomes conscious to the one having these experiences. Varela's concept of consciousness is only a sub-set of the mind as the sum-total of all cognitive processes (see discussion in sub-chapter 2.5). Hence, the one experiencing these conscious processes will only have limited access to what is going on within the overall system or even his/her overall cognitive domain.

However, even if this privileged access is taken to yield valid first-person observations, there is still a problem with providing a method according to which an individual claim in relation to a particular experience could be validated. Within the current scientific paradigm the absence of such a method makes it impossible to confirm or falsify any statement made about conscious experiences.

Embracing these problems directly Varela (Rudrauf et al., 2003: 23) maintains that the experiential dimension of cognition is constituted by what is experienced from a subjective point of view. Hence, any investigation regarding consciousness would have to start exactly there. Attempts to include any other layer of abstraction⁶² in the quest to investigate experience

⁶² The earlier discussed notion of *cognitive states* could serve as an example for such a layer of abstraction (see discussion in section 1.2.4.).

would only take the investigation further away from that which is in need of investigation, i.e., the experiences as experienced. Varela (1991: 12) claims:

[w]e should go back where we started, to the connectedness and particularity of our own experience – even in the endeavour of reflection.

On first sight, this might appear like a relaunch of Wundt's introspective project, but Varela insists on utilising phenomenological methods, hence he proposes to use phenomenology as a methodological refinement. And although Varela (1991) acknowledges the influence of Merleau-Ponty's phenomenology on his own attempts to capture an essentially embodied mind, within his 1996 proposal Varela outlines the main tenets of neurophenomenology as an application of phenomenological methods developed by Edmund Husserl to serve his investigate aims. However, Varela's initial sketch is much more of a vision than the pragmatic provision of the actually 'do-able' research method which this vision, without any doubt, was intended to be.⁶³ I will – at this moment – only provide a preliminary first sketch; the relevant aspects of Husserl's methods in relation to Varela's proposal will reappear within the following chapters.

Varela (1996: 334), in his quest to get to the "lived experience", as this is "where we start from", aligns his approach to that of phenomenology.⁶⁴ Phenomenology – broadly understood – is a science of that which appears to consciousness. Varela (1996: 334–335) explains that the "phenomenological approach starts from the irreducible nature of conscious experience", that it is the "rediscovery of the primacy of human experience and its direct, lived quality." To sort what Varela (1996: 334) calls a "pragmatic and

⁶³ In order to do Varela's vision justice, I will – throughout this thesis – not only focus on his initial 1996 article but also on the more pragmatically orientated account provided later as *On Becoming Aware – A pragmatics of experiencing* (Depraz et al., 2003) and his relevant writings inbetween. Later developments or refinements of the neurophenomenological method (such as, for example: Depraz, 2013) are no main-concern, although some of these will find consideration within the later parts of this thesis.

⁶⁴ Whereas Chalmers used 'phenomenology' to refer to the domain of the experiences as experienced, Varela is referring to philosophical phenomenology as developed by Husserl.

methodological limbo” of current consciousness-research he adopts his “own synthesis of phenomenology in the light of modern cognitive science and other traditions focusing on human experience” (Varela, 1996: 335). He (Varela, 1996: 336) understands phenomenology as a *reflective practice* or an “attitude about our capacity for being conscious.” And this is where the difference to Wundt’s introspection manifests itself: Varela is not interested in the habitual way of seeing the world, he wants to abandon this naïve taking of the world as it presents itself and exchange it for an attitude which turns this habitual seeing into a second-order reflection.

Phenomenology – as Varela wants to employ it – aims to cut through a veil of natural or naïve background assumptions by suspending habitual claims, and thus enable a different investigation. This reflective practice aims to get away from third-person objectifications, aiming instead to attend to the world as it manifests itself within direct experience. This is – and I will discuss this in depth within the subsequent chapters – a shift from the natural to the phenomenological attitude.⁶⁵ In this respect, phenomenology as Varela (1996: 336) wants to utilise it is characterised by “a specific gesture of reflection or phenomenological reduction.”⁶⁶ Varela (1996: 336) explains that he wants to gain a

fresh look at experience in a specific gesture of reflection or phenomenological reduction.

At this point I will not engage with all the details just yet, but the conscious decision to break with the normal contents of habitual perception is for Varela a way to thematise the connection between the world and its objects on one side and the experiencing of these objects via consciousness on the other. For his purposes Varela (1996) ‘decomposes’ what he calls the

⁶⁵ It is worth mentioning here that such an attempt has historic predecessors in the form of the attempts made by the *Würzburg Schule* at the beginning of the 20th century (see section 1.2.2).

⁶⁶ Varela speaks plainly about *the phenomenological reduction*, and this concept seems to entail a number of diverse methodological steps as outlined by Husserl himself. However, to avoid confusion, I will – at the moment – stay with Varela’s choice of terms.

phenomenological reduction into four aspects. These are a) an alteration of attitude by bracketing, suspending beliefs, b) an intuitive grasping of conscious occurrences via an achieved intimacy and immediate evidence, c) an ascertaining of invariants of conscious occurrences via inscriptions on an inter-subjective level and d) the development of methodological stability and its pragmatics.

These four steps thus constitute Varela's neurophenomenological proposal. As the last point is strongly connected with the visionary part of Varela's initial outline – i.e., the training of future generations of a community of researchers able to perform research according to this method and to alter the general apprehension of what could qualify as scientifically sufficient – I will not consider this aspect any further as these issues lie outside the scope of this thesis. However, the first three aspects, only roughly drawn out in the 1996 paper, but soon fleshed out to develop a pragmatics of experiencing (Depraz et al., 2003) or a first-person methodology (Varela & Shear, 1999c), will receive further attention and clearer exposition in the subsequent chapters. While developing this further I will put a specific focus upon the third aspect, i.e., the attempt to gain invariant structures of experience. These (neuro-) phenomenologically revealed invariant structures are supposed to be somehow 'aligned' with biological (cognitive) structures of an autopoietic system. And it is this aspect that constitutes Varela's overall agenda to marry cognitive science and phenomenology.

2.9. Revolution or Reform – A Summary

Varela (1996: 330) conceives his proposal to be a revolution. Dennett (1993), on the other hand, had already much earlier criticised any suggested need for a phenomenology-induced revolution of psychology – for him a mere reform will do.⁶⁷ Dennett thus appears to be more or less content with the current state of cognitive psychology; yes, certainly in need of further improvements, but actually doing its job well enough that there is no need to overturn it

⁶⁷ I cannot account for all the criticism brought forward against Varela's proposal, and only briefly mention Dennett's critique here as I need to engage with Dennett's objections again at a later stage.

completely. Dennett's stance regarding this issue appears to be not unlike Chalmers' take on modern cognitive science, which he – probably a little bit too uncritically – pledged to take seriously in its current state. Varela on the other hand wants to marry modern cognitive science with phenomenology, and within this chapter I have drawn an initial sketch of Varela's position, a position providing a framework within which this marriage-plan is supposed to happen. To conclude this chapter I will utilise this dichotomy between revolution (Varela) and reform (Dennett) to summarise Varela's point of view and to – briefly – outline the objections that could be raised to his approach.

Varela's account is essentially built around the concept of autopoiesis, i.e., upon the notion of living systems which are autonomous, closed systems relating in an indexical manner to their environment, i.e., which display some sort of system-individual access to their world. Sufficiently complex systems can become aware. Varela has thus offered a biologically founded account of living systems, one that is supposed to account for the mind and consciousness as a result of the ever-increasing steps of complexity of these autopoietic systems striving to sustain themselves within a hostile environment. It is important to bear in mind that Varela's account of autopoiesis entails a much broader concept of cognition than the current conduct of cognitive science allows for. To account for this Varela uses the concept of embodied cognition serving the system's self-maintaining processes. Such a construal of cognition results in a non-representational account (see sub-chapter 2.4) and allows for, via the referential relations, the generation of *sense* or *meaning* for such a system (see section 2.8.2). When it comes to the mind, as constituted by the cognitive domain, Varela defines the difference between mind and consciousness as one marked out by the notion of an exclusive privileged access to the latter (see sub-chapter 2.6).

With Varela's strict differentiation between the *inside* and *outside* of a system, and with the claimed irreducibility of (conscious) experience (see sub-chapter 2.3), any current scientific investigation regarding consciousness remains one that is pursued from a system's *outside*. And although science may thus be able to assess some of these relevant internal system-processes from the

outside, such an assessment cannot account for the experiential dimension. This phenomenal character can only be experienced from the first-person perspective of such a system, i.e., from the *inside* of such a system. All this results in the methodological problem that the investigation of consciousness must start with the conscious experience, as it is available only to the experiencing system from its own *inside*, i.e., from the first-person perspective. And it is this, if the problem can be overcome, that is supposed to safeguard that the functional/intentional content of the relevant mental processes will not be partitioned off from its experiential/phenomenal aspects. This is the background against which Varela develops his neurophenomenological proposal suggesting the marriage of *modern cognitive science* with phenomenology.

With all that in mind it is evident that Varela develops his neurophenomenological proposal with a different kind of cognitive science in mind than the one I have portrayed earlier (see chapter 1). Varela's vision is one of a *science of consciousness* that follows an enactive, embodied approach, one that unites "mind science and phenomenological investigations of human experiences" in a "complementary and mutually informing way" (Thompson, 2010: 14).⁶⁸

Owing to his own framework, Varela (as opposed to Chalmers) can avoid the differentiation between functional and phenomenal content.⁶⁹ To achieve a

⁶⁸ Varela (1996: 345) explains: "In recent years there has been a slow but sure change towards an alternative orientation [...]. This orientation differs from representationalism by treating mind and world as mutually overlapping, hence the qualifying terms embodied, situated or enactive cognitive science. [...M]y present proposal concerning the study of consciousness aligns itself with those larger concerns." The reason for me not including this alternative orientation in my historical overview is owed to the fact that this new orientation only emerged a couple of years before Chalmers proposed his hard problem (see Bateson, 1987, as one of the founders of this new – enactive – orientation).

⁶⁹ It could be debated as to whether Varela thus actually provides a remedy to Chalmers' *hard problem*. Roy et al. (1999), Bayne (2004), Drummond (2007) and Zahavi (2007a) remain critical of Varela's proposal to utilise phenomenology as such (and these concerns will be addressed in the subsequent chapters). Lutz & Thompson (2003), Ratcliffe (2007) and Bitbol (2008; 2012) however, argue that

comprehensive investigation of experiences, Varela proposes to utilise Husserl's phenomenology to forward an investigation into the structural features of a consciousness that takes itself to be experiencing a transcendent world that has a temporal character. For this reason Varela aims to naturalise phenomenology, whereby such a strived-for naturalisation calls for biology as a non-reducible science of organic life. The ultimate goal for neurophenomenology is to align the structures of experience with features of biological organisms, structured in the way that Varela describes these as essentially autopoietic systems.

Varela's project is thus very different from what main-stream cognitive science was doing prior to Chalmers' property-dualism (see chapter 1). Varela is indeed calling for a revolution, not just suggesting some reforming alterations here and there: he calls for a radical transformation of the theoretical underpinnings for his science of consciousness and for a reworking of the investigative tool set. And what he hopes to achieve is beyond the scope of what Dennett's reforms could allow for.

But Varela's revolutionary proposal is not uncontested. There are a number of problems, and the first one concerns the antagonistic relation between science and phenomenology. And this relation will be the focus of the following chapter.

Varela's proposed utilisation of phenomenology does not actually aid in finding a solution to an otherwise false distinction as brought forward by Chalmers (see discussion in section 1.3.4) and suggest that the proposed utilisation of Husserl's phenomenology actually undercuts Chalmers' *hard problem* rather than solving it. But as this specific problem is not the focus of this thesis, I leave this discussion unattended to henceforth.

3. Husserl, Varela and the Sciences

3.1. Introduction

In the previous chapter I followed Varela's (1996: 335) overall framework and his neurophenomenological proposal, both of which are supposed to lead towards the proposed marriage between

modern cognitive science and a disciplined approach to human experience [...] in the lineage of the continental tradition of phenomenology.

As I pointed out (see sub-chapter 2.9), Varela's aim is not only a methodological refinement in the form of the proposed usage of phenomenological methods. His ultimate goal is to align the phenomenologically revealed structures of experience with the structural features of an autopoietic, biological organism, i.e., to naturalise phenomenology. But when Varela (1996: 335) speaks about phenomenology he is interested in

the rediscovery of the primacy of human experience and its direct, lived quality

and he maintains that "Edmund Husserl inaugurated this thinking in the West". Hence, it is Husserl's phenomenology that is the partner to be naturalised by way of this proposed neurophenomenological structural alignment.⁷⁰ I have already discussed how cognitive science (as discussed throughout chapter 1) would need to undergo a revolution. It would need to be turned into an

⁷⁰ During his lifetime Husserl (1859–1938) produced an enormous written output. However, only a fraction of these writings were actually published by himself, which results in the fact that there is a debate amongst scholars as to what constitutes Husserl's original oeuvre and which of the posthumously edited and published works could and should count as a textual basis for philosophical research. Bob Sandmeyer (2009) provides a good account of this discussion in the introduction to his book *Husserl's Constitutive Phenomenology – Its Problem and Promise*. For the current purposes these details are not important and I will use all the relevant textual evidence as compiled in the critical edition of Husserl's work, the *Husserliana* (henceforth: *Hua*), regardless of the actual publishing date (during Husserl's lifetime or posthumously)

enactive, embodied and situated, *modern cognitive science*⁷¹ to cater for the system-theoretical implications of Varela's framework as discussed in the previous chapter. This revolutionary demand is not the only difficulty that Varela has to face up to. His proposal to utilise phenomenology alongside *modern cognitive science* creates another problem, owing to the fact that science and phenomenology stand in an antagonistic relation to each other. This antagonistic relation leads to some specific difficulties in need of being addressed before Varela's marriage proposal could work. I will discuss these issues in the following three sub-chapters.

I will introduce the first issue regarding the relation between science and phenomenology (see sub-chapter 3.2) with an assessment of Husserl's critique of a position known as psychologism, voiced by him in the 1900–1901 *Logical Investigations* (henceforth: *LI*).⁷² Psychologism is – most generally speaking – a position that maintains that psychology constitutes the basis for all sciences, not only the *cultural and social sciences*, but also for mathematics, logic and philosophy.⁷³ Husserl (Hua, XVIII: 5–7) criticised it on

⁷¹ This is Varela's term to refer to this embodied, enactive cognitive approach of doing psychology.

⁷² Husserl's own development as well as the development of his phenomenology shows itself in distinct stages. These are the periods from a) 1890–1901 and beyond as a descriptive, structural investigation, b) 1907–1938 with the project of transcendental phenomenology and running concurrently a third period c) 1917/1918 onwards, regarding the project of a genetic phenomenology. Although it is not my aim to develop an account of Husserl's phenomenology alongside this structure, within this chapter I will nevertheless concentrate upon science-related aspects of the first stage (1890–1901 and beyond). I will however, within a later chapter, also discuss Husserl's later thoughts on the relation between science and phenomenology as voiced in the *Crisis of the European Sciences and Transcendental Phenomenology* (henceforth: *Crisis*) – albeit in a more specific context (see: chapters 5, 6 and 7).

⁷³ When speaking about the sciences in this (German) context, it has to be kept in mind that the German-speaking tradition divides 'the sciences' (*die Wissenschaften*) into the 'socio-cultural sciences' or 'cultural sciences' (*Geisteswissenschaften*) and the 'natural sciences' (*Naturwissenschaften*). Owing to this traditional division I will henceforth refer to both branches of scientific pursuit by using the term *sciences* and (as I did already earlier on) use the term *natural sciences* to denote what is commonly known in Anglo-American academia as science, while the term *cultural sciences* will refer to exactly that. The cultural sciences – within the tradition of German academia – is a collective name for

the grounds that such a position would leave logic to be founded upon psychology. Husserl instead engaged with the fundamental differences

- a) between the essential form of knowledge and the matter of such knowledge and
- b) between formal (pure) properties, truths and laws on one side and material properties, truths and laws on the other.

Although Husserl's arguments provide a new and psychology-independent foundation for pure logic, my specific focus will concentrate upon the epistemological implications. Hence, I will clarify the two different investigative directions of science and phenomenology.

I will run Varela's account alongside this introduction of Husserl's position. The reason for that is that Varela's system-theory conceptualises cognition as being – albeit irreducible – essentially naturalistic (see chapter 2) and such a biological-naturalist account displays similarities with psychologism. But if that were so, then Husserl's critique of psychologism might pull the rug from under Varela's biological-naturalist account and that would render Varela's marriage-arrangements problematic. While discussing this looming tension I will also introduce Husserl's proposed priority of phenomenology over science. This will allow me to highlight the fact that it looks as if Husserl's phenomenological investigative methods are only to be taken if one is willing to accept the implication of his overall theoretical framework.

However, the focus of Varela's neurophenomenological proposal is the phenomenology-assisted investigation of consciousness. The second focus of the current chapter is thus placed upon Husserl's descriptive attempt to reveal the conditions for the possibility for knowledge (see sub-chapter 3.3) as developed in the second volume of the 1901 *LI*. I will discuss Husserl's three different concepts of consciousness and of intentionality in relation to Varela's

about 40 different academic disciplines, investigating – with various methods – cultural, philosophical, social, sociological, historical, political and religious phenomena.

plans.⁷⁴ This will enable me to tease out the essential difference between empirical and phenomenological investigations when it comes to the generation of *sense* or *meaning*.

A third issue (see sub-chapter 3.4) concerns the implications of this chapter's two-stranded investigation. In line with Husserl I will argue that phenomenological and scientific investigations are inherently different. I will use this difference to account for the relation between both and point out the implications this has for Varela when trying to utilise both approaches within his neurophenomenological proposal. This section will be followed by a short chapter summary (see sub-chapter 3.5).

3.2. Husserl's Psychologism Critique

I have already mentioned the danger that Varela's biological-naturalist account may be swept aside by Husserl's psychologism critique. Husserl's critique is explicitly directed at psychologism but that – for Husserl (Hua, XVIII: 196-213) – includes a rather “closely related” position known as *Denkökonomie* (economy of thought or thought-economy).⁷⁵ This economy of thought – as a biological account – is probably even closer to Varela's position. If Husserl's psychologism critique applies to Varela's account, then the pairing of cognitive science and phenomenology would be questionable, as Varela's own account – under which this marriage is supposed to take place – would turn out to be incompatible with Husserl's position. This is a first, but serious danger for Varela's proposed utilisation of phenomenological methods, and I will investigate this matter in three distinct steps.

⁷⁴ Husserl's descriptive project, as opposed to an explanatory, scientifically motivated account, addresses the earlier mentioned (see section 1.2.1) *what-question* while providing universal descriptions about the *how-question*.

⁷⁵ Cairns' (1973) *Guide for translating Husserl* provides no translation for the German term *Denkökonomie*. However, all the other entries concerning *Gedanken*, *Denken* or *denken* are translated as 'thought' or 'thinking'. Findlay, the translator of the *Logical Investigations* uses 'thought-economy'. For these two reasons the term *Denkökonomie* will henceforth be translated as 'thought-economy' to refer to this specific philosophical position and to demark it clearly from the 'cognitive economy' used within functional/cognitive accounts as discussed earlier (see section 1.2.5).

Firstly I will trace the emergence of the relevant positions (neo-Kantianism, psychologism and *Denkökonomie*) in relation to Husserl's own development (see section 3.2.1). Although I am thus revisiting the same historical time-slot that provided the environment for Wundt's proposal of an empirical – introspective – psychology (see section 1.2.2) I will focus upon the emergence of psychologism. Secondly, I will introduce Husserl's actual critique of psychologism (see section 3.2.2).⁷⁶ This allows me – in a third step – to argue that Varela's account is able to withstand this challenge (see section 3.2.3).

3.2.1. Husserl's Development towards Phenomenology and the *Zeitgeist*

The seeds of Husserl's phenomenological project can be traced back to his first major publication, the 1891 *Philosophy of Arithmetic*. Here Husserl wanted to clarify the nature of numbers as independent of any arithmetic theory (Hua, XII: 11). Husserl develops his account in conversation with G. Frege,⁷⁷ and although I wish to cut this discussion short by just highlighting the area deemed to be problematic by Frege, I nevertheless need to provide the context in which this problem occurs. Husserl (Hua, XII: 23) speaks about the overall content of consciousness (*Bestand des Gesamtbewusstseins*) and explains the importance of a “specific interest” that lifts-off (*herausheben*) particular objectifications (*Vorstellungen*) from the overall content of consciousness and arranges these particulars. However, when it comes to accounting for how this lifting-off and the arrangement are supposed to happen, Husserl remains silent. Sommer (1985: 96) explains that it appears as if Husserl's concept of the “specific interest” is both something that is determined by its content and something that determines content, which seems to be a less than satisfying solution. To solve this particular ambiguity Sommer (1985: 97) explains how Husserl utilises an account whereby

The object a_1 , if it constitutes the centre-point of interest, is the concept A. Concepts are not essentially different to the objects, the only difference is the function they serve in consciousness. The concept is the object, as it is determined by [*Husserl's specific T.F.*] interest.

⁷⁶ This engagement with psychologism entails Husserl's critique of the “principle of thought-economy” (Hua, XVIII: 196) as well.

⁷⁷ Gottlob Frege (1848–1925) was a German mathematician, logician and philosopher. He is held to be the founder of modern mathematical logics.

However, Sommer maintains that such a solution results in an ambiguity between the objects and their objectivations; which is what raised Frege's critique regarding Husserl's insufficient distinction between *that which is* and *that which one is conscious of*. Frege (1967: 181) comments on Husserl's position by complaining that

the difference between presentation and concept, between presentation and thought, becomes blurred. Everything is placed into the subjective. But exactly by rendering the boundary between the subjective and the objective as a fuzzy one, the subjective gains the semblance of the objective.⁷⁸

And that brings me back to the main-issue. Frege accuses Husserl of maintaining a position whereby any acceptance or positedness, any cognition would be founded upon the correct genesis of experience. And that is nothing short of accusing Husserl himself of maintaining a position known as psychologism (see introductory remarks on this position in 3.1), a position Husserl will, a short time later, argue vehemently against.⁷⁹

In order to clarify the concept of psychologism itself and to understand Husserl's motivation it is probably best to capture the academic climate, the *Zeitgeist* that influenced Husserl and others. The second half of the 19th century saw the demise of idealism, a position that had maintained that the objects of cognition (*Erkenntnisgegenstand*) are not real objects, existing independently of cognition, but that these objects of cognition are nothing but ideas and presentations about these real existing objects. There were two opposing main-currents, both trying to account for how objects appear to

⁷⁸ "Es schwimmt hierbei der Unterschied zwischen Vorstellung und Begriff, zwischen Vorstellung und Denken. Alles wird ins Subjektive herübergespielt. Aber gerade dadurch, dass die Grenze zwischen Subjektiven und Objektiven verwischt wird, bekommt auch umgekehrt das Subjektive den Anschein des Objektiven." (My translation)

⁷⁹ There is some discussion as to whether Husserl himself held a full-blown psychologistic position in his *Philosophy of Arithmetic*, and as to whether or not Frege's critique influenced him to become an anti-psychologist. Sommer (1985: 98 ff.) provides a good account of the debate – but this is not my current focus. In 1901 Husserl (Hua, XVIII: 172) mentions himself – within a footnote – that he no longer approves of his own critique of Frege's anti-psychologist position as Husserl had formulated it within his 1891 *Philosophy of Arithmetic* (Hua, XII: 129–132).

consciousness: materialism and positivism, maintaining a mind-independent reality (realism) on the one side, and spiritualistic accounts on the other.⁸⁰ While spiritualistic accounts were simply not compatible with the natural sciences and their methods, materialist-positivist accounts, on the other hand, took experience as a mere representation of what is directly given. However, both spiritualism and materialism/positivism were deemed inefficient to account for conscious experiences. Liebmann, in his 1865 *Kant und die Epigonen*, had already initiated a turn away from positivism and back to Kant's critical philosophy, a position known as neo-Kantianism or *Kritizismus*. Liebmann denied the possibility of consciously appearing objects of experience (*Erfahrungsgegenstände*) without a meaning-providing frame of reference (*Deutungsrahmen*), and Kant's philosophy offered him an alternative to spiritualistic speculation as well as to naturalistic and positivistic scientism (Röd, 1996: 348).

Liebmann's contemporary A.F. Lange⁸¹ acknowledged the importance of natural scientific inquiries, but he maintained that any specific scientific investigation could never be an exhaustive one and that scientific thought is in need of an additional – a philosophical – level. Lange's critical engagement with the natural scientific approaches alongside his neo-Kantian commitments serves me here as a basis upon which to highlight the apparent similarities between Lange's psychologistic position and Varela's account.

Lange suggested trying to reduce mental occurrences to physiological ones although he maintained that consciousness as such cannot be completely reduced to a physiological basis. In relation to his partially materialist, reductionist suggestion, Lange (1905: 466) maintains that

there is hardly anything to search for in experience away from [...] neural processes, but these processes possess in themselves a totally

⁸⁰ This is where I revisit – albeit with a different focus – the landscape of German philosophy/psychology at the time that I already passed through when tracing the roots of Wundt's psychology (see section 1.2.2).

⁸¹ I already mentioned A.F. Lange in sub-chapter 1.2 as the one who called for a *psychology without a soul*.

different way of appearing, i.e., one that the individual calls experience.⁸²

Lange thus pays heed to the privileged access problem of consciousness, i.e., that there appears to be something intrinsically special to conscious experience in so far as it is exclusively available to the experiencing individual. Lange (1905: 467) explains that conscious occurrences described as an “external, natural process” are, at the same time, something internal to the thinking subject, something that goes beyond the boundaries of scientific knowledge. Nevertheless, Lange rated investigations utilising that privileged access – as provided (at the time) by Wundt’s introspective accounts – as intrinsically unreliable.⁸³

When it comes to conscious experience Lange (1905: 58) held that any claim simply anchored in the functions of matter appear to be as mystical, as attempts to reduce consciousness to a spiritual soul. Lange thus seems to take a position quite similar to Varela’s overall account developed some 80 years later. When it comes to consciousness, Lange, as much as Varela, emphasised the insufficient explanatory reach of the natural sciences. But, just as his successor, Lange rejects mystical substances to fill the gap, and with that rejects, as does Varela, an ontological vitalist position. In order to nevertheless solve the apparent problem of accounting for conscious experiences Varela proposes a system-theoretical account, while Lange took the Kantian forms of human spatio-temporal intuition (*Anschauung*) as being brought about by the human psychophysical layout (*psychophysikalische Einrichtung*). Lange’s account – in many aspects quite similar to Varela’s – thus provides a template for a psychologistic position, i.e., for the position maintaining that the enabling and ruling principles of human intuition, or the norms of thinking (*Denkgesetze*), are nothing but the result of a correct psychological genesis. The potential extent of such a position is probably best

⁸² ” dass in der Empfindung außer und neben den [...] Nervenvorgängen schwerlich etwas überhaupt zu suchen ist; nur haben dies Vorgänge selbst noch eine ganz andere Erscheinungsweise, annehmlich diejenige, welche das Individuum Empfindung nennt.“ (My translation)

⁸³ See more on this discussion in section 1.2.2.

illustrated by the work of von Helmholtz, who developed this position further and construed Kant's *a priori* forms of intuition as perceptual matters of fact (*Tatsachen der Wahrnehmung*) in a strict physiological way, i.e., as a mere function of a psychophysical subject. Von Helmholtz thus turned the conditions of the possibility for experience, which were Kant's concern, into functional processes of the mind or a nervous system (Röd, 1996: 350).

But a word of caution is needed here, as the concept of psychologism can have a different reach for different people. There is however some consensus in so far as psychologism is taken to refer to the fact that the psychological status of the laws of logic is applied to conscious experiences and thought processes, i.e., that the laws of correct thought (*Denkgesetze*) are the manifestation of logic as it is brought about by psychological genesis.⁸⁴

Closely related with this psychologistic position and the issue of the ruling laws or principles of human intuition or thought (*Denkgesetze*) is another concept, that of a thought-economy.⁸⁵ It is a psychological-epistemological theory, according to which human thought necessarily follows the natural-biological principle of reason to achieve its cognition (*Erkenntnis*) with a minimum of effort. This kind of biologically driven model of human thought displays similarities with Varela's concept of cognition within an autopoietic system (see sub-chapter 2.4). Husserl (Hua, XVIII: 196) states that "[c]losely related with psychologism" are biological explanations utilising the "principle of Least Action" of Avenarius and "the principle of the Economy of Thought, as Mach calls it."⁸⁶ For Husserl these biologically founded currents with their

⁸⁴ Kusch (1995) provides a good overall account in *Psychologism: The Sociology of Philosophical Knowledge*.

⁸⁵ This approach was developed to capture consciousness within an overall attempt to provide an empirical foundation to neo-Kantianism. This school of thought is known as *Empiriokritizismus*, with R. Avenarius and E. Mach as their main-protagonists. Sommer (1985) provides a comprehensive account of the tension between Husserl's early phenomenology and early positivism in the form of this *Empiriokritizismus*.

⁸⁶ "Nah verwandt mit dem Psychologismus [...] Prinzip vom kleinsten Kraftmaß, wie Avenarius, oder des Prinzips von der Ökonomie des Denkens, wie Mach es nennt." (Translation by Findlay)

proposed “basic laws of understanding” or their “universal, basic laws of psychology” are nothing but another form of psychologism which he opposes within the *LI*.⁸⁷ However, to see if Husserl’s psychologism critique poses a threat to Varela’s account and if this threat is probably even increased by Husserl’s inclusion of the thought-economy I will now outline Husserl’s actual criticism.

3.2.2. The Prolegomena

Within the first volume of the *LI*, *The Prolegomena to Pure Logic*, Husserl provides a strong – and important – argument against psychologism.⁸⁸ Nevertheless, I will concentrate upon the main thrust of Husserl’s argument to reveal possible implications for Varela’s proposal and to clarify the relation between science and phenomenology as Husserl envisaged it.

Launching his charge against psychologism Husserl (Hua, XVIII: 44ff.) differentiates between a) pure, foundational logic (*Grundnorm*) and b) a technical application (*Kunstlehre*) of logical laws to gain scientific knowledge. But if the sciences – driven by their quest for knowledge – make use of normative logics to sort contingent, empirical particulars along causal laws, then these normative rules need – as science does – a foundation themselves, i.e., they need a more fundamental, pure logic, based upon non-empirical, ideal universals, governed by necessary and universal laws (Hanna, 2008: 30).

When it comes to human thought, Husserl (Hua, XVIII: 196ff.) maintains that the needed foundation for logic cannot be the result of the empirical workings of a thought-economy, trying to minimise thought-energy to maximise environmental coping by striving for the best possible fit between external contingencies and individualised actualities. Although he does not contest the

⁸⁷ As I will discuss towards the end of this chapter Husserl’s general stance towards biological science will undergo a change.

⁸⁸ Indeed the influence is so strong that Hanna (2008: 28) claims that what is commonly referred to “as Husserl’s ‘refutation’ of LP [*logical psychologism T.F.*] constitutes one of the most famous and broadly influential critical set pieces of 20th-century philosophy.”

fact that human thought is determined by biological adaptations, he specifically opposes the claims, as made by psychologism, for such a biological pragmatism's ability to provide a theoretical basis for a practical application of logic (Bernet, Kern and Marbach, 1989: 28). Hence, for Husserl, the logical laws and truths cannot be reduced to psychological truths. Husserl (Hua, XVIII: 67) explains the relation:

The task of psychology is to investigate the laws governing the real connections of mental events with one another, as well as with related mental dispositions and corresponding events in the bodily organism [...]. Such connections are causal. The task of logic is quite different. It does not inquire into the causal origins or consequences of intellectual activities, but into their truth-content.⁸⁹

Hence, psychological laws are merely founded upon generalisations derived from empirical observations of regular occurring probabilities in terms of their co-existence and succession (Hua, XVIII: 72). It thus follows that, contrary to the psychologism position,

[n]o natural laws can be known *a priori*, nor established by sheer insight. The only way in which a natural law can be established and justified is by induction from the singular facts of experience. (Hua, XVIII: 73)⁹⁰

Husserl's verdict thus leaves any attempted foundation of logic upon psychological observations in the position where no assertion could ever – with certainty – be judged as being correct because these assertions themselves carry the “stamp of mere probability”⁹¹ (Hua, XVIII: 76).

Away from this fundamental problem for psychologism, there is another difficulty. Husserl (Hua, XVIII: 122) develops this by taking “the Protagorean formula: ‘man is the measure of all things’” as a form of cognitive relativism.

⁸⁹ *Die Aufgabe der Psychologie ist es, den realen Zusammenhang der Bewusstseinsvorgänge untereinander, sowie mit den zugehörigen psychischen Dispositionen und den korrespondierenden Vorgängen im körperlichen Organismus zu erforschen [...]. Ganz anders geartet ist die Aufgabe der Logik. Nicht nach kausalen Ursprüngen und Folgen der intellektuellen Betätigungen fragt sie, sondern nach ihren Wahrheitsgehalt* (Translated by Findlay)

⁹⁰ *Kein Naturgesetz ist a priori erkennbar, ist selbst einsichtig begründbar. Der einzige Weg, ein solches Gesetz zu begründen und zu rechtfertigen, ist die Induktion aus einzelnen Tatsachen der Erfahrung.* (Translated by Findlay)

⁹¹ *den Stempel der bloßen Wahrscheinlichkeit*

Truth would thus be determined by (human) belief or opinion (Hanna, 2008: 33), and this relativism can manifest itself upon an individual as well as at a species level, i.e., one human being as opposed to the human species. But Husserl maintains that a foundation of logical truth could neither be derived from one individually held belief, nor by recourse to those of an entire species – both options cannot serve as the needed foundation for normative logic as applied within scientific endeavours.

It is important to understand Husserl's *Prolegomena* in the context of his developing phenomenological project, but also in relation to the sciences. By refuting the psychologism-claim that psychology provides the basis for logic, Husserl's arguments against psychologism allow him to liberate the laws of logic from genetic-empirical psychology (Bernet, Kern and Marbach, 1989: 25). Husserl has thus established the necessary pre-condition to utilise a now psychology-independent pure logic to investigate actual psychological or phenomenal thought-experiences. This psychology-independent logic can now provide the means to avoid the problem of Varela's *fundamental circularity* (see section 2.8.1). It allows the assessing of an act of judging (*psychologischer Urteilsakt*) in a pure logical manner, not as being dependent upon the pre-deciding genesis of logic by such acts of judging. Husserl (Hua, XVIII: 170ff.), feeling thus liberated from environmental/psychological contingencies, is able to investigate the relation between

- a) the ideal conditions of cognition as revealed by a phenomenological investigation and
- b) temporally individuated psychological acts as the concern of the empirical sciences.

These differences allowed Husserl to develop a phenomenological investigation, one separate from and further reaching than empirical ones. An important cornerstone in Husserl's development of phenomenology is the concept of *Idealität*,⁹² referring to

⁹² Cairns (1973) *Guide for translating Husserl* contains no entry for *Idealität*, but Moran & Cohen offer *ideality* as an appropriate translation.

ideal entities that are characterized by identity across time such that they may be said to be supratemporal [...] These ideal entities have a certain being in itself (Moran & Cohen, 2012: 154)

For my current purposes it is not necessary to discuss whether these idealities or ideal entities indicate Husserl's commitment towards idealism; he himself held the position that phenomenology could undercut the division between the historical position of psychologism and idealism which I outlined earlier (see section 2.2.1).⁹³ My focus is a different one and so I need to assess the implications of Husserl's *Prolegomena* upon Varela's proposal.

3.2.3. The Psychologism-Critique and Varela's Proposal

I pointed out that Lange's position has some similarities with Varela's account (see section 3.2.1). Indeed, Varela maintains that cognition refers to those processes of an autopoietic system that bring about a 'description' of a *world for* a system in order to enable this system to maintain its existence (see sub-chapter 2.4). As there are no further substances in Varela's account bringing about the correct (system-maintaining) workings of the autopoietic cognition, and as the ruling principles must originate from somewhere, it looks like a psychological genesis might be a good candidate for this origin. If that were

⁹³ Husserl's ideal entities have attracted some discussion. I will not engage in this discussion here and it must suffice at this point to quote Held's (1962: 66) explanation of the term 'ideal' to shed light on the way it ought to be understood in Husserl's context: "'Ideal' and 'irreal' do thus not indicate that eidetic givens are 'produced' or 'created' by consciousness and that 'outside' of this consciousness there is nothing. That these objects exist does equally not mean that they exist in the form of platonic ideas. The meaning Husserl intended does not just sit somewhere in-between a psychologistic or platonic misconception. [... Husserl's concept *T.F.*] does not fit into the frame of an argument between the protagonists of platonic eidetics and psychologism. Both are still resting upon a basis of their own opinions about what that *this* is, hence: whether eidetic givens are 'outside' or 'inside' of myself or 'within' or 'above' the world. Husserl's phenomenology tries to undercut such opposing arguments by a radical reflection upon the universal correlation of any sense-bestowing act." Held continues: "It is in that sense that 'object' – in eidetic terms (whatever is to be thought of that) – refers to a sense-making referent which is referred to by intentionally" (my translation). And such a non-platonic construal of ideal objects seems to allow Husserl to avoid a charge of taking an idealist position – which is a completely different investigation – while such a position still caters for the possibility of fitting Varela's account around it – as I will discuss within the next section, 3.2.3.

so, then Varela seems close to a psychologism-position, and with that becomes vulnerable to Husserl's critique.

A mere statement to the effect that Husserl was concerned with a stronger version of psychologism (i.e., logical psychologism) and that Varela does not make such far-reaching claims, that he indeed remains silent about these problems, may buy some time, but does not necessarily solve the issue at hand: Cognition and the mind are for Varela manifestations of autopoietic system processes, whereby some of these processes become apparent to the experiencing system itself (see sub-chapters 2.5 and 2.6). Varela is thus – as he himself maintains – providing a mechanistic account of cognition as instantiated upon a biological system: i.e., his autopoietic account covers – in principle – all the psychologically relevant events and seems to even determine the genesis of further events as a result of an ongoing ontogenic evolution of a system (see sub-chapter 2.5). Whether such a system-immanent psychological genesis of the laws of thought – regulating what can be thought and how thought is to be structured – would necessarily have to be guided by a 'Principle of Least Action' or by an "Economy of Thought' is open to debate, but – regarding Varela's own biological background – one may assume that Varela could be sympathetic to these ideas. Varela thus appears to be well on the way towards a psychologistic position.

However, here it is necessary to remember four important aspects of the discussion so far:

- a) Husserl does not oppose the claim that thought is somehow adapted to or shaped by underlying biological events and
- b) Varela maintains that cognition (in his wider sense as discussed in sub-chapter 2.4) is an autopoietic process enhanced by the availability of a nervous system.

And that seems to allow for a fit between Husserl and Varela on the merely biological level, but even more so since:

- c) Husserl – at that time – differentiates between the empirical act of thinking and the contents of these thoughts (see section 3.2.2), while

- d) Varela allows sufficiently complex systems to access a linguistic domain and an individual utilisation of consensual discriminants regarding inter-subjectively reoccurring deformations (see section 2.7.2). Hence, the relevant autopoietic processes can carry individual *sense* or content via a non-causal, individual actualisation along these consensual discriminants.⁹⁴

Here again Husserl and Varela do not appear to oppose each other. Varela's account allows for a Husserl-like discrimination of a) the act as cognition-relevant autopoietic processes and b) the contents of these acts as provided – in Varela's case – by the consensual discriminants. Varela's account is therefore not dependent on a system-immanent genesis of logical truth as (logical) psychologism maintained. This is so because Varela's account explicitly states that individually experienced deformations as posed by the linguistic domain do yield forming effects upon the continuous ontogenetic evolution of an autopoietic system (see discussion in section 2.7.2). It thus follows that these systems can incorporate learning into their biological makeup. These systems need not source pure logic within themselves; they are able to discover logical truth and laws via the linguistic domain and acquire – or learn about – them, albeit within the constraints of what is biologically possible for such a system (see section on biological variance/closure in sub-chapter 2.2).

One could say, then, that (some species of) Varela's autopoietic systems come with the phylogenetic ability to utilise logic, but that the ability to apply logic itself has to be individually acquired via ontogenetic processes, i.e., that logic can be individually incorporated into brain-structures, but that logic itself does not originate from these structures. This is a limitation not contested by Husserl, who would probably not object – but who was equally not concerned about the fact – that thoughts are somehow instantiated upon a biological basis. Even more so, this position would not necessarily commit Varela to a nominalist position whereby he would have to deny the existence of extra-

⁹⁴ See section 2.7.2 on this aspect where Varela and Maturana set the linguistic and autopoietic domain apart, not intersecting with each other, although one (the former) depends upon the other (the latter one).

linguistic – ideal – universals, as Varela can remain indifferent towards the existence of Husserl's idealities as long as they can be individually acquired via the linguistic domain.⁹⁵

At the end of this section it thus turns out that Varela is still on safe ground with his account, unharmed by Husserl's psychologism-critique. Varela does not need to insist on founding correct – logical – thought upon psychological-biological laws. Hence, within his system-theoretical framework, Varela can allow that the environmental contingencies a system encounters are reduced to individual realised actualities (or deformations – see sub-chapter 2.4) whereby a normative and pure logic allows the uncovering of *a priori* structures of these appearances. In this respect Husserl's differentiation between the act of thought as regulated by an underlying normative logic and the content of thought as dependent upon contingent environmental stimuli might just provide the means for Varela to pursue his neurophenomenological proposal. This has to be thought of in such a way that Husserl's differentiation allows Varela to utilise a two-stranded approach focusing upon

- a) a phenomenological investigation into the necessary structures regulating thought along the normative logic and
- b) a psychological-scientific investigation to reveal causal changes regarding natural kinds in relation to specific stimuli.

And that seems to be what Varela's neurophenomenological marriage proposal implies: the phenomenological investigation regarding the structures of experience to – if possible – align these with empirical data about the biological structure of autopoietic systems. But – as promising as that may sound – the phenomenological investigation aims to reveal the *a priori* structures, i.e., structures that enable something to be conscious of something. And such an investigation reaches further than scientific attempts. This is where the antagonistic relation between science and phenomenology manifests itself. Phenomenological investigations claim to be – by their very nature – more fundamental than scientific ones.

⁹⁵ This is quite different from Husserl, who – at a later date – declared that he does not want to limit his considerations about the sense-constitution exclusively to the linguistic sphere (Hua, III: 303), but that is not my concern at this stage.

3.3. Consciousness and the Logical Investigations

Leaving this phenomenological claim for investigative priority aside for a little while, it thus looks as if a first problem (Husserl's psychologism-critique) for the application of phenomenology within Varela's system-theoretical framework is solved. Even more so, Varela's marriage proposal could potentially yield two interesting perspectives (scientific and phenomenological) on the experiences. Therefore it is time to discuss what Husserl's differentiation between normatively structured conscious acts and contingent content (see previous section) can do when systematically investigating consciousness. Husserl – still within the *LI* – aimed to reveal the specific conditions under which the logic idealities could manifest themselves within actual thought-experiences (Merz, Staiti & Steffen, 2010: 44) and that resulted in the *LI* being

one of the most detailed books ever written about the phenomenology of consciousness. (Mayer, 2008: 1)

Husserl, mainly within the V. investigation of the *LI*, provides a discussion of three concepts of consciousness alongside a detailed account of intentionality. In this respect

[t]he fifth investigation is Husserl's first real contribution to the phenomenology of consciousness, including the beginnings of a phenomenology of perception and of judgement (Moran, 2005: 125).

Husserl's (Hua XIX/1: 355) initial concern is the ambiguity of the term *consciousness*. Whereas psychology tends to separate psychic⁹⁶ from physical phenomena to establish boundaries between the realm of psychological and physical sciences (see chapter 1), Husserl focuses upon the phenomenological, i.e., the individually experienced essence of psychic acts (*phänomenologisches Wesen psychischer Akte*). Husserl thus takes the individual experience as his vantage point,⁹⁷ and while not aiming for an exhaustive list of all relevant possibilities he nevertheless introduces three

⁹⁶ Husserl writes about *psychologische Akte* (psychic acts); this is equivalent to the more commonly used term *mental act* in English. However, when quoting or paraphrasing Husserl I will continue to use the direct translation, unless in those cases where I provide a already existing, translated quote.

⁹⁷ Starting from individual experience entails certain methodological necessities that will be discussed across the following chapters.

different concepts of consciousness relevant for his investigation. These are in Husserl's (Hua XIX/1: 356) own words:

1. Consciousness as the entire, real [*reelle*] phenomenological being of the empirical ego, as the interweaving of psychic experiences in the unified stream of consciousness.
2. Consciousness as the inner awareness of one's own psychic experiences.
3. Consciousness as a comprehensive designation for 'mental acts', or 'intentional experiences', of all sorts.⁹⁸

These three concepts contain critical aspects in relation to this overall project but for the sake of a structured approach I will need to, while introducing the concepts, postpone the discussion of some of these issues to later chapters. I will introduce the first (see section 3.3.1) and second (see section 3.3.2) concept of consciousness, to then critically assess some of the implications of these two concepts (see section 3.3.3). This section will close with a discussion of the third concept in relation with the notion of intentionality (see section 3.3.4).

3.3.1. The First Concept of Consciousness

This first concept of consciousness

as the entire phenomenological being of the empirical ego, as the interweaving of experiences into a unified stream of consciousness (Hua, XIX/1: 356)

refers to

a stream of consciousness, or when we affirm that a certain entity has a consciousness (Zahavi, 2002: 52)

and is already packed with 'critical aspects' as I called them above. Findlay's translation seems to imply that Husserl differentiates an 'empirical ego', i.e., a real existing individual or an empirical person or ego (*empirisches Ich*) from a

⁹⁸ 1. *Bewusstsein als der gesamte reelle phänomenologische Bestand des empirischen Ich, als Vergebung der psychischen Erlebnisse in der Einheit des Erlebnisstroms.*

2. *Bewusstsein als inneres Gewahrwerden von eigenen psychischen Erlebnissen.*

3. *Bewusstsein als zusammenfassende Bezeichnung für jederlei „psychische Akte“ oder „intentionale Erlebnisse“.* (In this footnote I have provided the German original of the 1913 text of the second edition alongside the translated text above, provided by Findlay. But this text shows some differences in relation to the 1901 text of the first edition; I will elaborate on this within the main-text)

‘phenomenological being’. But this false impression would be owing to the translation only. The 1901 German original reads:

der gesamte phänomenologische Bestand des geistigen Ich [...] als Bündel oder Verwebung der psychischen Erlebnisse (Hua, XIX/1: 356)

and that does not at all imply a separate ‘phenomenological being’. Husserl is simply trying to capture consciousness as the *phenomenologically relevant stock* (*Bestand*) of mental occurrences, interwoven into a bundle (*Bündel*) that forms the consciousness of a real existing person or empirical ego. Husserl (Hua, XIX/1: 363) uses – at this stage – the term *phenomenological ego* to refer to the overall stream of consciousness. And he maintains that this ego, or the unity of consciousness (*Bewusstseinsseinheit*), is constituted merely by the ongoing process of conscious contents melting into each other, without the need of a unifying ego-principle (*Ich-Prinzip*). At that stage Husserl (Hua, XIX/1: 363–364) finds the idea of an ego-principle incomprehensible (*unverständlich*) as such an ego would “point to no peculiar phenomenological situation.” Indeed, the constantly ongoing interweaving mentioned in Husserl’s first edition opens a temporal dimension of consciousness, albeit less pronounced than as Husserl formulated it within the second edition (the one translated by Findlay). And this temporal dimension, according to Zahavi (2002: 52–55), was motivated by Husserl’s initial non-egological position, i.e. by Husserl’s rejection of a pure identical and unified ego persisting over time.⁹⁹

Within his explanations regarding the first concept, but also throughout the remainder of the V. investigation, Husserl utilises a differentiation between *real* and *reelle* or phenomenological parts of experience.¹⁰⁰ Although the

⁹⁹ As Husserl altered his outlook on the ego-issue between the two editions of the *LI*, and as this may have major implications for a possible utilisation of Husserl’s phenomenology alongside cognitive scientific investigations within Varela’s system-theoretical framework, I will have to postpone the careful discussion of these temporal and ego-related issues for now. The overall issue of the ego will be the focus of the next chapter. Here I will continue with my initial introduction of Husserl’s three concepts of consciousness as there is one more point related to the first concept in need of critical attention.

¹⁰⁰ This applies to both editions of the *LI*, although the second edition makes more frequent use of this differentiation.

German *real* translates straightforwardly into the English *real*, there is no obvious equivalent term for the German *reell*. Findlay translates it plainly as “real” or sometimes as “in a real fashion”, and it is sometimes translated as “actual” or “really inherent”. The German adjective *real* implies presence in material form, whereas the adjective *reell* characterises an appropriate, objective relation with reality.¹⁰¹ And with that subtle difference Husserl gains the ability to differentiate the ontologically present (*real*) from those (*reelle*) parts of experience which are immanent in experience, without having to manifest themselves ontologically as long as they remain experientially relevant.

To clarify this differentiation Husserl (Hua, XIX/I: 357) explains that psychology takes experiences as real events (*reale Vorkommnisse*), constantly changing, woven into and permeating the *reelle* unity-of-consciousness (*reelle Bewusstseinsseinheit*) of the individual mind. The *real* events of – to use Husserl’s own example – hearing in the form of sound waves hitting the eardrums, causing appropriate movements of the bone array within the tympanic cavity or stimulating the relevant neural structures, are to be differentiated from the *reelle* event, i.e., the act of actually experiencing or hearing a sound. These *reelle* events, the experience of a sound, but not the neural and mechanical side of it, are what Husserl is interested in.

Husserl’s (Hua, XIX/I: 365) first concept thus captures “our sense of the terms ‘consciousness’, ‘experience’, ‘content’” in either

- a) a “descriptive-psychological” usage or,
- b) after “phenomenological purification”, in a “purely phenomenological manner”.

This differentiation is crucial as it caters for a phenomenological redirection of the investigative focus towards the “composing parts and abstract moments” (Hua, XIX/1: 365) of consciousness, while it frees the investigation from the necessity to identify ontologically relevant structures for a descriptive-

¹⁰¹ The explanations regarding the terms *real* and *reell* are general ones, taken from the German standard dictionary (*Duden*), a context in which they have no philosophical connotation.

psychological assessment. And this may be the point where one starts to think that Varela's proposal might work: Husserl for the experiential, the phenomenologically purified aspects of experience, and cognitive science for the ontologically relevant aspects of an enabling physical basis. But despite such a possible initial attraction, it is far too early to jump to conclusions yet.

3.3.2 The Second Concept of Consciousness

Husserl's second concept of consciousness "as an inner awareness of one's own psychic experiences" (Hua, XIX/1: 356) is burdened with some debate about the nature of this inner awareness. As this has implications in relation to Varela's account some in-depth discussion is needed, but first I will introduce the relevant positions:

Zahavi (1992) points to the fact that some scholars such as Gloy (1998), Cramer (1974) or Tugendhat (1979), appear to take the possibility of an inner awareness of one's own psychic experiences as dependent upon an intentionally structured relation between two separate experiences, whereby one takes the other as its object.¹⁰² This conception involves one set of conscious experiences becoming the object of further acts of consciousness. On this account inner awareness would be reflective and, in principle, transitive as presumably any reflective engagement would need to target another conscious act via intentionality.

On an alternative reading, the feature of self-consciousness refers to a kind of transparency in conscious states themselves. They present themselves as *mine*, without the need for a further act of reflection; that is they are pre-reflective rather than reflective; or consequently: they are intransitive, as they do not generate a potential spiral of reflective acts. Zahavi (2002: 139) argues that Husserl is using the notion of self-consciousness (within his second concept) in a pre-reflective/intransitive manner

as a one-place predicate [...]. This use, which has to do with the fact that our experiences can themselves be given to us, is related to the issue of self-awareness.

¹⁰² This construal is supposed to find its textual basis mainly in the fifth paragraph of the V. Investigation.

To appreciate the importance of this debate it is necessary to remember that Varela introduced the concept of autopoiesis as entailing a system's ability to generate system-internal 'descriptions' regarding the environment (see discussion throughout chapter 2). The availability of a nervous system in sufficiently complex systems allows these systems to become aware of some of these descriptions (according to Varela's concept of consciousness, see sub-chapter 2.6) and – in more complex systems – to sort these within the consensual linguistic domain. A basic form of awareness thus appears to first and foremost depend upon a system's ability to register and – if sufficiently complex – to experience its own internal 'descriptions'. A sorting and conceptualising effort along the linguistic domain seems to be a second – but not necessary – step, depending upon increasing system complexity. But if all those systems that could be aware of their *descriptions* were also in need of an ability to generate intentional states to take their own internal whereabouts as the object of a directed, reflective approach, then the transitive reading of Husserl's concept of self-awareness may turn out to be too demanding to fit with Varela's account. And that is the reason for which I will follow this issue up in more detail.

Husserl utilises the concept of consciously appearing phenomena to found his phenomenological project upon (see section 3.3.1 – the first concept). To secure these self-evident phenomena Husserl has to buy – at least partially – into Descartes' infallibility claim regarding the *cogito, ergo sum*. Doubt about the evidence of conscious experiences would fail Husserl's project outright, as the evident *givenness* of subjective experience is exactly where Husserl gains his certainty about these experiences.¹⁰³ Husserl (Hua XIX/1: 367) links the Cartesian *sum* (I am) with the evident certainty about what appears to consciousness:

¹⁰³ This will be a major concern in chapter 5.

Let's take the *cogito, ergo sum*, or even more so the plain *sum* as evident, being able to withstand all doubts¹⁰⁴

And this evident certainty about the *givenness* of the self is for Husserl a result of judgements¹⁰⁵ manifesting themselves adequately. Husserl (Hua, XIX/1: 367) thus utilises the initial certainty about the self to justify a further reaching certainty-claim:

Not only the *I am* is evident, but also numerous other judgements in the form *I take this or that to be truth*.^{106 107}

With this Husserl seems to have provided a firm basis for the certainty of apparent judgements regarding oneself. But Husserl is often criticised for displaying a certain “preoccupation with intentionality”, which, for some,¹⁰⁸ warrants the assumption that intentionally directed object-consciousness is the paradigm of every kind of awareness (Zahavi, 2008: 39–41).

Husserl discusses the problem of self-awareness in conversation with Brentano, who is accused of conflating what Husserl identifies as the first and the second concepts of consciousness (Moran, 2005: 122). Brentano's conceptual ambiguity seems to lead to an infinite regress (Hua, XIX/1: 366–367). Any reflective, self-conscious act would need to take aspects of inner perception as its intentional object, but would make itself available merely as

¹⁰⁴ *Nehmen wir das cogito, ergo sum oder vielmehr das einfache sum als eine Evidenz in Anspruch, die allen Zweifeln gegenüber ihre Geltung behaupten dürfte* (My translation)

¹⁰⁵ The term ‘judgement’ might be misleading here: these judgements are by no means cognitively mediated results of a reflective engagement, but may be apparent – affirmative – *reelle* events, as they manifest themselves as the phenomenologically purified parts of the stream of consciousness. Or to formulate this in system-theoretical terms: These judgements are the specific realisation of *this* actualisation as opposed to any other, equally possible one when collapsing the available plethora of available environmental stimuli.

¹⁰⁶ Husserl's remark: *I take this to be truth* is an expression that loses gravity in translation. The German term for perception is *Wahrnehmung*, which is basically the taking (*nehmen*) of something to be the truth (*wahr*).

¹⁰⁷ *Nicht nur das ich bin ist evident, sondern ungezählte Urteile der Form ich nehme dies oder jenes wahr* (My translation, italics in original)

¹⁰⁸ These are the earlier mentioned advocates of a transitive reading of Husserl's self-awareness.

just another experience for inner perception, in need of being picked up again and again ...

Husserl tries to avoid this equivocal trap and distinguishes between the two concepts of consciousness discussed so far. But how can Husserl avoid the danger posed by the supposed need for inner perception, and how can Husserl safeguard direct conscious experiences relating to ones own body?

For Sommer (1985: 11) Husserl's original starting point is Cartesian in that he longs for the immediacy of conscious experiences, but there is also an anti-Cartesian element in his phenomenology. Evident certainty, according to the dualist distinction between the *res extensa* and the *res cogitans*, necessitates a gap between subjective experiences and the objects, carrying this gap even into the experiencing subject. This is where Husserl's anti-Cartesian thoughts lead him to the insight

that dualism is a price too high to be paid for the sole gain of evident certainty, even more so: Cartesian evidence cannot keep it's promise. How would this evident certainty need to look, one which would not part us from the world nor, with that, from ourselves? (Sommer, 1985: 12)

This question is driving Husserl away from Descartes' model of an equally clear and distinct perception,¹⁰⁹ motivating an alteration. Husserl is now putting an increased emphasis upon the clarity of the *I experience this* while decreasing the distinctiveness via his notion of an always adumbrated object.¹¹⁰ This move enables Husserl to safeguard a direct transparency in terms of the *mine-ness* of experiences, without the mediating need for inner perception to pick up this already immanent *mine-ness*. And that is exactly what the intransitive reading suggests.

In addition to Sommer's argument for the possibility of an intransitive construal, Zahavi (2008: 40) offers textual evidence from the *LI* implying that

¹⁰⁹ Descartes (1939/40) within his V. Meditation: *Quod est clare et distincte percipio verum est* – Everything which I clearly and distinctly perceive is true.

¹¹⁰ I will discuss this concept of adumbration in the next section, at this moment it must suffice to simply state that this concept leads to a decreased distinctiveness of perception.

Husserl actually intended such an intransitive reading of this second concept. Within the first investigation Husserl (Hua, XIX/1: 18) asserts that sensations are lived through as moments of experience and are not necessarily objectified or taken as objects. Even more so, these sensations bring about that the phenomena, as they appear to consciousness, are always steeped in a perspectival individuality. Husserl affirms within the second investigation (Hua, XIX/1: 169) this claim:

[*The fact T.F.*] that an appropriate train of sensations or images is experienced, and is in this sense conscious, does not and cannot mean that this is the object of an act of consciousness, in the sense that a perception, a presentation or a judgement is directed upon it.¹¹¹

These extracts thus imply that Husserl was aware of the fact that an exclusive object-intentionality is not necessarily the structure of experiential *self-giveness*. For Zahavi (2002: 58) even the term *self-giveness* is misleading in this context, as the self cannot be given to itself as an object might be given to a subject. Zahavi (2008: 41) sums up his position thus:

Husserl distinguished two types of experiential self-giveness, a reflective and a pre-reflective. What he was denying in the fifth paragraph¹¹² is simply the claim that we are always and incessantly conscious of our own experiences as objects. However, this does not prevent the experiences from being conscious in a pre-reflective and non-objectifying manner, which is exactly what he is claiming elsewhere in the text.

Zahavi's reading, together with Sommer's considerations regarding Husserl's altered concept of Cartesian certainty, seems to provide a good case for accepting a reading of Husserl that allows for a pre-reflective, non-intentional, hence intransitive conscious awareness in the form of a non-explicit self-consciousness. This even more so, since Husserl (Hua, XIX/1: 367) himself explains that:

¹¹¹ *Dass der zugehöriger Belauf an Empfindungen oder Phantasmen erlebt und in diesem Sinne bewusst ist, besagt nicht und kann nicht besagen, dass er Gegenstand eines Bewusstseins in dem Sinne eines darauf gerichteten Wahrnehmens, Vorstellen, Urteilen ist.* (Translated by Zahavi)

¹¹² The fifth paragraph of the V. Investigation is the source of the criticism discussed earlier.

undeniably the second concept of consciousness is the more 'primitive'¹¹³: it has an 'intrinsic priority'.¹¹⁴

However, any claimed priority can only make sense if one endorses the intransitive reading. Husserl's empirical ego and Varela's autopoietic system are both constantly showered with external and internal stimuli. As far as these stimuli reach consciousness, they become experienced phenomena, experienced in relation to the experiencing ego/system. And in this respect it is indeed a necessity that the second concept has an intrinsic priority, i.e., that the *mine-ness* of experience is prior to any object-consciousness, and that seems to fit with Husserl's (according to the intransitive reading) as much as with Varela's overall framework.¹¹⁵

3.3.3. The Implications of Husserl's First and Second Concepts of Consciousness

So far I have discussed two of Husserl's concepts of consciousness, one allowing an investigative division (scientific versus phenomenological) and another one accounting for an immediate awareness/self-awareness. However – as appealing as the pairing of Varela's system-theoretical approach with Husserl's phenomenology may look so far – it has to be kept in mind that Husserl's differentiation (first concept) not only enables a phenomenological investigation, but that it also needs actual access to the phenomenologically purified parts of consciousness as its necessary

¹¹³ Findlay's translation of *ursprünglich* into *primitive* may be a bit misleading here: the German *ursprünglich* could also be translated as *initially, at first, in the beginning*. All these alternative translations would still indicate an anterior sequential rank but without the negative connotation of *primitive* in the form of *less elaborate*.

¹¹⁴ *Es ist unverkennbar, dass der zweite Bewusstseinsbegriff der „ursprünglichere“, und zwar der „an sich frühere“ ist.* (Translated by Findlay)

¹¹⁵ One could however point to the fact that this intransitive reading is contested and thus insist on applying the – seemingly incompatible – transitive reading. But such a move, very much like Dennett's reform/revolution objection (see section 2.9), would only limit the reach of the current investigation. If Varela's proposal can be made to work, then it might be a fruitful task to assess the implications of the transitive/intransitive debate at a later date. If however Varela's proposal turns out not to work because of other and probably more serious shortcomings, then the issue of these two alternative readings would only constitute a negligible sideshow in relation to Varela's proposal.

precondition. And this access is – via the second concept – possible, but it appears to be limited to the experiencing consciousness.

Hence, the experience of conscious moments is – for Husserl – only possible when he takes this basic feature of *mine-ness* as it presents itself to consciousness as a given. Husserl does not consider this a problem he takes consciousness as his vantage-point from which to investigate the logical structures of consciousness, and does not (at this stage) consider what may lie beyond phenomenological reach – i.e., he does not discuss the relationship between this *mine-ness* of experience and the relevant biological structures and mechanisms.

Varela on the other hand has to rely upon his explicit statement that such experiential qualities remain irreducible, while nevertheless wanting to use experiential accounts to align these qualities with scientific descriptions. This is then where the scientific debate, regarding the scientific use-value of experiential accounts, manifests itself. I will come back to this issue at the end of this chapter, but by now it should be clear that the antagonistic relation between science and phenomenology is not one exclusively owing to the phenomenological priority-claim, but is also brought about by science's critical attitude towards experiential accounts (see sub-section 1.2.2)

3.3.4. The Third Concept of Consciousness and the Structure of Intentionality

Husserl's (Hua, XIX/1: 356) third concept concerns a

comprehensive designation for 'mental acts', or 'intentional experiences', of all sorts.

This concept is developed in discussion with Brentano and in opposition to representational accounts. Therefore I will need to a) clarify the relationship between Husserl's intentionality and representational accounts; to then b) discuss Husserl's constitutive account, according to which intentional acts result in the meaningful, non-causal constitution of intentional objects; in

relation to c) the experiential dimension within Husserl's constitutive account.¹¹⁶

a) Representation

When Brentano (1955: 124) reintroduced the concept of 'intentionality' in 1874 he was hoping to contribute to the discussion of how to differentiate between psychological and physiological investigations (see sections 1.2.1 and 3.2.1). According to Brentano mental states are characterised by their intentionality, i.e., by their directedness towards something, whereby the respective mental – intentional – state carries that something in itself. Brentano's feature of this intentional *in-existence*,¹¹⁷ whereby the objects are immanent to (or contained within) the acts as intentional correlates, cannot be detached from the mental act itself; this in-existence "is the sense in which an immanent object is 'in' the mind" (Chrudzimski & Smith, 2004: 205). Hence, Brentano's concept of intentionality rests upon the feature of *in-existence* whereby the objects are presented to consciousness. Brentano (1955: 112) takes psychological phenomena to be presentations (*Vorstellungen*) and explains:

This presentation is the basis of judging, but also of desire and every other mental act. Nothing can be judged, nothing can be desired and nothing can be hoped for or feared if it is not presented.¹¹⁸

Following these lines, it is apparent that presentations are for Brentano "that part of a mental process which brings something before the mind" (Moran, 2000: 45). For Brentano the subject is aware of these presentations via inner perception. And for Brentano this inner perception, the perception of psychological phenomena, is to be distinguished from external perception as

¹¹⁶ Although there are many more facets to Husserl's concept of intentionality, I will limit this discussion to these aspects to provide an idea as to why Husserl's phenomenology appears to promise the provision of a theoretical foundation for Varela's project.

¹¹⁷ The term *in-existence* might be misleading in so far as it is not the negation of existence, but rather the existence (of the intentional object) within (the mental act). Brentano's (German) translation of the Latin term *in-esse* (to be in) leaves him with *Inexistenz*, which forms the basis for a subsequent translation into English as *in-existence* (Moran, 2000: 48).

¹¹⁸ *Dieses Vorstellen bildet die Grundlage des Urteilens nicht bloß, sondern ebenso des Begehrens, sowie jedes anderen psychischen Aktes. Nichts kann beurteilt, nichts kann aber auch begehrt, nichts kann gehofft oder gefürchtet werden, wenn es nicht vorgestellt wird.* (My translation)

concerned with physical phenomena. Brentano (1955: 129) prefers to reserve the term *perception* exclusively for inner perception: “[t]he so-called external perception is, strictly speaking, not a perception at all.”¹¹⁹

If one takes Brentano’s presentations as brain/mind internal signs to symbolise or stand for objects or matters of fact, whereby these presentations are themselves sufficient to cause ensuing action or reasoning processes, then one is left with a representational account. Such a representational framework reveals Brentano’s allegiance to an empiricist philosophical perspective (Jacquette, 2004: 17) as already encountered in the earlier discussion (see sections 1.2.3 and 1.2.6). However, and this is the important issue here, Varela’s account regarding the individual constitution of *sense* (see sub-chapter 2.7) cannot be compatible with such a representationalist account.

b) Constitution

As a next step it is now time to move to Husserl’s attempts to provide a description of intentionality from the first-person perspective, by utilising what appears in one’s consciousness. Such an investigation, reaching towards the private¹²⁰ (*reelle*) aspects of consciousness and realised within a spatio-temporally located empirical ego, leaves intentionality as necessarily perspectival. At any given moment it is only possible to have access to some, but not to all aspects of an object, and consciousness can relate to these aspects in a variety of ways, be it approving, affirming, loathing, desiring or whatever else. To capture this structure of a) only partially available information and b) the taking of an individual stance, Husserl (Hua, XIX/I: 429–430) differentiates between act-matter and act-quality: The act-quality

only determines whether what is already presented in *definite fashion* is intentionally present as wished, asked, posited in judgement etc. The matter, therefore, must be *that element in an act which first gives it reference to an object* [...]. It is the act’s matter that makes its object count as this object and no other, it is *the objective, the interpretative*

¹¹⁹ *Die sogenannte äußere Wahrnehmung ist also streng genommen nicht eine Wahrnehmung* (My translation)

¹²⁰ I discussed the notion of ‘privacy’ in relation with Varela (see in particular section 2.8.3).

sense (Sinn der gegenständlichen Auffassung, Auffassungssinn) which serves as basis for the act's quality (while indifferent to such qualitative differences).¹²¹

Mayer (2009: 71) summarises the way in which Husserl dissects the intentional act into sensations, matter and quality. The sensations are un-interpreted *reelle* parts (e.g., a red-qualia) that form the seedbed for intentional sense-bestowing, and Husserl introduces the term *hyle* to refer to these (Hua, III: 193). The act-matter is the animated (*beseelte*), intentionally interpreted sensation (e.g., this strawberry's red), while the act-quality is the way the intentional relation realises itself, i.e., as judging, remembering or desiring (the strawberry). This structure of act-matter/quality in relation to the un-interpreted (hyletic) sensations highlights the fact that in order to qualify as an intentionality-relevant part of an act, sensations need to be animated, they need to be interpreted (or judged) as *something* by and for the subject standing in an intentional relation. Hence, any attempt to reduce "phenomenality to the 'raw feeling' of sensations" would only "marginalise or trivialise phenomenal consciousness" and would not be able to capture those sensations' cognitive importance (Zahavi, 2008: 151).

This aspect of an animating interpretation is thus central, and to explain this sufficiently I must go back to the unique perspective a subject has in relation to an object. The object only reveals aspects of itself, those which can be seen from the subject's point of view; all other – potentially possible – sights are shadowed off or adumbrated. Hence, any seeing of an object as *that object* (Husserl [Hua, XVI: 111] calls it an objectifying act) has to rely upon only partial and constantly changing information about that object. But as an object is perceived as *that object* in its entirety and not only as a succession of adumbrated aspects, consciousness has to group the information provided by

¹²¹ *Die Qualität bestimmt nur, ob das in bestimmter Weise bereits "vorstellig Gemachte" als Erwünschtes, Erfragtes, urteilsmäßig Gesetztes u. dgl. Intentional gegenwärtig sei. Danach muss uns die Materie als dasjenige im Akte gelten, was ihm allererst die Beziehung auf ein Gegenständliches verleiht [...]. An der Materie des Aktes liegt es, daß der Gegenstand dem Akte als dieser und kein anderer gilt. Sie ist gewissermaßen der die Qualität fundierende (aber gegen deren Unterschiede gleichgültige) Sinn der gegenständlichen Auffassung (oder kurzweg der Auffassungssinn).* (Translation by Findlay, italics and parentheses in original)

the temporal succession of fleeting aspects together in order to grasp the intentional object. This grasping – or apprehension – of *reelle* sensations as *something* is what Husserl is interested in, and his interest goes beyond what he takes psychology to be able to achieve. This apprehension is an interpretation whereby sensations are animated so that objects appear. As Zahavi (1992: 54) explains, the sensations are interpreted via apprehension as the presence or the intuitive givenness of an object.

But with these interpretative apprehensions Husserl has moved away from a direct relation between object and subject. Husserl's intentional act is an individual apprehension (*Auffassung*) that brings about the consciously appearing content (*Inhalt*) whereby both elements (apprehension **and** content) are integral parts of the act. Husserl, unlike Brentano, does not claim that the perceived object is an *in-existing* sense-datum representing an external object. Husserl's differentiation between sensations *per se* and the sub-group of the animated sensations, which are the constituting parts of the intentional act, leaves him the space for individual apprehension to take place. As the sensations do not carry any intrinsic object-reference by themselves (Hua, XIX/I: 392), they can be picked up for the individual interpretation – and some may more likely be than others, while some may well be left out of this interpretative constitution. Hence Husserl offers an account whereby a set of sensations are apprehended and interpreted. This apprehension, or objectifying interpretation, allows consciousness to be conscious of something (Hua, XIX/I: 397). The *reelle*, immanent experiences provide the raw materials for the intentional act and they even partially determine the outcome (Sokolowski, 1964: 62), but the intentional content (that which appears consciously) displays an apperceptive surplus of *meaning*, the intentional object transcending what is given as raw sensations.¹²² But although Husserl's

¹²² Within the IV. Investigation Husserl differentiates between a) the simple perceptive intuition (which allows objects to appear) and b) a more complex categorical intuition (which allows the direct perception of matters of fact or object-relations). This categorical intuition (*Kategoriale Anschauung*), founded upon simple intuitions is an apperceptive achievement and it is not the result of reasoning or inference. The categorical intuition allows for the understanding of

account apparently “suffices to locate meanings within acts”, he is not able to “show how they [*the meanings T.F.*] arise, how they are constituted, within intentionality”; Husserl thus has to – at this stage of his development – presuppose meaning and cannot account for its origin (*Urstiftung*) (Sokolowski, 1964: 72).

Although Varela does not elaborate on *meaning* or *sense* explicitly, his autopoietic framework has the necessary resources to accommodate for Luhmann’s account of the autopoietic generation of *sense* (see section 2.7.1). As I explained earlier, system-theory takes *sense* to emerge individually along a referential relation (*Verweisungszusammenhang*) consisting of a currently actualised thought with other, not actualised, but equally possible potentialities. This sounds rather complicated, but is probably quite easily accessible via an analogy provided by Wittgenstein (1953: §420) when he invites his reader to consider the possibility of viewing a certain aspect of our visual field as either the cross-piece of a window or – alternatively – as a swastika. In both cases, the actual object (cross-piece of the window) remains the same, but the *sense* (Varela) or the *meaning* (Husserl) is dependent upon the viewing subject. For Husserl it is dependent upon an objectifying judgement, lifting-off certain sensational aspects to be interpreted *as that*. For Varela it is – following Luhmann (1984: 603) here – the affirmation or denial of possibilities. But in both cases, *sense* or *meaning* manifests itself as a possible precipitation upon what Husserl calls the act-quality in relation to the act-matter, hence the interpretation of something as *that*. And this serves for the emergence of individual *meaning* or *sense* in relation to *that* which is henceforth taken to be true (*wahrgenommen*), i.e., perceived.

But when following Luhmann’s system-theoretical account regarding the emergence of individual *meaning/sense* as a result of (only) one actualisation within a referential web of other potentialities, one ends up with an explanation that may even be able to overcome the problem Sokolowski found in Husserl’s early account. Luhmann’s account of the individual constitution of *sense* as

“cognition itself, in its essence and its achievements” (Hua, XIX/2: 695). But for the current purposes, I do not need to develop this any further.

one judging actualisation in relation to many other possibilities seems to be able to explain how *sense* arises within intentional acts. Even more so, if – despite Varela’s silence on this matter – Luhmann’s account is taken to be compatible with Varela’s own account, then Husserl’s intentional structure as discussed so far seems to fit well with the system-theoretical approach regarding the individual emergence of *meaning/sense*.

c) The Experiential Complex

Husserl shows Cartesian influences (see section 3.3.2), but despite this, he does not want to provide a phenomenological investigation of intentionality in terms of the unidirectional account that provides the empiricist underpinning of cognitive science. The mere projection of representational information into a mind leaves the question of how such a mind would *have something present* to itself unanswered. Husserl is interested in *the having of experiences* as they manifest themselves within consciousness as intentional. And this intentionality – this directedness towards an object – is not an external relation brought about by the object affecting consciousness. Intentionality is an intrinsic feature of consciousness, Zahavi (2008: 148) explains: intentionality does not necessitate the existence of two separate entities (experience and object). All that is needed to enable intentionality is the existence of an experience, possessing an internal, object-directed structure.

For a phenomenological, i.e. structural (see section 3.2.3), investigation regarding the relation between consciousness and object, Husserl uses the phenomenon, the given conscious correlate of an object. To this end Husserl is interested in the phenomenologically purified, the *reelle* parts (sensations) of the stream of consciousness, sensations that are always experienced as *mine* (see discussion in relation to the second concept of consciousness in section 3.3.2). According to this framework, intentional consciousness constitutes a world (of objects) by means of the phenomenologically purified sensations of an empirical ego. And although Descartes deemed the sensations as potentially fallible, they nevertheless provide Husserl with the raw materials for the individual constitution of (intentional) objects and a world. Husserl thus opens up the “narrow Cartesian inner space” (McDowell, 1986:

153) of a merely receptive (Cartesian) mind. The object (that which is perceived) is – due to the transcendent surplus of taking it to be true – not an experiential part of an otherwise Cartesian consciousness. What is experienced are the subjective sensation-moments while the extra-conscious (i.e., transcendent) objects are perceived by means of these. Husserl opens up a difference between experiencing (*erleben/bewusst sein*) and perceiving (*wahrnehmen*) within the experiential complex (Zahavi, 1998: 143), or as Hoffmann (2001: 23) puts it:

Experiences are conscious and experienced, but not perceived. Objects, on the other hand, are perceived, but not experienced nor conscious.¹²³

I thus experience the sensation-moments provided by my sensations, informing me about an object in front of myself. As these experiences are experienced as *mine* (see discussion of second concept in 3.3.3) and as actuality contributes to object constitution, Husserl has no problem in locating an individual stance and perspective within the intentional act. Husserl is thus incorporating the complete spatio-temporality of the subject in order to open what McDowell called the *narrow Cartesian space*. Every experience is always someone's, and thus individually experienced from a unique spatio-temporal location. But to nevertheless secure that these constitutive achievements remain close enough to the 'real' *something* of the external world, one has to, as McDowell (1986: 165) puts it, entertain the (evolutionarily-motivated) possibility that a certain object-dependence might be a feature of a thought's intentional nature, or as Husserl (Hua, XIX/1: 430) puts it: "it is the act's matter that makes its object count as this object and no other."

3.4. Phenomenology, Science and Varela's Proposal

As laid out across the previous section (3.3) Husserl aims for a far-reaching investigation of consciousness which leaves him with independently existing: a) ideal objects (numbers or mathematical objects, ideas etc. against which meaning is individually constituted), b) physical objects (the being of objects)

¹²³ *Erlebnisse sind bewusst, erlebt, aber nicht wahrgenommen. Gegenstände indessen sind wahrgenommen, aber nicht erlebt oder bewusst.* (My translation)

and c) psychological objects (the intentional experiences). His investigation focuses upon the two *correlata* of the intentional relation – object and subject – as much as upon the intentional relation itself (Zahavi, 1992: 42). This is a much bigger project than the psychological-scientific attempt to provide an answer to Van-Gulick's *how-question* (see section 1.2.1). Husserl's differentiation between the empirical/real events of a stream of consciousness and the phenomenological/*reelle* parts provides two different foci for the empirical sciences and for phenomenology respectively. And as I have frequently mentioned in this chapter, Varela's proposed combination of these two different investigative foci to create a new science of consciousness has some initial appeal. This even more so as Husserl's psychologism-critique does not harm Varela's system-theoretical framework as a basis for his neurophenomenological proposal (see section 3.2.3). But as everyone knows, a hurdles-race is not won by simply clearing the first hurdle and aiming to marry science and phenomenology may just prove to be a course of many hurdles. In this respect it is probably best to take stock of what the discussion has established so far.

When turning back to the discussion of the first concept of consciousness (see section 3.3.1) it appears that Husserl, by differentiating between

- a) the empirically accessible (real) parts of the stream of consciousness and
 - b) those that are experienced (phenomenologically relevant, *reelle* parts),
- provides an alternative access-route to consciousness, utilising the direct individual experience of a temporally individuated conscious occurrence as it manifests itself within one's consciousness. Relying on these *reelle* parts is supposed to enable an investigation regarding the *ideal and normative conditions of cognition*, rather than the empirical causal conditions.

However, such an investigation necessitates a basic sort of awareness/self-awareness, and I claimed – with the support of Zahavi's and Sommer's arguments – that Husserl's second concept of consciousness (see section 3.3.2) provides just that. So far Varela's system-theory seems compatible with Husserl's phenomenology. But there was also a point at which Varela had to

face a problem. Varela wants to utilise phenomenology, which in itself rests upon the ability to *have experiences as mine*. Although phenomenology also uses this concept of the *mine-ness* of experience (see section 3.3.2), the concept itself is not penetrable to phenomenology. Varela tries to capture this *mine-ness* within his concept of autopoiesis but he – as Husserl – cannot scientifically account for it (see section 2.3), as his framework is a biological one.

Hence, Varela suggests a phenomenological addition alongside the sciences to investigate consciousness. This has to be thought of in such a way that the proposed neurophenomenological proposal is supposed to provide the needed rigour to solve the access-problem when wanting to reveal the structures of individualised experiences. Cognitive science along the enactive, embodied agenda, on the other hand, is supposed to provide structural empirical data that could be – as Varela calls it – ‘aligned’ with these experiential accounts. Phenomenological, structural insight would thus be naturalised and neurophenomenology would provide the means to achieve the aspired-to marriage, forming Varela’s vision of a *new science of consciousness*.

However, this neurophenomenological addition is one that rests – when accounted for system-theoretically – on theoretical underpinnings that are not within the reach of physical/chemical scientific explanations (see discussion throughout chapter 2). Hence, with his proposed marriage Varela has thus not only gained the two earlier outlined investigative access-routes, but – with them – also the problem of how to locate science and phenomenology in relation to each other. This is an issue that is addressed in the debate about a possible naturalisation of phenomenology, and I will have to say more about this shortly and within the following chapters. For now I will continue with my stocktaking exercise.

Husserl’s third concept of consciousness (see section 3.3.4) provides an account for the possibility of *meaning (Bedeutung)* within intentional acts. When running Husserl’s considerations alongside Varela’s framework it

appears that the individual constitution of *meaning* or *sense* can fit with system-theoretical approaches. Nevertheless, (system-theoretical) *sense* emerges as a result of an individual's affirmation or denial of apparent possibilities. But such an actualisation amongst equally possible alternatives seems to depend upon a sense-horizon that allows judgements (*this* and not *that*). I will discuss this notion of a horizon in more detail in chapter 5, but for the moment it is necessary to note that these judgements entail that something is – individually – taken to be the truth. Again, this aspect of Husserl's account fits well with Varela's system-internally generated 'descriptions', generated in relation with all other on-going and unfolding system-processes. But in both cases the individual constitution of *sense* or *meaning* can thus not be an automated, causally determined process. *Sense* or *meaning* is based – as discussed – upon the *experiential complex* (Husserl) or an experienced deformation (Varela) and its effect upon the act-quality.

But despite these similarities as they manifest themselves in the discussion throughout this chapter, there is still a problem: the antagonistic relation between phenomenology and science. On one side stands phenomenology, striving to conduct an *a priori* investigation based upon the phenomenologically *reelle* parts of consciousness to reveal the structure of the intentional subject-object relation. Science, on the other hand, conducts an investigation of the real parts of the stream of consciousness and makes inferences about cognitive structures (an *a posteriori* approach).

This difference, however, may be just what made Varela hope that the employment of phenomenology may be able to overcome Chalmers' *hard problem* (see sub-chapter 1.3) by allowing him to locate the missing experiential dimension back in the constitution of the intentional object, revealed by a phenomenological investigation. However, as discussed (see section 2.8.3), such an investigation would need to rely on reported self-observations, and it still remains to be seen how these phenomenologically derived self-reports could inform scientific accounts. When it comes to this problem Wheeler (2014: 36) recently maintained that:

what phenomenology claims to tell us about cognition remains open to falsification by science in a way that what science claims to tell us about cognition is not open to falsification by phenomenology.

Wheeler uses this claimed asymmetry to argue that the final word on cognition is to be cast by science and not by phenomenology – and as phenomenology is basically an investigation of consciousness, it seems to be safe to assume that Wheeler’s claim regarding cognition must hold for consciousness as well.

I want to stay with this important issue for a moment. Husserl wants to trace the conditions of the possibility for consciousness of something. He distinguishes the perceived object from the inherently incomplete contents of experience. Focusing upon phenomena necessitates a specific phenomenological method, aiming to reveal the essences of

- a) the appearing phenomena and
- b) the essential structures of the act of perception itself (Hua, XXV: 36–38).

This is where Varela’s proposal for a structural investigation of consciousness along the lines of Husserl’s phenomenology finds its motivation. Such an investigation can only be obtained from the first-person perspective. Here I will not yet expand on this issue as this will be a major part of the following chapters, but such an investigation is – as Husserl (Hua, XXV: 34) explains – a reflective engagement rendering clear what has been a consciously immanent occurrence before. One is thus talking about a self-observational process from the first-person perspective, and that seems to fit quite well with Varela’s proposal to the same effect. But – at this point – the utilisation of such a method is for Husserl justified

- a) by the fundamental limitation of the natural sciences (see sub-chapter 3.2) and
- b) by a necessary limitation of the phenomenological investigation to a merely structural one, one trying to reveal the conditions of the possibilities for something to be conscious of something.

It is difficult to reach a verdict here, but when following Husserl’s considerations (psychologism-critique) then Wheeler’s claim of the

investigative priority of science has to be rejected. On the other hand, any (ideal-typical) cognitive scientist, employing the differentiation between functional/intentional and experiential/phenomenal aspects of mental processes, will stumble across the problem of having to account for the experiential dimension of cognition (see chapter 1). But such a 'hard-core' scientist would probably not want to follow Husserl's pathway, and with that would find no reason to reject Wheeler's claim. However, Varela – despite being a scientist, albeit of a biological/system-theoretical denomination – explicitly wants to follow Husserl, and so he has to abide by the above mentioned pre-conditions a) and b), as otherwise any self-observational account would be in danger of being similar to, and as inefficient as, Wundt's attempts (see section 1.2.2). There are thus opposing claims for investigative priority.

Nevertheless, Husserl himself provides a possible key to unlock this opposition. Husserl (VI: 51) was opposed to a “geometrical and natural-scientific mathematisation” of the *world as experienced* by humans because

the development of the formal objects of the sciences demonstrated their rootedness in what precisely they could not account for: lived experience. (Carel & Meacham, 2013: 2)

Hence, Husserl places phenomenology before science, **not only** because of his phenomenological considerations, but also because of the limited reach of the sciences when it comes to human experience. Hence – and this will become quite important in the later chapters of this thesis – Husserl appears to have two reasons to make his claim for the investigative priority of phenomenology: one based upon philosophical considerations I discussed in relation to his psychologism-critique (see sub-chapter 3.2), and another one – his scientific reason – focusing upon the limited explanatory reach of the sciences when trying to account for human experience. But as Meacham (2013: 14) points out, Husserl was equally aware of the difference between the physical/mathematical pursuit of science as opposed to that of biological science – as a science of living things. Depending on how science is thus defined (biology versus physics, chemistry and mathematics) Varela may be able to find a window of opportunity to avoid this scientific-phenomenological

deadlock – but that is something that I will need to discuss in the following chapters (see chapter 6 and 7).

3.5. Chapter Summary

At the beginning of this chapter the question arose as to whether Varela's system-theoretical account can fit with phenomenology, and if so how that would relate to the sciences.

I first discussed Husserl's argument for the sciences as applications of logical thought (*Kunstlehre*) and hence for the need of a foundational – a pure – logic. While developing this I established that Varela's account is not necessarily harmed by Husserl's psychologism critique. Further Husserl claims that the sciences are limited in their explanatory reach when it comes to understand consciousness. As a result of this, two different investigative pathways appeared to open up, one being scientific and the other concerning the conditions of the possibility for consciousness.

Husserl discussed three different concepts of consciousness, and within the third of these an account of the structure of intentional thinking, not necessitating the division of functional and experiential content. But by developing these issues it became clear that the antagonistic relation between science and phenomenology is based upon opposing claims for investigative priority. Varela's neurophenomenological proposal maintains that structural phenomenological insight could be somehow aligned with the biological structure of autopoietic systems, and Husserl's later texts seem to provide a chance for Varela to avoid this opposition in relation to the investigative priority such that it would thus be possible to naturalise phenomenology.

And exactly this claim of being able to naturalise aspects of phenomenology to form a new science of consciousness is what this thesis is investigating. This necessitates further consideration focusing upon the following issues:

- Varela's autopoietic systems may – due to their indexical position – gain a unique and non-representational position in relation to the world, but *having* a world seems to imply the need for a constituting ego and it

is not clear if Varela's approach could accommodate this. I will discuss this in the following chapter, 4.

- Since Wundt's introspective attempts were discarded psychology has neglected the first-person perspective. Varela depends upon the utilisation of this first-person perspective, and I will discuss how Varela hopes to re-introduce this perspective in his neurophenomenology in chapter 5.
- Husserl developed a range of investigative methods, and a selective utilisation of these methods may render Varela's project merely introspective and thus perhaps no longer qualifying as phenomenological. This is a problem I will discuss in chapter 6.
- Owing to all these problems it might turn out that Varela's proposed alignment of phenomenologically revealed structural invariants of experience cannot be made to fit easily with an organism's biological structure. This seems to pose a potential limitation to Varela's project, and I will discuss this in chapter 7.

4.1. Introduction

So far I have provided an account of Varela's system-theoretical, biological framework upon which his neurophenomenological proposal rests. I have also engaged in an initial introduction of Husserl's phenomenology to highlight the critical relation between the sciences and phenomenology, and have pointed out that Varela can probably avoid this discussion about opposing claims for investigative priority via his biological foundation and Husserl's later texts. It thus may look as if Varela's plan for a *new science of consciousness*, uniting a (neuro-) phenomenology with modern cognitive (i.e., enactive) science may – in principle – be possible. However, even with this possibility on the horizon, there are a number of problems, as I spelt out briefly at the end of the previous chapter. Within the next four chapters I will discuss these issues.

In this chapter I will focus upon the issue around the ego. In the previous chapter I discussed how Husserl's concern regarding objects is first and foremost with their intentional *given-ness* as a conscious correlate that is available to phenomenological descriptions, i.e., as phenomena (Held, 1962: 14). And these phenomena are supposed to be available to the experiencing individual via a reflective endeavour.¹²⁴

Such a position limits the phenomenological investigation to one that is only possible from the first-person perspective. But that somehow seems to imply the need for an ego or a self to take this perspective and assess its own conscious occurrences. However, as discussed earlier (see section 3.3.1), Husserl initially (1890–1901) held a *non-egological* position, and – at first sight – Varela seems to do so as well. Husserl later altered his position, and Varela's take on the ego-issue is more complex than a first glance might

¹²⁴ I have mentioned this method-driven reflective engagement with ones own conscious appearances already (see sub-chapter 3.4) and I will have to discuss this in much more depth within the subsequent chapters (see chapters 5–7). Here I am mainly concerned with the ego as an obvious pre-condition of engaging in such a reflective endeavour regarding one's own phenomena.

reveal. Within this chapter I will therefore discuss these ego-related issues in both accounts. To this end I will first discuss general aspects of the ego as discussed by Varela (see sub-chapter 4.2) to develop the problem that guides the further investigation. As Husserl changed his initial non-egological position and turned his descriptive phenomenology into a transcendental phenomenology, I need to elaborate upon Husserl's motivation and discuss the aspects relevant to this investigation (see sub-chapter 4.3). With regard to this transcendental turn it is necessary to assess Husserl's investigations regarding the temporal structure of consciousness (see sub-chapter 4.4) and to introduce the relevant concepts to allow for a secure understanding of Husserl's transcendental phenomenology in relation to this investigation (see sub-chapter 4.5). The chapter's summary (see sub-chapter 4.6) will reveal that the accounts regarding the ego of Husserl and Varela are not so different at all, and will re-emphasise the fact that the phenomenological perspective requires a different kind of investigation with a different investigative aim to that of science.

4.2. Varela and the Ego-Issue

In the context of subjective experiences in general, but even more so in relation to states, supposedly accessible only from the perspective of the experiencing subject, the question of what such a subject has to be in order to be able to accomplish this access can hardly be avoided. This is the guiding question of this chapter's discussion. However, in order to remain focused, I will first develop the actual problems requiring attention.

When Varela (1991: 79) set out to search for a self he summarised his result in stating "the only thing we didn't find was the truly existing self or ego."¹²⁵

And such a statement may warrant a reading of Varela's position as either

- a) a refutation of a truly existing (i.e. substantial) ego, or
- b) as an outright rejection of any kind of ego at all.

¹²⁵ This is a position not unlike that of Hume, who had already been on a similar search – resulting in his claim that the ego is obviously not an empirical concept, while ignoring the question of whether there could be an ego if his investigation would have allowed for the possibility of a non-empirical ego (Röd, 1984: 319–320).

While a) would deny whatsoever kind of ego-substance, b) would constitute a non-egological position. As much as option b) might fit around Husserl's early, equally non-egological stance (see section 3.3.1), it nevertheless seems to be at odds with Husserl's further developments. As I mentioned earlier, Varela's take on the ego-issue is much more complex, but, to drive this investigation forward, I will not yet resolve the apparent tension between Husserl's transcendental phenomenology and the *prima facie* non-egological reading of Varela.¹²⁶ The following discussion will be carried out by addressing the following three issues: a) the self-referential character of autopoietic systems, b) the necessity of an observer position and c) the danger of a causal determination of subjectivity. But before engaging in these discussions, which will eventually resolve the apparent tension between Husserl's and Varela's positions, it is imperative to formulate the problems surrounding these issues precisely.

The first problem is due to the fact that autopoietic systems are per definition self-referential systems (see sub-chapter 2.2). Presumably a system's ability to relate 'itself' towards external and/or internal fluctuations seems to necessitate a self-referential, but not necessarily a uniquely located, centre-point at which these fluctuations terminate to do their affective work in relation to the overall autopoietic system-processes. Following this view, these systems of sufficient complexity would thus appear to be in need of some sort of *proto-ego*, unifying all relevant fluctuations in relation to current system-states and the system's overall goal of self-maintenance. But if Varela would indeed adhere to a complete non-egological position then even such a proto-ego seems impossible. This self-referential issue in relation to individuation, but also in relation to a distinction between the individual and other individuals, was the problem that motivated Husserl (although in a non-system-theoretical framework) to rethink his take on the ego, and I will trace Husserl's move and

¹²⁶ To do justice to Varela it has to be made clear that this *prima-facie* non-egological position addressed to Varela at this point cannot be substantiated any further than the above quoted statement, but that is exactly what I am going to develop much clearer as this discussion builds up. Hence, I suggest the utilisation of this seemingly non-egological position as a heuristic device.

his turn from a descriptive to a transcendental phenomenology in relation to Varela's position first (see sub-chapter 4.3).

The second problem is owing to the fact that Varela wants to utilise Husserl's phenomenology as a reflective endeavour (see sub-chapter 2.9 and section 3.4.3). Any such reflective endeavour necessitates an 'observer-model' (Wiltsche, 2006: 54) whereby the self gains distance from itself to be able to observe itself. Within Varela's closed systems even these observations are to be understood as mere system-operations: hence one set of 'observing' operation would need to be distinguishable from 'plain, *to-be-observed*' operations. But if such a system-internal 'observer-point' cannot be found, then it seems impossible to carve out the guiding-difference (*Leitunterschied*) between mere system-operation and system-observation (Rinofner-Kreidl, 2003: 146). Without such a difference any phenomenologically motivated reflective endeavour, when applied within an ego-less, system-theoretical approach, appears to be destined to fail. Husserl's investigations into the temporal structure of consciousness seem to provide a remedy for this problem, and this necessitates a thorough discussion (see sub-chapter 4.4).

The third problem is a bit more complex, but equally crucial. Varela's conception of the *embodied mind* leaves this mind as a part of a closed autonomous system that is nevertheless surrounded by its environment (see chapter 2). This environment does not present itself in an objective manner, as a mere representation of the objects *out there*. In Varela's account the environment is always the world for the system, i.e., a world viewed from the perspective of exactly this autonomous system (see sub-chapter 2.2). Such an account reminds one of Heidegger's (1927/2006: 102ff.) notion of the objects of the world individually available in a *ready-to-hand* fashion. The hammer, for example, is normally not made a theme of our conscious deliberations, but it is used in a hammer-like way, i.e., as a tool to drive nails into some other material. And indeed, traces of this Heidegger-influenced point of view are apparent in Varela. The object and the action, i.e., the hammer and the hammering, normally remain transparent, and this transparency allows for "a readiness or dispositional tendency for action" which, when applied to our

overall existence results in “an expectation about the way things in general will turn out” (Varela, 1999b: 299). A breakdown of this transparency, or the disappointment of these tacit expectations, sparks off a *dispositional affective tone*. Varela’s systems are thus affected if things fail to be the normally well-functioning affordance for a system’s goals. These breakdowns result in an “affective dynamic”, or a “primordial fluctuation” (Varela & Depraz, 2000: 158), providing a basis for a disposition to move or to behave otherwise.¹²⁷ The unfolding, breakdown-induced affective dynamic is for Varela a pre-reflective one. This has to be thought of in such a way that “I [*as a closed autonomous system T.F.*] am affected before any ‘I’ that knows” (Varela, 1999a: 83). Varela thus seems to work with the notion of an affected subjectivity, developing a proneness to altering behaviour, without the need to adhere to the traditional sense of *the subject* as a centre of awareness.

But – as Stenger (2006) explains – Heidegger’s concept of affording objects being *ready-to-hand* for *someone* leads straight to the question of *who* or *what* that *someone* is.¹²⁸ Although this is not the place to develop Stenger’s argument in any depth Stenger (2006: 132) maintains that Heidegger’s *Being* (*Sein*) has to locate itself in a world as a *Being-in-the-world* (*Dasein*) in order to have objects *ready-to-hand*. But such a move, and with that the utilisation of any sort of *ready-to-hand* kind of account, seems to necessitate a more fundamental ego or self in relation to which the world reveals itself as an affordance or an obstacle to its *Dasein*. And – so far – neither Varela nor Husserl appear to offer a solution to this ego-related problem. But there is a second issue here. The world – revealing itself *for* a self or ego – does not

¹²⁷ The Heideggerian reminiscence already indicates that Varela’s view is not so new at all. Prior to Heidegger this idea can already be traced in Dilthey (1833–1911), or even Maine de Biran (1766–1824). Both refuted the idea of an object’s rational *given-ness*, but argued instead for the individual experience of a *resistance* posed by the objects in relation to one’s current whereabouts and one’s future/past expectations (Röd, 1996: 391).

¹²⁸ I do not wish to pursue the Heidegger-relevant aspects in any depth here, nor do I wish to commit myself to Stenger’s claims or his line of argument here. I merely make use of Stenger’s considerations to serve me as a stepping-stone to highlight a specific ego-problem that will lead to my discussion regarding the ego as it has to be thought of in Husserl’s and in Varela’s account.

have to be exactly the world as it is described by the physical sciences. To account for the difference between the *world as experienced* and the physical/causal description of the world Husserl's concepts of the *noema* and *noesis* are of core importance. I will introduce these concepts and investigate these difficulties as the third problem (see sub-chapter 4.5).

4.3. Husserl's Transcendental Turn and his Move towards the Ego

At the time of the first edition of the *LI* (1900–1901), Husserl (Hua, XIX/1: 363–364) asserts that the ego is not to be taken as something peculiar, something that floats above many experiences. For Husserl it is simply identical with those many experiences, as these occur within the stream of consciousness (see section 3.3.1), an interconnected unity that is fused together to constitute the unified sum total of content which is the ego itself.¹²⁹ Husserl thus affirms that experiencing consciousness does not need an additional entity in the form of an extra *ego*. In this state the phenomenological ego is constituted by the experiences: it is the set of phenomenologically relevant contents of the empirical ego. Such an ego, as Hoffmann (2001: 23) puts it, does not have any experiences, i.e., it is not – at this stage – the subject of its experiences, but rather the sum of the experiences **are** the ego.

With such an account Husserl seems to be able to avoid any objectifying danger. However, Husserl realised the problem of somehow having to account for the constitution of the unity of a subsisting ego within the succession of time.¹³⁰ But at the time of the first *LI* edition Husserl considered this issue not

¹²⁹ *Es ist selbstverständlich, dass das Ich nichts Eigenartiges ist, das über den mannigfaltigen Erlebnissen schwebte, sondern dass es einfach mit ihrer eigenen Verknüpfungseinheit identisch ist. In der Natur der Inhalte und in den Gesetzen, denen sie unterstehen, gründen gewisse Verknüpfungsformen. Sie laufen in vielfältiger Weise von Inhalt zu Inhalt, von Inhaltskomplexion zu Inhaltskomplexion, und schließlich konstituiert sich eine einheitliche Inhaltsgesamtheit, die nichts anderes ist als das Ich selbst.* (My translation)

¹³⁰ As Husserl's refutation of the ego, camped in a footnote, is not contained in the 2001 Routledge edition of the *LI* it might be helpful to quote the complete text of the extensive footnote which was omitted in Husserl's second edition: "If we want to be more precise, we would have to distinguish between the phenomenological ego of the moment, the phenomenological ego within the succession of time and the ego as a stable and permanent object during all temporal changes. Just as an

to be a phenomenological question as he thought the causal workings bringing about this subsistence could not be evidenced phenomenologically. However, with regards to the phenomenal ego Husserl would change his mind in the time between the two editions of the *LI*.

Husserl's early concerns regarding a separate ego as an ordering principle for conscious experience were not only owing to his rejection of mystical and Cartesian notions of a substantial ego. Husserl engaged much more in a conversation with the Neo-Kantian Paul Natorp.¹³¹ Natorp maintained¹³² that it is a basic fact of psychology that the ego (*das Ich*) is the subjective and relational centre of all conscious contents (Sandmeyer, 2009: 139). But Husserl (Hua, XIX/1: 374) attacked this position by explicitly stating:

I must frankly confess, however, that I am quite unable to find this [Natorp's *T.F.*] ego, this primitive, necessary centre of relations.¹³³

external object is not the single complex of properties at any one moment in time, but instead is that which during constant change remains permanent, constituted as a unity beyond all real and possible changes, so the ego, as a subsisting object, is constituted by a unity going beyond all real and possible changes of the experiential complexes. This unity is no longer a phenomenological one; it falls under causal laws. Of course, we must leave the question unanswered, as to whether the mere unified continuity of conscious contents, fusing the contents into each other via a continuous alteration while they – at first – themselves remain continuous-uniformly at every moment, comes with a causal-law like bond, creating the objective unity in a metaphysical (not a mystical) sense. We must leave it completely open, whether and how psychological and physical things are to be distinguished and equally justified coexistent thing-like unities. Here we are just focusing on the phenomenological aspect, and it is certain that the phenomenologically reduced ego, hence the ego with its stock of experiences developing from moment to moment, carries its unity within itself, regardless whether it is seen, from a casual point of view, as a thing or not.” (Hua, XIX/1: 364) (My translation)

¹³¹ Natorp was affiliated to the neo Kantian *Marburg School* (other members were: E. Cassirer, H. Cohen, A. Liebert, K. Vorländer and N. Hartmann). In an attempt to overcome the subject-object dualism Natorp opted for a mathematical approach to account for the object-constituting function of reason. His later introduction of a genetic component into epistemology had important influences on Husserl's early development (Lembeck, 2008; Moran, 2000).

¹³² See Natorp's 1912 *Allgemeine Psychologie nach kritischer Methode (Introduction to a critical psychology)*.

¹³³ *Nun muss ich freilich gestehen, dass ich dieses primitive Ich als notwendiges Beziehungszentrum schlechterdings nicht zu finden vermag.* (Translated by Findlay)

To bring the investigation forward, I will first discuss Husserl's move regarding the *ego-issue*, as apparent between the first and the second editions of the *LI* (see section 4.3.1) to then concentrate upon Husserl's willingness to engage in an abstract and conceptual phenomenological investigation. This latter move is characterised by an "explicitly transcendental and anti-naturalist direction" (Moran, 2005: 109).¹³⁴ To be able to sort Husserl's account in relation to Varela's biological-naturalistic system-theory, I will have a clarifying look at this transcendental move (see section 4.3.2).

4.3.1. The Ego

So far I have discussed Husserl's initial denial of the ego as expressed in the first edition of the *LI*. Although Husserl (Hua VI: 168) later claimed that the *LI* already marked his breakthrough towards a transcendental phenomenology, trying to provide an answer regarding the constitution of objects transcendent to experience, he never developed the 'transcendental' concept within the *LI* (Doyon, 2010: 285). Between these two *LI* editions Husserl devoted his attention to the issues of individuation (Hua, X) and intersubjectivity (Hua, XIII). This lead Husserl to acknowledge the necessity of an ego to account for individuality and for the difference between one individual's and another individual's streams of consciousness, as finally formulated in his 1913 *Ideas pertaining to a pure Phenomenology and to a Phenomenological Philosophy – First Book* (henceforth: *Ideas I*). But at the moment it is necessary to remain focused upon the *pure ego*, as mentioned in the *LI*, as the most basic inventive principle (*letzt-fingierend*), remaining beyond the reach of any phenomenological investigation (Hua III: 125; Held, 1963: 183–206).

Husserl's move towards the ego manifests itself explicitly within two footnotes added to the second edition of the *LI*. With the first of these footnotes Husserl (Hua, XIX/1: 368) asserts:

¹³⁴ This change has to be contextualised in relation to the distinct stages of Husserl's overall-oeuvre (see sub-chapter 3.1). With the publication of the 1911 *Ideas I*, Husserl made a move towards a transcendental phenomenology. However, while a new edition of the *LI* was on the agenda, Husserl was not able to amend every aspect of the *LI* to fit with his own development as shown in the *Ideas I*; Husserl (Hua, XVII: 9-10) thus saw the second edition of the *LI* as a guide to approaching the *Ideas I*.

the fact that the empirical ego is as much a case of transcendence as the physical thing. If the elimination of such transcendence, and the reduction to pure phenomenological data, leaves us with no residual pure ego, there can be no real (adequate) self-evidence attaching to the “I am”. But if there is really such an adequate self-evidence – who indeed could deny it – how can we avoid assuming a pure ego?¹³⁵

Husserl realises here that an array of ego-less, subject-less, anonymous acts, previously supposed to form the phenomenological ego but without what he now calls the *pure ego*, could not account for the possibility of adequate, self-evident phenomena in relation to the self as an *I am*. Hence, if Husserl wants the self-evident given-ness of phenomena concerning an empirical self then there has to be an additional pure ego to supplement these phenomena with the self-evident fact that it is indeed *me* who is experiencing these phenomena, that it is *me* who is *having them present*. Although Husserl’s original non-egological position may be of philosophical interest in itself, it is not the focus of this chapter as Husserl himself abandoned this position. And, based on his investigations regarding individuality and intersubjectivity, the ones mentioned briefly above, Husserl had good philosophical reason to do so.¹³⁶ However, and away from Husserl’s philosophical motivation, I want to provide an account of how much Husserl’s developing phenomenology was shaped in relation and in reaction to the problems that psychology was struggling with at this time (see section 3.2.1). This choice is motivated by the fact that this thesis tries to investigate Varela’s proposed marriage between cognitive psychology and phenomenology. Running Husserl’s developing phenomenology against the then ongoing psychological debate should highlight how Husserl was trying to provide novel answers to address then current problems of a scientific psychological pursuit, and should thus remain closer to the focus of this thesis.

¹³⁵ ... *dass das empirische Ich eine Transzendenz derselben Dignität hat wie das physische Ding. Behält die Ausschaltung dieser Transzendenz und die Reduktion auf das rein-phänomenologisch Gegebene kein reines Ich als Residuum zurück, dann kann es auch keine wirkliche (adäquate) Evidenz „Ich bin“ geben. Besteht diese Evidenz aber wirklich als adäquate – und wer möchte das leugnen –, wie kommen wir an der Annahme eines reinen Ich vorbei?* (Translated by Findlay]

¹³⁶ Some of which will find further elaboration within the next chapter.

Husserl's acknowledgement of a pure ego was initiated by a 1905 holiday with two (Pfänder and Daubert) of Lipps' students (Sommer, 1985: 259).¹³⁷ Lipps (1909: 42), professor of philosophy at Munich, thought of the ego as being

at every moment the simple centre-point of consciousness. But this point extends itself, as conscious life goes on, into a line in such a way, that all points will be, as they are thought, together with the end-point, i.e., the current or now experienced ego, experienced as identical.¹³⁸

Pfänder (1904: 375) holding a similar position, offers partial support to Natorp's declared necessity of an ego as the centre of all experience, and argues against attempts to eliminate the ego:

During the war of extermination against everything metaphysical¹³⁹ within the empirical sciences, the ego raised undeserved suspicion and was, in a blind rage, chased out of psychic reality.¹⁴⁰

Pfänder's assessment of the positivist metaphysics-critique provides part of the context within which Husserl was reworking his new position of the pure ego (Sommer, 1985: 260). Natorp's ego as a unified, subjective focal point drew Husserl's criticism in 1901. Influenced by Lipps, Pfänder's (1900: 11) conception of the ego as a living centre-point (*lebendiger Mittelpunkt*), or central living point of mental reality (*zentraler Lebenspunkt der psychischen Wirklichkeit*), an ego consisting of

not only presentations and thought, but which is the immediately experienced and felt ego¹⁴¹

managed to convince Husserl. He (Hua, XIX/1: 374) now acknowledges the necessity for such a living centre-point to account for individuality and alterity, so that within the 1913 (second) edition of the *LI* he could write that indeed he

¹³⁷ The Seefeld Manuscripts originate from this holiday that Husserl spent with Pfänder and Daubert and are published in Hua X.

¹³⁸ ... *in jedem Momente der einfache Mittelpunkt des Bewusstseinslebens. Dieser Punkt aber dehnt sich dann im Fortgange des Bewusstseinslebens zur Line; doch so, dass alle Punkte, indem sie gedacht werden, zugleich mit dem Endpunkte, dem gegenwärtigen oder jetzt erlebten Ich, identisch erlebt werden.* (My translation)

¹³⁹ Pfänder is referring here to the debate between materialist/positivist and spiritual/mystical positions (see section 3.2.1).

¹⁴⁰ *In dem Vernichtungskrieg gegen alles Metaphysische hatte auch das Ich ein unberechtigtes Misstrauen erweckt und war in blindem Eifer aus der psychischen Wirklichkeit verjagt worden.* (My translation)

¹⁴¹ ... *nicht etwas nur Vorgestelltes oder Gedachtes, sondern das unmittelbar erlebte oder gefühlte Ich.* (My translation)

must have taken the dangers of “the corrupt forms of ego-metaphysics” (*Ausartungen der Ichmetaphysik*) too seriously. He can thus admit in the second footnote:

I have since managed to find it [*the pure ego T.F.*], i.e., have learned not to be lead astray from the pure grasp of the given through corrupt forms of ego-metaphysics.¹⁴²

Husserl (Hua, XIX/1: 374) thus acknowledges in the 1913 *LI* the existence of a “primitive ego as a necessary centre of relations”¹⁴³ and by that he gains the means to connect every experience to an individual end-point or ego.

With this now accepted living centre-point in Husserl’s phenomenology it is time to turn back to Varela. Despite Varela’s statement not to have found an ego or self, his overall account (see chapter 2), reveals striking similarities between Husserl’s immediately experienced, living centre-point and Varela’s own self-referential, autonomous systems able to collapse environmental contingencies into individualised actualities.¹⁴⁴ This similarity carries so far as to warrant the claim that Varela’s account of a de-centred self, manifesting itself via autopoietic, self-referential systems-operations, still fits with Husserl’s reworked take on the ego if one takes this ego to be the binding principle whereby all the autopoietic processes refer back to the individual.

But, as I have mentioned already, Husserl does not only allow for a *pure ego*; he also turned his previously descriptive phenomenology into a transcendental one. To assess if this move could cut any ice with Varela, I will need to devote some attention to the implications of this turn.

¹⁴² *Inzwischen habe ich es zu finden gelernt, bzw. gelernt, mich durch Besorgnisse vor den Ausartungen der Ichmetaphysik in dem reinen Erfassen des Gegebenen nicht beirren zu lassen.* (My translation]

¹⁴³ ... *primitives Ich als notwendiges Beziehungszentrum ...*

¹⁴⁴ There is an issue with this *living centre-point*, as this is – within the *LI* – the point at which the experiences terminate. However, within *Ideas I* this ego-pole turns into a centre from which tentative acts emanate and where these acts are lived through (*durchlebt*). But for my current purposes it suffices to recognise that Husserl’s living centre-point appears to be compatible with Varela’s feature of autopoiesis-induced self-reference as it was developed in sub-chapter 2.2.

4.3.2. Transcendental Issues

Both Husserl and Varela utilise Kant's notion of the transcendent ego as a contrasting foil to define their own ego-conception. When considering Husserl's take on Kant's ego-conception, one needs to bear Husserl's psychologism-critique (see chapter 3) in mind, hence Husserl's engagement with Kant has to be understood in relation to his earlier critical engagement with the neo-Kantian movement that had endorsed psychologism. Against this background I will unpack the transcendental ego-issues of both Husserl and Varela by starting – although only briefly – with Kant, just as they did.

The term 'transcendental' was introduced by Kant (1790/2009: A11-A12) to refer to that sort of cognition (*Erkenntnis*)

that is occupied not so much with objects but rather with our mode of cognition of objects insofar as this is to be possible *a priori*.¹⁴⁵

Kant thus offers an alternative to the empirical perspective when looking at consciousness in the form of a transcendental approach. Such a perspective is not concerned with the material aspects of the empirical subject, but one concerning the formal pre-conditions of consciousness and with that subjectivity. While the empirical subject is accessible to natural scientific descriptions (third-person perspective), it is also at the same time the subject of that subject's own cognition and action in as far as it is an object to its own inner perception (first-person perspective). This leads to the fact that, when experiencing myself, I, as an empirical subject in this Kantian sense, am as much a constitutive achievement of my own reason as another object is. And this constitutive achievement is brought about by the transcendent ego, i.e., the consciousness transcending principle whereby cognition (*Erkenntnis*) and object are united, and that without this principle itself being part of this specific cognitive act, but rather the condition of its possibility (Kant 1790/2009: A341ff/B399ff.). Kant's (1790/2009: B132) unknowable transcendent self thus precedes, sorts and enables all experience in such a way that

¹⁴⁵ *Ich nenne alle Erkenntnis transzendental, die sich nicht so wohl mit Gegenständen, sondern mit unseren Begriffen a priori von Gegenständen überhaupt beschäftigt.* (Translated by Guyer & Wood)

the manifold representations that are given in a certain intuition would not altogether be my representations if they did not all together belong to a self-consciousness; i.e., as my representations (even if I am not conscious of them as such) they must yet necessarily be in accord with the condition under which alone they can stand together in a universal self-consciousness, because otherwise they would not throughout belong to me.¹⁴⁶

Kant (1790/2009: B 132) thus proposes an “original-synthetic unity of apperception” (*die ursprünglich-synthetische Einheit der Apperzeption*) as the pre-condition to unite representations as *mine*, but the act of representing the “manifold of intuition” as *mine* “cannot be regarded as belonging to sensibility.”¹⁴⁷

Husserl, when engaging with Kant clearly takes issue with Kant himself and with the reading of Kant as it was brought forward by the then prevalent neo-Kantian school, a school with which he had already engaged when he formulated his psychologism-critique (see chapter 3.2). One of the main-protagonists, Windelband (1924: 457) explains the Kantian ego to be a *matter of fact* (*Sachlichkeit*) beyond the individual, something Kant, in the *Prolegomena* referred to as *consciousness as such* (*das Bewusstsein überhaupt*) and in the *Critique* as *transcendental apperception*.

But Husserl, out of reasons I have already discussed (see sub-chapter 3.2) is not interested in such a transcendent ego, transcending individual consciousness. He (Hua VII: 231) places his investigative emphasis upon specific conscious experiences as they are given to consciousness to trace

¹⁴⁶ *Denn die mannigfaltigen Vorstellungen, die in einer gewissen Anschauung gesehen werden, würden nicht insgesamt meine Vorstellungen sein, die in einer gewissen Anschauung gegeben werden, würden sie nicht insgesamt zu einem Selbstbewusstsein gehören, d.i. als meine Vorstellung (ob ich mich ihrer gleich nicht als solcher bewusst bin) müssen sie doch der Bedingung notwendig gemäß sein, unter der sie allein in einem allgemeinen Selbstbewusstsein zusammenstehen könnten, weil sie sonst nicht durchgängig als mir angehören würden.* (Translated by Guyer and Wood)

¹⁴⁷ *Also hat alles Mannigfaltige der Anschauung eine notwendige Beziehung auf das: Ich denke, in demselben Subjekt [...] sie kann nicht als zur Sinnlichkeit angehörig angesehen werden.* (Translated by Guyer and Wood)

the workings of such an ego in an attempt to provide an answer to the question of how consciousness can be conscious of something.

Sommer (1985: 260) highlights that Husserl (Hua, XIX/1: 374), when reconsidering his take on the ego (see section 4.3.1) stated: “I have since managed to find it [*the pure ego T.F.*]”. And this *finding* already indicates that the ego – now ready for Husserl to be found – cannot be Kant’s transcendent ego, nor Natorp’s neo-Kantian ego-principle. Kant’s and the neo-Kantian transcendent ego are *thought-of relational centres*, but it is not possible to *directly experience* such an ego.

Husserl now works with the concept of a Pfänder-influenced ego, one that is a subjective centre of relations and one that can be traced – or found – within the relevant acts emanating in relation to this living ego centre. Husserl is thus focusing on the enabling acts that establish exactly this relation. He is neither chasing Kant’s transcendent ego nor is he trying to pin down a static Cartesian ego-substance; Husserl wants to reveal the workings of a *transcendental ego* within the relevant acts as they stand in relation to this ego. A phenomenological analysis of the relevant acts – as a transcendental investigation – revealing the structural conditions of their possibility leaves Husserl’s transcendental ego – after his transcendental move – as the possible field within which the phenomenological investigation of subjectifying achievements can take place (Keßler, 2010: 137).

Varela (1991: 70) does not develop his position in relation to Kant in any greater depth, but he nevertheless takes issue with the fact that such an ego intuitively does not seem to

answer to our emotional convictions: it is not *me* or *my* self; it is just the idea of a self in general, of some impersonal agent or mover behind experience.

At the beginning of this chapter (see sub-chapter 4.2) I asked what Varela’s take on the ego is – is it only a substantial ego, or is it any kind of ego that he opposes? I suggest that Varela clearly rejects only a substantial (Cartesian) ego, while the above quote seems to lend support to the fact, that Varela does

not at all exclude any sort of ego. Varela clearly refers to an experienced, a felt quality of a self which, according to his reading, Kant's transcendent ego cannot accommodate.

However, this is where yet another similarity between Husserl and Varela becomes recognisable. Husserl focuses on structural pre-conditions for these subjectifying achievements, while Varela is interested in system-internal descriptions derived from the successful reduction of environmental stimuli into individualised actualities, and suggests a structural investigation as well. Both hold firm that such an investigation has to advance from exactly the perspective of the experiencing subject, and allow for a centre-point of all subjective experience, one that can be experienced – or traced – within the ego-acts.

But accepting such a transcendental ego, one that can be investigated via its subjectifying achievements, does not necessarily entail that such an ego has the ability to carry out the intended phenomenological investigation in relation to these subjective experiences, and that is my next concern.

4.4. Observations and Temporal Structures

Varela's system-theoretical account of autopoietic systems provides the overarching framework within which modern cognitive science and phenomenology should be married by utilising a phenomenological first-person methodology. But, when assessing Luhmann's system-theory from a phenomenological perspective, Rinofner-Kreidl (2003: 146) points towards a fundamental problem with the autopoietic subject:

the observer-model, which provides the foundation for the formulation of a subject-less system-theory, presupposes the authority of a subject. Without adhering to this pre-condition it is impossible to introduce the guiding difference between operation and observation. (My translation)

This critique has implications for Varela as well. As I have discussed already (see chapter 2), the *logical stock-taking* along the system's *inside/outside* division comes with the need for internal observation of system operations. One could assume that Varela is able to avoid this charge, that the fundamental feature of autopoietic self-reference (similar to Husserl's pure

ego as argued for in sub-chapter 4.3.) provides him with enough of a subject to safeguard the introduction of a *guiding-difference* (*Leitunterschied*) to differentiate between a system-operation and an observing system-operation. But – and this is the current difficulty I want to solve – how can such an autopoietic system, manifesting itself via its currently on-going dynamic operations, set aside – so to say – some of its operations to thus become self-observational operations? Husserl encountered a similar problem and proposed an intriguing solution in relation to the temporal structure of experience, and I will develop this a little more broadly.

In *Ideas I* Husserl (Hua, III: 182) claims that every experience has its own and necessary duration, which together with other durations (*Dauern*) form an endless continuum with an infinite temporal horizon. Husserl (Hua, X: 112) explains that “subjective time constitutes itself within an absolute, timeless consciousness.”¹⁴⁸ This results in an absolute (timeless) consciousness and a constituted subjective time-consciousness. To make matters a little bit more complex there is also Husserl’s concept of objective time, or “cosmic time” (Hua, III: 181). This objective time may serve for the temporal location of a certain experience – as any real event, within an objective temporal duration – but Husserl (Hua, X: 4) asserts that such a temporal location, very much like “the real object, the real world, are not phenomenological data” and neither is “the real time, the time in the sense of the natural sciences.” Husserl’s (Hua, X: 4) focus is the “phenomenological analysis of time-consciousness”, i.e., subjective time. And because objective time and subjective time stand in a similar relation to the subjectively constituted phenomenon and the physical object (Hua, III: 181), objective time provides a less than secure frame of reference for subjective experiences. Indeed, experienced boredom – let’s say for an hour – seems to make time almost sluggish, while any excitement lasting for the same objective duration makes time subjectively feel as if it flies by. This decoupling of experienced time from world-time allows Husserl a purely phenomenological investigation of subjective temporality. Husserl (Hua, X: 5) explains that any analysis of temporal consciousness, concerning itself

¹⁴⁸ ... *subjektive Zeit konstituiert sich im absoluten zeitlosen Bewusstsein, ...* (My translation)

with the temporal character of perceived, recollected or expected objects might appear to necessitate that objective or cosmic time would be presupposed. Hence, such an analysis would only aim to reveal the necessary conditions of the possibility for temporal intuition (*Anschauung*) and cognition (*Erkenntnis*) along a given – objective – timeline. However, Husserl is not concerned with objective duration (*dingliche Dauer*), but rather apparent duration; his sole focus is the immanent time of the stream of consciousness.

Although Husserl (Hua, X: 8) utilises a ‘normal’ visual object¹⁴⁹ to point towards the constitution of perceived objects over time, i.e., the synthesis of identity, he nevertheless chooses to bring his further explanations forward by what he calls temporal objects (*Zeitobjekte*). These temporal objects are objects

which are not only units within time, but those that contain a temporal extension of their own (Hua, X: 23)¹⁵⁰

Husserl’s example for such temporal objects is sounds and melodies, i.e., objects that have a temporal duration. To make his point, Husserl (Hua, X: 10–19) engages with Brentano to point out that a mere association of otherwise equally immanent (acoustic-) moments could not account for the hearing of a melody. According to Brentano’s account one would hear all the sounds constituting a melody at once, which is not the way melodies are experienced. Husserl (Hua, X: 22) however maintains that in relation to the constitution of a transcendent temporal object (*that which is perceived* – see section 4.3.4)

[o]bjects of this kind constitute themselves in a multitude of immanent data and apprehensions, that pass by sequentially.¹⁵¹

But that somehow begs the question of how to unite these sequential data within a momentary now (*Jetztmoment*) allowing for the hearing of a melody instead of separate, otherwise unconnected sounds?

¹⁴⁹ Husserl speaks about a viewed piece of chalk, which remains the same piece of chalk to myself, despite the fact that I may have closed my eyes for a moment.

¹⁵⁰ ... *Objekte, die nicht nur Einheiten in der Zeit sind, sondern die Zeitextension auch in sich enthalten.* (My translation)

¹⁵¹ *Objekte dieser Art konstituieren sich in einer Mannigfaltigkeit immanenter Daten und Auffassungen, die selbst als ein Nacheinander ablaufen.* (My translation)

If Husserl can provide an explanation of how to unite sequential data to have a melody present then this may equally provide a solution to the question that guides the discussion of this section. If the momentary now can be widened, then it appears possible to account for the *guiding-difference* between the *system-theoretical operation* and the *observing operation* with recourse to the same temporal structure: the observing operation (melody) is the result of a sufficient sorting of relevant operations (sequential data or sounds).

To answer this question Husserl (Hua, X: 27) discusses the continuum of what he calls recession-phenomena (*Auflaufphänomene*). This provides him with two different dimensions

- a) a linear continuum, reaching from the first relevant – the originary or primary¹⁵² – impression in relation to a current phenomenon, along the successive now-moments – until the temporal phenomenon lapses and
- b) an additional dimension whereby the recession-phenomena or *modes of temporal orientation* provide *recession-characteristics* (*Ablaufcharaktere*) in the form of *now* or *past*.

In this respect Husserl can claim¹⁵³ that – right from the primary impression onwards – every currently constituted phenomenon contains within each and every successive now-moment the previous one, earmarked by the recession-character as *past* or *no longer now*. And as (experiential) time proceeds along the temporal axis (a) these previous *nows* sink deeper and deeper into the additional dimension (b), forming a sediment of sunken (*herabsinkenden*) *nows*, each and everyone characterised as having been prior to the one above, reverberating within the current now for a while (Hua, X: 24). To capture these previous *nows* – along the b-axis – forming a comet tail

¹⁵² Cairns (1973) translates Husserl's *Urimpression* as *originary impression*, but the more recent literature seems to prefer *primary impression* (e.g. Zahavi, 2003)

¹⁵³ Within this current chapter I am discussing specific aspects of Husserl's phenomenology in relation to Varela's account. In this respect it is important to bear in mind that Husserl's claim regarding the temporal structure is not one miraculously appearing out of the magician's hat, but that this claim is substantiated by his phenomenological investigations based upon the *epochē* and the relevant reductions – but a discussion of these will have to wait until the next chapter.

(*Kometenschweif*) attached to the current *now* Husserl (Hua, X: 165) introduces the concept of retention to denote this conscious awareness of *just-having-been*.¹⁵⁴

This comet-tail of retentions providing the *just-having-been* past for every now-moment is only one side of Husserl's genetic analysis of how consciousness constitutes objects in time and temporal objects. When discussing the issue of judgement in relation to the intentional act I discussed the need for an interpretative animation (see section 3.3.4) and when mentioning – more than once – the system-theoretical notion of collapsing environmental contingencies into individualised actualities I, in both cases, touched upon an important feature: If one thinks about the progressing completeness of the intentional object in relation to subjective experience unfolding in time in relation to the primary impression, one has to face the fact that complete clarity regarding the perceived object cannot be achieved (see section 3.3.4). Objects are only accessible from one's current spatio-temporal location in relation to this object and as much as it is possible to change one's perspective (by changing the observer's or the object's location) one will only ever have a series of shadowed-off (adumbrated) moments available, a complete clarity remaining inaccessible (Hua, XIX/2: 540).

To nevertheless bring some direction in these emerging perceptive series, despite their *a priori* incompleteness, Husserl utilises the notion of anticipation in relation to the primary impression and its likely succession through subjective time. This anticipation of what is to come – of what the object will turn out to be – provides consciousness with the horizon of protentions. That is, a horizon, marked by the continuous coming of something that can never reveal itself in its entirety (Hua, IX: 202). These protentions or expectation-intentions allow for the judgment of what is incompletely perceived, but it also

¹⁵⁴ Husserl (Hua, X: 41) makes the effort to differentiate these retentions from recollections by pointing to the fact that the *now* of a recollection is not perceived, not given, but is merely presenting (*vorstellen*) a *now*, hence can be revealed as such within a phenomenological investigation. But I do not need to deviate here, as my focus is the notion of the *now* and the question of how far such a *now* could reach.

allows for the fact that things may turn out differently or not show at all – as in the case of a melody completely changing or breaking off totally (Hua, X: 53).¹⁵⁵ The fit between what is meant (*vermeint*) within the intention and the relevant sensational elements is what Husserl (Hua, XVII: 295) calls fulfilment (*Erfüllung*). And although all perceptive series strive towards fulfilment, not all of these sequences reach this fulfilment.¹⁵⁶ Consciousness is – so to say – thus left with the need to reach a judgement in terms of a developing perceptive series, i.e., to bring a certain set of sensations to a fulfilled intention – and that is achieved by recasting the concept of ‘now’, no longer referring to a single moment only, but towards a temporal field (*Zeitfeld*) (Hua, X: 31). Hence, the protentions together with the retentions provide an immediate horizon, encapsulating every now-moment as

dependent moments of an occurrent experience. They do not provide us with new intentional objects, but with a consciousness of the temporal horizon of the present object. (Zahavi, 2003:83)

With these considerations in place it turns out that Husserl’s ‘now’ is always widened by a surrounding horizon, reaching into the immediate past and future. But when trying to link this back to Varela it is of course possible to discuss how Husserl’s intentional object constitution in relation to the temporal field would translate to self-monitoring and self-regulating systems. Here I need to reconnect to the earlier introduced cognitive domain as the domain of possible *descriptions* that such systems can generate (see chapter 2).¹⁵⁷ I discussed how Varela’s system-theoretical framework can account for crude *descriptions* of amoeba. But in relation to increasing system-complexity, it appears as if Varela’s account has the needed resources to utilise Husserl’s intentional-object constitution to explain a complex system’s ability to connect

¹⁵⁵ A good example may be the track *Bohemian Rhapsody* by the rock-band Queen. It gains its internal tension by an initial ballad passage and guitar solo, followed by an abrupt change to an operatic interplay, followed by a heavy rock-session.

¹⁵⁶ Husserl develops the implications of ‘successful’ or ‘failing’ perceptive series in the form of the modes of fulfilment, disappointment and doubt (Hua, IX: 25 ff.).

¹⁵⁷ *Intentionality* probably being the most pronounced example of generating a *description*.

the 'just-experienced' to the 'now-experience' in relation to the 'to be expected' to generate more complex descriptions. However, in relation to my current discussion, this is not the real issue. This chapter's focus is the problem that the utilisation of self-observing methods appears to necessitate the need for a self, doing the observation of itself. I have already discussed Husserl's acceptance of a transcendental ego, so Husserl can arguably evade the problem by tracing the relevant ego-acts within the constitutive genesis (see chapters 5 and 6). But, and this was the question that Rinofner-Kreidl (2003) asked, could an autopoietic system gain such an observer-perspective in relation to its own operations, when even these observations are nothing but operations themselves? That is the question in relation to which I introduced Husserl's perceptive series and the notion of such a 'widened now'. If this 'widened now' with its *comet tail* of receding '*just having been*' would be equally applicable to Varela's proposal than this may provide the means to understand how a current system operation can reflectively engage in an observation of its own (*just-having-been*) operations.

Although this question, especially in relation to Varela's proposed application of phenomenological reflections, will be the topic of the next chapters, I nevertheless already need to emphasise one important fact here. The widening of Husserl's 'now' is something that happens within subjective – experienced – time. And although there is a relation between subjective and objective time, this relation is not one of a direct correlation. Any achieved 'widening' of the 'now' to an experienced time-field transcends the flow of objective 'now-points'. But that is where Varela seems to get into difficulties. Autopoietic systems generate all relevant features (autonomy, self-reference – see discussion in sub-chapter 2.2) via their internal, mechanistic operations, unfolding within objective time as interactions within such a system. If, however, Varela wants to utilise self-observational operations to trace the constitution of intentional objects over time he appears to depend upon a system's ability to somehow connect to past experience-relevant operations as they *sink back* in time along the *comet-tail* of retentions. If such an application of Husserl's account could work for Varela, then Rinofner-Kreidl's problem regarding the guiding-difference would not harm Varela's account.

Varela's systems could observe singled-out experiential processes via their retentional presence in the temporal field of the 'widened now'.

And that is where Varela seems to have to make a choice. He could:

- a) insist upon mechanistic, biological system operations which exclusively take place in an objective now. But that would not allow for the *guiding-difference* necessary for the ability to take the observer-position in relation to the system's own operations. And if that were so, then Varela might as well give up on his neurophenomenological project all together, as these systems may not be able to engage in a Husserl-style reflective self-observation. But Varela could equally
- b) allow a Husserl-style transcendent 'widening' of the now.

This notion of a transcendent 'widened now' perhaps seems at odds with the otherwise materialist account that Varela brings forward. But that is not the case, as I will explain. When going back to what I have established already (see discussion throughout chapter 2), it is important to remember that Varela's autopoietic systems are comprised of autopoietic processes. Processes in general are – like Heraclitus' river – fluid and dynamic; if frozen in time – as an Eleatic arrow – they would be mere states, localised within a time-space matrix. But Varela's processes unfold within such systems in relation to earlier states while influencing subsequent ones to serve the autopoietic goal of self-maintenance. Any assessment of these processes by trying to tie them to a specific objective now-moment would form a *greater machine* (see sub-chapter 2.3) and hence not be able to capture the internal system-internal relevance of such a state.

Bearing this in mind, it appears as if Varela does not need to make a decision between his essentially materialist account or a transcendent now. He has already made his decision, allowing for the subjective experience transcending objective now-moments with his autopoietic notion of self-referential system-maintenance. Exactly this aspect of Varela's framework provides a sense-horizon for autopoietic systems whereby these systems operations cannot be deconstructed into separate processes or states that could be directly linked to objective now-moments.

I have thus established three results:

1. Fixed and objective 'now-points' cannot be translated into an autopoietic system without either being meaningless or by ignoring the system-theoretical framework altogether.
2. Husserl's analyses offer an opportunity to conceptualise what is supposed to go on in Varela's systems when generating complex – intentional – descriptions.
3. Last but not least, this all implies an account whereby subjective experiential moments, with their retentional comet-tail, can be judged individually in terms of protentional expectations.

Varela's account is thus not harmed by Rinofner-Kreidl's concerns. His overall framework appears to have the resources to accommodate a Husserlian account and can thus achieve the needed *guiding-difference* to engage in self-observational reflection. But the last point (3) especially, points strongly towards the individual generation of *meaning* or *sense* for the experiencing subject along these temporal structures (similar to Luhmann's generation of sense along the referential relation, see section 2.8.2). And that leads me to the third question – can Varela utilise Husserl to account for a non-causal, individual constitution of transcendent *meaning* or *sense*?

4.5. The Processing of Sense

Earlier (see sub-chapter 4.2) I did formulate three initial problems in relation to the overall topic of the ego within a possible neurophenomenological endeavour as envisaged by Varela. The third of these problems was a rather complex one. It was connected to Varela's closeness to a Heideggerian notion of a *Dasein*, finding the objects of the world in a *ready-to-hand* kind of fashion. It is now time to return to this third problem as it has two important implications:

- a) the Heideggerian flavour leads to a necessary dynamic between *being-in-the-world* (*Dasein*) and objects *ready-to-hand* (*Zuhandenheit*). I will discuss this issue in relation to the processing of sense (see section 4.5.1).

- b) Varela claims that the 'I' can be affected before an 'I' that knows. This points towards a very specific relation between *mere affectedness* and *known affectedness*, which I need to discuss as well (see section 4.5.2).

However, in discussing these two issues successively here, I am also pursuing two slightly different aims. The first of the above (a) allows me to continue with my introduction of Husserl's transcendental phenomenology in relation to Varela's system-theory. The second (b) allows me to clear up remaining issues around the ego in both Varela's and Husserl's accounts. This clearing-up exercise, in very broad strokes, enables me to finalise my initial effort to see if Varela's account and Husserl's phenomenology are somehow compatible, if they display enough similarities to make Varela's neurophenomenology a feasible project at all.

4.5.1. The Heideggerian Implications

Varela's relation between objects and object-related action was a "readiness or dispositional tendency" together with an "expectation about the way things in general will turn out" (Varela 1999b: 299). Such a notion puts the subject/system into a world where it finds objects that are (at least in some instances) *ready-to-hand*. I suggested that Husserl's living ego centre and Varela's self-referential systems can provide such a fundamental ego. However, Varela's systems are characterised as closed, and the *descriptive* cognition regarding environmental interaction is limited to what is part of the system and the current system-dynamics themselves (see discussion in sub-chapter 2.4). And although the linguistic domain is dependent upon the cognitive domain, this relation is not one of causal dependence (see sub-chapter 2.7). In this respect Varela's systems can be part of a world without that world dictating what sort of *sense* is generated and/or processed within the system, as this *sense* stands in relation to the autopoietic core-self (i.e., an internal sense-horizon comprised by referential relations to an inherently open future) and its current processes. It is thus not causally determined by the outside world.

Husserl, on the other side, had within the *LI* succeeded in providing an initial description of the intentional relation towards a world, but he did – as Sokolowski (see section 3.3.4) pointed out – presuppose meaning. In this respect Husserl's (Hua, III: 212) analysis was probably a bit too close to what he later calls the 'stuff stratum' (*stoffliche Schicht*) of the stream of phenomenological being. Such a close proximity entails the danger that, if the mind is thus part of this world, one is left with the problem that Philipse (1995: 286) accounts for on the basis of what Husserl calls the (Hua, VI: 182) *paradox of human subjectivity*; that is, the problematic question of how it would be possible to individually constitute a transcendent intentional object, when the constituting job is done by a mundane mind in relation to a mundane object, both of which are supposed to function in a causally determined manner. This question has direct implications for Husserl's as well as for Varela's project. I have already discussed that both accept an ego, providing a point of view (see sub-chapter 4.3), but it is now time to assess whether Husserl can offer something to account for the individual processing of *meaning* for the experiencing subject which can lend theoretical support to Varela's system-theory.

When aiming to investigate *consciousness per se*, one may want to – less dramatically than Husserl's *paradox of human subjectivity* seems to imply – accept the fact that consciousness yields effects upon this world and hence that consciousness in its normal functioning is linked to the world.¹⁵⁸ But if one wants to

analyse those functions of consciousness which are independent of its relation to the world [...] then one has to assess consciousness in its particularity, one has to ask, what is it that differentiates the psychic from the physical. (Sommer, 2009: 87)

For Husserl (Hua, III: 217) the goal is to

¹⁵⁸ If – of course – one does not want to accept either or both of these assumptions, then the question may be asked about that someone's motivation to engage in an investigation of *consciousness per se* in the first place.

arrive at all at the concatenations of essence which make the transcendental relations intelligible *a priori*.¹⁵⁹

Husserl is thus trying to provide a way to investigate the *a priori* conditions of individual constituted conscious appearances; he is aiming for a transcendental account.

To achieve this Husserl reformulates his notion of transcendence. As I have discussed already (see section 3.3.4), the *LI* worked upon the notion that the experienced and adumbrated moments of an object were *reelle* parts of the stream of consciousness while the intentional object would transcend this stream of consciousness. But in *Ideas I* Husserl (Hua, III: 92) now maintains

that intuition and intuited, perception and perceived physical thing are, more particularly, essentially interrelated but, as a matter of essential necessity, are *not really inherently and essentially one and combined*.¹⁶⁰

This loosening of the link between object and consciousness of that object is achieved by Husserl's modification of the concept of transcendence. Now it is no longer only the object that transcends the stream of consciousness, but the complete "system of adumbrations" belonging to the constitution of the object (Hua, III: 93). Husserl thus takes the objects, as well as the relevant appearance (*Erscheinungen*) as transcending the stream of consciousness (Mayer, 2009: 116). With this wider notion of transcendence – now incorporating the previous 'nows' in their adumbrated incompleteness – Husserl is, as Sommer (2009: 87) puts it, safeguarding the purity of consciousness, now constituting the transcendent objects upon equally transcendent "continuous multiplicities of appearances and adumbrations" (Hua, III: 93), while on the other hand, avoiding the (idealistic) destruction of the worldly object and with that the initiation of the destruction of

¹⁵⁹ ... *ein langer und dorniger Weg ... phänomenologischen Gegebenheiten ... und schließlich zu all den Wesenszusammenhängen, die uns die transzendentalen Beziehungen a priori verständlich machen.* (Translated by Kersten, italics in original)

¹⁶⁰ ... *dass Anschauung und Angeschautes, Wahrnehmung und Wahrnehmungsding zwar in ihrem Wesen aufeinander bezogen aber in prinzipieller Notwendigkeit nicht reell und dem Wesen nach eins und verbunden sind.* (Translated by Kersten – italics in original)

consciousness as well. And Husserl does all this while still maintaining the tie between object and conscious appearance as “essentially interrelated” (Hua, III: 92), as I will need to discuss within the next chapter. Husserl is thus – as Sommer (2009: 87) probably a bit too pointedly formulates – depriving the object of what actually makes it an object, i.e., its existence. This *depriving of existence* has to be understood in relation to Husserl’s transcendental investigation and the reformulated concept of transcendence, now including the constituting appearances as well. As I will discuss within the next chapter, this is by no means to be understood in such that it be thought Husserl would intend to annihilate the world and its objects. Husserl is interested in the transcendence of the succession of intensive acts to make these available to his phenomenological investigations. Husserl thus offers a solution, so Sommer (2009: 89) continues, whereby

the object, deprived of its existence, remains as such. And this maintenance of the object as such guarantees that the complete intentional structure of consciousness remains untouched

With this move, captured by Sommer’s catchy, but not unproblematic phrasing, Husserl (Hua, III: 202) gains the

distinction between the *components proper* of the intensive mental processes and their *intentional correlates* and their components.

Husserl (Hua, III: 202) can thus

discriminate the parts and moments which we find by a *reelle analysis* of the mental processes, whereby we deal with the mental processes as an object like any other, inquiring about its pieces or the non-selfsufficient *reelle* moments which make it up. But, on the other side, is the intensive mental process as consciousness of something, and it is so according to its essence, e.g., as memory, as judgement, as will, etc.; and we can therefore inquire into what is to be declared as a matter of essential necessity about the side of this “of something”.¹⁶¹

¹⁶¹ *Gehen wir, wie in den gegenwärtigen Überlegungen überhaupt, auf allgemeinste Unterscheidungen aus, die sozusagen gleich an der Schwelle der Phänomenologie fassbar und für alles weitere methodische Vorgehen bestimmend sind, so stoßen wir hinsichtlich der Intentionalität sofort auf eine ganz fundamentale, nämlich auf die Unterscheidung zwischen eigentlichen Komponenten der intentionalen Erlebnisse und ihren intentionalen Korrelaten, bzw. deren Komponenten. ... Auf der einen Seite haben wir also die Teile und Momente zu unterscheiden, die wir durch eine reelle Analyse des Erlebnisses finden, wobei wir das Erlebnis als Gegenstand behandeln wie irgendeinen anderen, nach seinen Stücken oder unselbständigen, ihn reell aufbauenden Momenten fragend. Andererseits ist aber das intentionale Erlebnis*

As a result of this discrimination Husserl (Hua, III: 212) is left with a “*stream of phenomenological being [that] has a stuff-stratum and a noetic stratum*”.¹⁶² Husserl, by using the Greek term *noetic* – i.e. thought – diverts his investigation away from the empirical occurrences within the stream of consciousness, towards the processing of (noetic) thought.¹⁶³ Such an investigation,

relative to the noetic moments can be termed *noetic-phenomenological* considerations and analyses. The incomparably more important and richer analyses are found on the side of the noetic. (Hua, III: 212)¹⁶⁴

This is because Husserl (Hua, III: 218), with his two different strata and the resulting ability to access the noetic processes of intensive mental processes separately, can now claim that

it is of its (*the intensive mental process's T.F.*) essence to include in itself something such as a ‘sense’ and possibly a manifold sense on the basis of this sense-bestowal and, in unity with that, to effect further productions which become ‘senseful’ precisely by this sense-bestowal.¹⁶⁵

Hence, Husserl’s move allows him an investigation of how consciousness becomes aware of something as *something*, i.e., how the objects appear

Bewusstsein von etwas, und ist es seinem Wesen nach, z.B. als Erinnerung, als Urteil, als Wille usw.; und so können wir fragen, was nach Seiten dieses „von etwas“ wesensmäßig auszusagen ist. (Italics in original, translated by Kersten, but translation slightly altered in terms of Husserl’s differentiation of the real and *reelle* components. I discussed this important differentiation within section 3.3.1 and in order to provide consistency, as Husserl does himself, I altered the translation to safeguard exactly this.)

¹⁶² *Der Strom des phänomenologischen Seins hat eine stoffliche und eine noetische Schicht.* (Italics in original, translated by Kersten)

¹⁶³ When talking about the processing of thought, it has to be kept in mind that this notion of thought includes certain sensuous components as well, I will discuss this in more detail within chapter 5.

¹⁶⁴ *Phänomenologische Betrachtungen und Analysen, die speziell auf das Stoffliche gehen, können hyletisch-phänomenologische genannt werden, wie andererseits die auf noetische Momente bezüglichen noetisch-phänomenologische. Die unvergleichlich wichtigeren und reicheren Analysen liegen auf Seiten des Noetischen.* (Italics in original translated by Kersten)

¹⁶⁵ *Jedes intentionale Erlebnis ist, dank seiner noetischen Momente, eben noetisches; das sagt, es ist sein Wesen, so etwas wie einen „Sinn“ und ev. mehrfältigen Sinn in sich zu bergen, auf Grund dieser Sinngebungen und in eins damit weitere Leistungen zu vollziehen, die durch sie eben „sinnvolle“ werden.* (Translated by Kersten)

consciously as they are meant (*vermeint*) individually, what *meaning* or *sense* they carry for the individual. However, Husserl does not want to focus upon a particular *here-and-now* instance, but upon universal structures. To enable an investigation of these structures he introduces the concept of the *noesis* and the *noema*. For Husserl (Hua, III: 210)

[t]hese noeses make up what is specific to *nous* in the broadest sense of the word; it refers us back [...] to cogitationes and then to any intensive mental processes whatever ¹⁶⁶

The processes of bringing about intentionality as a sense-evoking process are thus these noeses, or *acts of thinking* (*das Denken*) in the wider sense. Husserl also sometimes uses the Latin equivalent: *cogitatio*. The noema, Greek for *that which is thought of* (*das Gedachte*), correspond with the multiplicity of noetic data; it is the content derived from sense-bestowing components (noesis) appearing in pure intuition (*Anschauung*).¹⁶⁷

It thus turns out that Husserl has indeed provided a means by which to account for the emergence of *sense* and for the possibility of investigating individually constituted *sense*. I will quickly summarise the three stages that enable this for Husserl and thus open the possibility that Varela could adopt

¹⁶⁶ *Diese Noesen machen das Spezifische des Nus im weitesten Sinne des Wortes aus, der uns [...] auf cogitationes und dann auf intentionale Erlebnisse überhaupt zurückführt...* [Italics in original, translated by Kersten]

¹⁶⁷ There is a debate amongst scholars about the nature of these noema and the role they play in Husserl's philosophy. Zahavi (2003: 58) captures the key-point of the opposing perspectives from the shared agreement that the noema are only accessible to us via *epochē* and reduction, enabling us to "thematise the intended qua intended, that is, the object exactly as it is meant and given (Hua, III: 202–205)." But how far does the bracketing effort carry – is the world parenthesised to allow the pure ego to attend to a mental representation, or is the *epochē* a continuation of the exploring and describing of the spatio-temporal world. If adhering to the first interpretation the noema would be something entirely different from both act and object it would be a mediator via which an act is directed towards an object. The opposing interpretation suggests that even within the *epochē* one remains to be concerned with the world, hence objects are not replaced by mental representations; one just attends to the objects in a modified way, one shrugs off the naïve attitude and focuses on the object "... precisely as it is intended and given, that is as a correlate of experience" (Zahavi, 2003: 59).

such an account as well for the purpose of accounting for the system-theoretical specifics.

- a) Husserl now accepts what he calls a pure ego. This, as I argued, appears to be compatible with Varela's account (see sub-chapter 4.3). Despite the fact that such a pure ego remains inaccessible to phenomenological analysis (and a system-theoretical account), such a pure ego seems to provide the needed – individualised – centre necessary for a system/subject to take a position, to bestow sense in relation to the environment (*I like/desire/fear/loathe that...*)
- b) Husserl separates the transcendent noetic stratum from the stream of phenomenological being and thus breaks the direct – otherwise causally determining – link with the stuff-stratum.¹⁶⁸ Varela, on the other hand, locates his systems within a world, but these systems happen to be inherently closed off from this world (see sub-chapter 2.2). To navigate their environment, Varela's systems must create their own – internal – description of the world, which is thus always an individual one. In this respect Husserl's account for the emergence of individual *sense* or *meaning* appears to provide an account that could be made to fit Varela's framework, who – unfortunately – remains rather vague on this issue.¹⁶⁹
- c) Husserl's differentiation between the act of thinking (noesis) in its wider sense and the content of thought (noema) makes these transcendent elements potentially accessible to a phenomenological investigation. Husserl can now hope to unearth the sense-bestowing *a priori* structures of consciousness. And in doing so, Husserl can pursue an investigation regarding the conditions of the possibility for consciousness to be conscious of something as *something*, i.e., he can investigate the transcendental structures of consciousness. Varela has nothing similar to offer regarding this last point, but it becomes clear

¹⁶⁸ That was the link implied by the *real-reelle* differentiation, whereby the *reelle* parts were the phenomenologically relevant parts of the real stream of consciousness (see section 3.3.1)

¹⁶⁹ This vagueness of Varela on this subject already became apparent in chapter 3, when the concept of system-theoretical *sense* had to be taken from Luhmann's system-theoretical account.

where Varela's interest in Husserl's phenomenology finds its roots. The promise of investigative methods enabling him to survey the sense-bestowing structures of consciousness seems indeed to be a worthwhile addition to scientific accounts of what Husserl called the 'stuff-stratum'.

But before I am able to close this sub-section I quickly need to reconnect to the observer-problem (see sub-chapter 4.4). Wiltsche (2006: 54) concerns himself with the difference between system-operations and system-internal observations of these operations. He explains the problem:

To be able to speak about operations in the first place, we first need to introduce the concept of observation, which – within system-theory – serves to broaden the originally biological concept of autopoiesis to fit for sense-systems [...]. Observations are thus specific operations, utilising fundamental differences to distinguish between one – or the other – side of that difference. Although observations are themselves operations as well [...], we nevertheless need to clearly differentiate: As soon as we speak of an observation, we are directed towards sense-processing systems, because only those possess the ability to 'gentrify' operations to become observations, serving to gain information.

With Wiltsche's considerations it becomes clear that the possibility of system-internal observations or self-observations is intrinsically linked to the processing of *sense* within a system. But with the notion and necessity of *sense* one adds – as reflected in Husserl's differentiation between stuff- and noetic stratum – a new dimension to otherwise supposedly biological processes.

4.5.2. Affectedness and the Ego

With what I have discussed so far it is already clear that the tension, created at the beginning of this chapter, between Husserl's move towards the ego and Varela's supposedly ego-less position cannot be upheld any longer. I thus need to provide a clearer picture of Varela's actual take on the ego issue. Obviously – and quite in keeping with his refutation of ontological vitalism – Varela will still have to oppose a substantial ego, but as I have maintained so far, that must not rule out any other form of ego, as long as these are not mystical ones. And in fact, Varela accepts an "ordinary ego-self", just as Husserl did. But Varela's ego resides in the self-less mechanical patterns of

possible dispositions within a dynamic network of an autopoietic, self-referential system (Rudrauf et al., 2003: 54). Varela also claims that affectedness is prior to knowing. To assess the adequacy of his account of the ego I will clarify: a) the process-bound ego and b) a seeming difference between an affected and a knowing ego.

a) *A Process-Bound Ego*

Varela's originary ego manifests itself via a pre-reflective affectedness (Rudrauf et al., 2003: 54), not unlike the one encountered in Husserl's second concept of consciousness (see section 3.3.2). But Husserl seems to move towards an ego that appears to be more of an individual ego than the *pure ego* of the *LI* (see discussion in sub-chapter 4.3). Already within Husserl's *Ideas I* there is a sense-bestowing act, supposed to constitute individual meaning for the experiencing consciousness within a sophisticated temporal structure, whereby experiences are always experienced as *mine*. Husserl's need for a more developed concept of the ego is, according to Bernet, Kern & Marbach (1989: 191), driven by two motives. Firstly, he has to maintain the unity of one stream of consciousness in relation to other's streams of consciousness, and secondly, he has to determine a concise concept of the cogito as an act of such an ego. Unfortunately, these two requirements are the source of some ambiguity within Husserl's work as he draws from these two different foci to define the ego. Guided by the question of how far Husserl's account could be incorporated into Varela's system-theory, I will – within this sub-section – mostly concentrate upon the second of these.¹⁷⁰

In *Ideas I* Husserl (Hua, III: 194) explains that

[a]mong the universal essential peculiarities pertaining to the transcendently purified realm of mental processes the first place is due the relationship of each mental process to the “pure” Ego. Each “cogito”, each act in a distinctive sense, is characterized as an act of

¹⁷⁰ While introducing Husserl's considerations regarding this ego-issue I am not aiming to provide an exhaustive account and assessment. My aim in this chapter is still to focus upon an attempt to run Varela and Husserl alongside each other to see if both accounts are somehow compatible with each other, as – if that were not the case – any application of phenomenological methods would probably be worthless for Varela.

the Ego, it “proceeds from out of the Ego,” it “lives” “actually” in the act.¹⁷¹

This notion of the ego, living through each act, fits with Varela’s process-bound ego, but such an ego is also the centre of its own world-experiencing life. Held (1963: 14) takes this ego’s liveliness as the facilitation for the intentional manifestations of the transcendent. Held (1963: 46) thus takes Husserl’s ego to be directed towards the world in objective passivity, sitting between retention and protention, bringing about the unmistakable individuality of a perspective via the perceived objects, perceived as *this and not any other*. In this respect the ego appears to be manifest in each and every act, placing an individual stamp upon every experienced now. However, such an ego, intervoven in all its experiences,

living in mental processes is not something taken *for itself* and which can be made into an object *proper* of an investigation (Hua, III: 195).¹⁷²

Such an ego is nothing in addition to its modes of relation (*Beziehungsweisen*) and modes of comportment (*Verhaltensweisen*), not accessible as such to investigative attempts, and that again matches with Varela’s take on this issue (see sub-chapter 2.3). Marion (1998: 191), by using boredom as an example, demonstrates how important Husserl’s “actual living” of the ego within its acts is:

The *I* that is bored abandons itself to boredom, but above all it quite simply abandons itself. For in not letting itself ever be called, or rather in never letting itself respond, not even to a call that comes from itself with a view to itself alone, it abandons that through which it could still say “I”; it becomes impersonal: I no longer am ...

But such a process-bound ego – even if it manifests itself within a *widened now* (see sub-chapter 4.4) – seems to face the danger, as Marion put it, of losing itself when the relevant processes are interrupted beyond the *widened*

¹⁷¹ *Unter den allgemeinen Wesenseigentümlichkeiten des transzendental gereinigten Erlebnisgebietes gebührt eigentlich die erste Stelle der Beziehung jedes Erlebnisses auf das „reine“ Ich. Jedes „cogito“, jeder Akt in einem ausgezeichneten Sinne ist charakterisiert als Akt des Ich, er „geht aus dem Ich hervor“, es „lebt“ in ihm „aktuell“.* (Translated by Kersten)

¹⁷² *Bei diesen eigentümlichen Verflochtenheit mit allen „seinen“ Erlebnissen ist doch das erlebende Ich nichts, was für sich genommen und zu einem eigenen Untersuchungsobjekt gemacht werden könnte* (Italics in original, translated by Kersten but slightly altered by the author)

now.¹⁷³ Although this discussion may seem to lead away from the mere *pure ego*, merging into the problem of an ego's identity maintenance, Husserl nevertheless offers an account for such an "identical pole of experiences" with what he calls the "substrate of habitualities" (Hua, I: 100) and an "identical, lasting unity" (*identisch verharrende Einheit*) (Hua, IX: 212ff.).

The habitualities capture individual convictions (*Überzeugungen*), which, as valid for me, belong habitually to me as the ego that is convinced. This lasting habitus provides the ego, as it manifests itself in its acts, with a lasting style or with a personal character (Hua, I: 101). The second concept captures the fact that

[t]he ego-pole has not only its changing precipitations, but also, throughout all these changes a unity that is constituted in this [*individual and recognisable T.F.*] style. The ego possesses its individuality, its individual overall-character, which identically permeates all decisions and past decisions¹⁷⁴ (Hua, IX: 215).

Husserl thus offers an account of an actually living ego that is nevertheless able to maintain its own identity over time via a stock of habitualities and by an individual overall character. As I noted before, Husserl phenomenology does not concern itself with the question of how these characteristics would be instantiated upon a biological system, or whether such an instantiation would be possible at all. And although I am not able to unpack every aspect of Husserl's account here, it nevertheless appears to fit Varela's system-theory. Husserl's habitualities allow Varela to account for re-occurring *deformations* to migrate into the biological substrate of an autopoietic system via ontogenic system-evolution, influencing subsequently emerging autopoietic processes (see sub-chapter 2.2).

¹⁷³ Locke (1706/1961: 37ff.) had already concerned himself with the problem of maintaining the ego as a personal identity over time and over periods of being un-conscious (sleep) especially in the first chapter of the second book.

¹⁷⁴ *Der Ichpol hat nicht nur seine wechselnden Niederschläge sondern durch ihren Wechsel hindurch eine in diesem Stil [individuell und herauserkennbar T.F.] konstituierte Einheit. Das Ich hat seine Individualität, seinen individuellen Gesamtcharakter, der durch alle Entscheidungen und Entschiedenheiten identisch hindurchgeht ...* (My translation)

Such a process-bound ego as it manifests itself within the relevant acts can nevertheless, via Husserl's habitualities or Varela's ontogenic system-evolution sustain a system's identity over time. And Varela even goes so far as to offer an explanation of how acquired features and traits migrate into the underlying biological substrate. Having cleared up this important issue, there is nevertheless one more issue to discuss within this chapter.

b) *An affected and a Knowing Ego?*

Varela's procedural and self-referential ego can not only be affected by its environment, but also in relation to itself (see sub-chapter 2.4), i.e., it can produce *descriptions* along the *consensual discriminants* by picking up aspects of its own affectedness. This is an iterative engagement with ensuing cognitive processes in relation to individual dispositions along the primary ego-processes. And that provides the context in which it is possible to sort Varela's statement about the 'I' as being affected before any 'I' that knows. Varela's primary affectedness on one side and the possibility for a subsequent cognitive engagement on the other makes it possible to speak about a "constitution of the self by itself" (Depraz, 1994: 73), i.e., the making a pre-reflective affectedness the theme for subsequent linguistic (cognitive) deliberations. The "originary ego-self" as it is experienced in its workings within a widened subjective 'now' becomes the self's self; the self is constituted by taking itself as a theme for itself. With such a notion of the self, as emerging within the relevant processes, Varela provides a self that is not a fixed vantage point from which, at any time, an assessment of all matters concerning the self would be possible. His notion of the self is more of a system-immanent possibility; a process that may emerge when needed or brought about by the relevant cognitive deliberations. Once again, Varela has not explicitly spelt out all the details, but his overall framework appears to be able to cater for the possibility of such an iterative engagement as a result of Varela's autopoietic systems with their self-referential locus of increasing complexity.

Expanding on this, Varela & Maturana maintain that a sufficiently complex autopoietic system gains the ability to be an observer of its own generated

linguistic states, and that such a system, via these recursive interactions, can interact with its own descriptive states as formed within the linguistic domain. Varela & Maturana (1980: 121) can thus explain that the system's ability to produce "self-linguistic descriptions" with itself as an observer of its own descriptive states reaches the "domain of self-observation and we [Varela & Maturana T.F.] consider that self-conscious behaviour is self-observing behaviour". This is a remarkable step and warrants a closer look. I discussed earlier how appropriately complex systems can treat their own linguistic states as *deformations* (see section 2.7.2). Hence, a system's self-consciousness can yield forming effects upon itself. The self (over time) alters not only in relation to its exposure to external stimuli, but also in relation to internal self-observations and the resulting migration of these self-observing *deformations* into the biological substrate via the ontogenic system evolution.

Nevertheless, the question remains as to whether Varela's account provides enough resources to cater for such self-observing processes. So far I have discussed

- a) the ability of autopoietic systems to engage in the self-observing behaviour of system-operations still reverberating within the temporal field (see sub-chapter 4.4) and
- b) that which Wiltche (2006) calls the gentrification of operations, allowing *meaning*-full observations (see section 4.5.1).

In that respect I suggest that Varela's account has indeed the resources to account for such a self-observing feature of autopoietic systems, although this is not always developed clearly enough in Varela's account.

It is apparent by now that Varela's ego-conception is much richer and complex than what I introduced at the beginning of this chapter for the purpose of creating a tension to guide this discussion towards the relevant aspects while assessing the compatibility of Husserl's and Varela's accounts. As discussed, Varela's ego-conception, while still remaining non-substantial, does match in many aspects Husserl's lived ego centre, and also – as I discussed briefly – Husserl's considerations regarding personal characteristics and personal identity. However, that still leaves the question regarding the issue of this

apparent split between an affected and a knowing ego that Varela mentions. As this split captures the important issues of self-observing behaviour and/or self-consciousness I briefly need to address this issue in this assessment of Varela's and Husserl's ego-conceptions. I am doing this despite the fact that exactly these aspects will find much more detailed considerations within the next chapter.

So far I have mostly discussed the notion of what Husserl (Hua, IX: 208) calls the un-reflected pole of identity (*unreflektierter Identitätspol*) and the functioning (*fungierendes*) ego. However, things get a bit more complicated when this functioning ego reflects upon itself, when it makes itself a theme for itself. Rinofer-Kreidl (2000: 494) explains this difference between the functioning and the thematic egos:

The thematic ego is the intentional object of reflective experiences, directed towards past experiences, under the condition that the reflecting as well as the reflected-upon experience belongs to the same consciousness. The functioning [*fungierend*] Ego is the one experienced within the current act, it is non-reflective (pre-objective) intentional directedness towards the object.

Husserl's thematic ego thus turns out to be the result of an intentional constitution whereby the self reflects upon pre-reflective intentional ego-functions. It thus appears as if Husserl's consciousness can – via reflection – become conscious of itself just as Varela & Maturana envisaged. But, the reflective relation that Husserl has in mind when dividing the thematic from the functioning ego is developed in relation to the investigative aim of phenomenology. Husserl needs the instantiation of an elevated observer-position to reflect upon the functioning of an ego and this functioning reveals itself first and foremost within the intentional relation bringing about the phenomena. Already within the *L*/ Husserl (Hua, XIX/1: 378) had maintained in relation to the psychological phenomena that these are

[a] sharply defined class of experiences [...], comprising all that enjoys mental, conscious experience in a certain pregnant sense of these words. A real being deprived of such experiences, merely having contents inside it such as the experiences of sensation, but unable to interpret these objectively, or otherwise use them to make objects

present to itself, [...] such a being would not be called 'psychical' by anyone.¹⁷⁵

Hence, for Husserl the ability to relate intentionally by the constitution of an appearing phenomenon is what makes a psychical (mental) being, and in order to investigate such a consciousness – how it comes about that consciousness can be conscious of something – Husserl does focus his reflective engagement upon the functioning ego in its intentional relations.

Despite the fact that some aspects of Varela's framework are in need of being fleshed out in much more detail, Varela's account regarding the possibility of a self-observing and self-conscious ego seems to fit with that of Husserl. Even more so, Husserl's account appears to accommodate phenomenological investigations from the first-person perspective. Varela's aim, i.e., the utilisation of phenomenology to forward his project of a new science of consciousness, seems to sit well with Husserl's phenomenology. And where Varela left unaccounted-for gaps, his framework appears to hold the needed resources to nevertheless accommodate Husserl's phenomenological conception of the ego-related issues as discussed so far, such that both accounts provide for an ego to cast a reflective gaze upon its own workings.

4.6. Chapter Summary

The overall question of this chapter concerned the first-person for both Husserl and Varela. Intuitively any first-person account, taking the 'I' as its origin, must depend on a subject. With Husserl's initial non-egological position in mind (see chapter 3) I first portrayed aspects of Varela's account that seem to indicate a non-egological position. Based upon a partial introduction of Varela's account I was able to define the first guiding issue for this investigation as the question of what sort of ego Varela's account delivers.

¹⁷⁵ *Eine scharf abgegrenzte Klasse von Erlebnissen tritt uns hier entgegen, die alles in sich fasst, was in einem gewissen prägnanten Sinne psychisches, bewusstes Dasein charakterisiert. Ein reales Wesen, das solcher Erlebnisse ermangelte, das etwa bloß Inhalte der Art, wie es die Empfindungserlebnisse sind, in sich hätte, während es unfähig wäre, sie gegenständlich zu interpretieren oder sonst wie durch sie Gegenstände vorstellig zu machen [...] ein solches Wesen würde niemand mehr ein psychisches Wesen nennen wollen.* (Translated by Findlay)

After following Husserl's development 'towards' an ego it turned out that Varela's systems-theory is also compatible with such an ego – an ego that provides individual coherence in its self-referential autopoietic processes (see section 4.3.1) but one that is non-substantial.

As Varela himself engaged with Kant, I looked at Kant's critical philosophy to introduce the notion of an empirical and a transcendental investigation (see section 4.3.2). Although my discussion of Kant remained brief, Varela favours an experiencing ego and will not settle for the impersonal agent that he takes Kant's ego to be. Husserl on the other hand aims to reveal the workings of consciousness by focusing upon enabling acts to investigate the structural conditions for the possibility for subjectifying acts. And again, the shared rejection of a Cartesian ego-substance, as well as their critical stance towards Kant's transcendent ego, leaves Varela and Husserl both aiming for a structural investigation in relation to conscious acts of a transcendental ego.

With this initial fit between Husserl and Varela in terms of the (now-) acceptance of an ego and the – in principle – transcendental direction of the investigation in place, I discussed the problem of how an autopoietic system, unfolding its processes in the 'now', could ever observe anything beyond this 'now'. To approach this difficulty I followed Husserl's differentiation between objective and subjective time. For the phenomenological investigation, only subjective time is available, and Husserl investigates the structures necessary to provide the experience of subjective time. The concept of retention with recession-phenomena provided a comet-tail of past 'nows' sinking in the past while still being part of the living present (*lebendige Gegenwart*). The concept of protention provided expectation-intentions to allow judgements regarding current perceptual series. Both concepts provide a temporal field, a temporal horizon according to which the now appears indeed widened. This widening of the now occurs in subjective time, hence it transcends the now-points of objective time.

This subjective time is – as I discussed – not a real problem for Varela; his notion of the *greater machine* already implied this and within the framework of system-theory it remains impossible to translate objective now-moments into such a system. In relation to Varela’s notion of interdependent dynamic processes Husserl indeed appears to provide a framework for the conceptualisation of these autopoietic processes. And in accepting Husserl’s theoretical support, Varela can also rely on Husserl’s account regarding the individual constitution of – judgement-based – *meaning* or *sense*.

By making a division between the stuff- and the noetic-strata, the latter containing both noesis and noema, Husserl is able to purify consciousness from its worldly influences in the form of physical-causal determination to engage in an investigation of the *a priori* structures needed to generate *meaning* and to accomplish sense-bestowal (see section 4.5.1). Husserl’s focus on the noetic-stratum makes his investigation different from any physical assessment of the stuff-stratum. But although Varela wants his systems to generate their own – individualised – *sense*, he does not discuss these issues in any detail.¹⁷⁶

Within a subsequent mop-up section I finally provided a more complete picture of Varela’s take on the ego-issue. Following Varela’s accounts and comparing them with Husserl’s phenomenology – in broad strokes – it became apparent that both Husserl’s and Varela’s egos manifest themselves within their ego-acts (Husserl) or processes (Varela). This now accepted ego is one that can nevertheless be shaped by previous encounters as well as one with an ability to reflect upon itself.

In this respect I solved the initial tension regarding the ego and I established – as far as this brief assessment warrants me to make such a claim – that

¹⁷⁶ It is open to speculation why this is the case – was it just not seen as a problem at all, was it an initial unfamiliarity with Husserl, as confessed by Thompson (2010), or was this silence pro-ordained by Varela’s methodological choices (see chapter 6)?

Husserl provides an account that promises to offer theoretical support to Varela's system-theoretical claims.

However, in terms of Varela's neurophenomenological proposal, it is important to be very clear about two direct implications of that which has been discussed so far:

1. Husserl's phenomenology is an attempt to capture emerging transcendent *sense* or *meaning* (as it manifests itself for the experiencing individual) by revealing the relevant transcendental structures. And this is by no means an empirical investigation of what Husserl calls the *stuff-stratum* in relation to supposedly represented mental contents. And it is here that one seems to end up with a certain two-sidedness of being:
 - a. a *sense*-generating/processing being, deriving individual *sense* from internal and external stimuli according to a given sense-horizon,
 - b. an empirical being which is subject to causal-physical investigations, remaining oblivious to individually emerging sense.
2. Husserl's phenomenology is a transcendental investigation of 1.a., regarding *a priori* structures, tracing the conditions of the possibility for consciousness to be conscious of something.

Varela's and Husserl's accounts appear to be compatible so far and Husserl's phenomenology has been able to support Varela's system-theory. But when it comes to running phenomenological accounts alongside scientific ones – and that is part of Varela's proposal – one must thus bear in mind that there are two different levels of description. Investigations starting at the *sense*-level may reveal *a priori* structures which need to be in place for *sense* to emerge, but will not provide access to biological system-processes. Beyond his commitment towards the irreducibility of experiences it is not clear that Varela is totally aware of all the emerging difficulties in this context.

However, to assess whether Varela's uniting proposal for a new science of consciousness is feasible, one has to remember that this proposal stands or falls with the possibility of a successful application of Husserl's phenomenological methods. Hence, whatever the problems of uniting scientific with phenomenological investigations may be, Varela's unifying project will not even come close to succeeding if Husserl's methods cannot yield the results envisaged by Husserl and if these results do not bear the potential to be of use for a scientific investigation as well. These issues will keep me busy within the next chapter.

5. The Suspension of Judgement

5.1. Introduction

I used the previous two chapters to run Varela's and Husserl's accounts alongside each other to assess their general compatibility. The first part of this investigation allowed me to argue that Varela's account is not harmed by Husserl's psychologism-critique (see chapter 3). However, Husserl's account provides an ordering in terms of investigative priority, placing phenomenology prior to any scientific investigation, which may have consequences for Varela's proposed pairing. Moreover, the phenomenological method necessitates a self-observational, reflective engagement of the experiencing subject. This reflective need brought the need for an experiencing ego to the forefront, and I argued that Husserl's and Varela's respective takes on the ego-issue are not incompatibly different (see chapter 4).

Nevertheless, Husserl adopts a concept of transcendence, according to which not only *that which is thought of* (noema), but also *the thought* (noesis) were taken to transcend consciousness. This was necessary for him, to enable a transcendental investigation of thought and contents with the aim of revealing the *a priori* structures of consciousness. This issue of Husserl's transcendental investigation will reappear throughout this chapter, but will only be fully addressed within the next two chapters (see chapters 6 and 7).

When it comes to Varela's proposal, so far it has been argued that:

- a) Varela's own system-theoretical account rests upon a biological foundation, allowing him to presuppose the core feature of *being alive* for these systems.
- b) The pairing between science and phenomenology is one with opposing claims for an investigative priority.
- c) Varela's system-theory appears to fit with the central tenets of Husserl's phenomenology in terms of there being a necessary structure of consciousness, a necessary observer-position for an experiencing ego, and an availability of such an ego to engage in self-assessments.

But while b) highlighted the difficulties of the proposed pairing, c) nurtured the hope that it might work nevertheless, and this despite the foundational gap a). But it does not suffice to allow for an observer position without any further account of what the observer is supposed to do from this very position. This is, then, where the practicalities of Husserl's phenomenology and Varela's proposed utilisation of these phenomenological methods need consideration. Varela himself envisaged the utilisation of phenomenological methods in a set of three steps: a) an alteration of attitude, b) a redirection of the investigative gaze and c) the ascertaining of invariants (see sub-chapter 2.8). This chapter will focus upon a), while b) and c) will be discussed in the subsequent chapters.

To achieve this I will first discuss Husserl's concepts of phenomenon, immanence and transcendence in relation to his overall project as a *critique of knowledge* (see sub-chapter 5.2). Building thus on the concept of Husserl's phenomena, it becomes apparent that phenomena can only be revealed by an investigation conducted by the experiencing subject in relation to its own experiences. But this was the methodological obstacle that Wundt's introspection (see section 1.2.2) could not master. So if Husserl does not merely want to present a reheated but otherwise unsuitable dish, he has to offer something more to make such a reflective engagement work. How that is supposed to work will be the focus of the next section (see sub-chapter 5.3). Here I will introduce a) Husserl's concept of the *natural attitude*, which outlines the horizon of our daily life and b) the proposed means to bracket this *natural attitude* which brings about that we naturally take *things* as existing, in the form of Husserl's discovery of the *epochē*.¹⁷⁷

As Varela wants to utilise the *epochē* to aid his project to found a new science of consciousness, virtually everything entailed in his neurophenomenology proposal seems to stand or fall with the actual, and scientifically verified possibility of performing such a suspension of judgement. That specific question warrants further and careful attention (see section 5.4).

¹⁷⁷ Husserl explicitly speaks of the "discovery" of his reductive method (Hua, VI: 246)

I will argue (see sub-chapter 5.4), that even scientific evidence seems to substantiate the fact that the *epochē* provides a possibility of disconnecting immediate experience from an individually co-present sense-providing horizon. This method may thus be scientifically appropriate for Varela in pursuing his goal of founding a new science of consciousness by taking at least the first (altering the attitude) of the above outlined three steps.

5.2. Phenomenon and Perspective

As I explained within the previous chapter, Husserl wants to utilise the transcendent noesis and noema for his transcendental-phenomenological investigation. However, the concepts of the noesis and the noema were already the investigative result of a method-driven purification (see section 4.5.1) and that aspect is still in need of a foundation, i.e., an account for the methodological solution that leads to the concept's purification. Husserl develops a solution in his 1907 *The Idea of Phenomenology*. Here Husserl (Hua II: 3) declares that the method for any *critique of knowledge* (*Erkenntniskritik*) must be a phenomenological one.¹⁷⁸ As this critique of knowledge is the starting-point for Husserl's justification of the phenomenological method, I need to devote more attention to this aspect (see section 5.2.1). This discussion will lead me to the distinction between immanence and transcendence which will need further consideration (see section 5.2.2). The subsequent section will trace how phenomenological observation is supposed to happen and what it is supposed to reveal (see section 5.2.3).

5.2.1. The phenomenological Project as a Critique of Knowledge

Husserl (Hua, II: 32) calls for a new science, a critique of knowledge that has the task of clarifying the essence of knowledge. But, he goes on to ask,

¹⁷⁸ Hardy, the translator of the newer edition of *The Idea of Phenomenology* translates Husserl's *Erkenntniskritik* as *critique of knowledge*, despite the fact that *Erkenntnis* is normally translated as *cognition*. In an earlier translation Alston and George Nakhnikian had chosen to translate it as *critique of cognition*. As the term *knowledge* has a wider extension than the probably unduly psychologically connoted term *cognition*, I will here use Hardy's suggestion when referring to Husserl's *Erkenntniskritik*.

how can such a science of knowledge in general get started? That which a science questions it cannot use as a pre-supposition. But what is in question is the possibility of all knowledge in that the critique of knowledge regards as problematic the possibility of knowledge in general and its capacity to reach the object.¹⁷⁹

Hence, a critique of knowledge cannot take any knowledge as given, but at the same time, as Husserl (Hua, II: 33) formulates it, without some initial knowledge to start with, there can be no further knowledge advancement, ergo, no science of knowledge. The problem of where to get an investigation started is one that I have already discussed in relation to Varela's *fundamental circularity*, i.e., the problem of where to start a scientific investigation regarding human experience when all these investigations seem to start from tacit presumptions (see section 2.8.1). This problem cannot be solved by particularising scientific assessments regarding an identified functional nexus; such an assessment would only form a *greater machine* (see sub-chapter 2.3 and discussion in section 2.8.3). Varela had thus reached the point beyond which scientific investigations could not guide any further investigations of consciousness. His decision to turn towards a first-person perspective was thus motivated by difficulties not unlike the ones Husserl faced, and in an attempt to solve these difficulties Varela turns to Husserl's phenomenology. Varela thus puts a demand upon Husserl to provide a solution for this *fundamental circularity*, to be solved by Husserl in relation to his concerns regarding the founding of a presumption-less critique of knowledge.

Husserl's term *Erkenntniskritik* – critique of knowledge – implies that knowledge itself is “called into question” (Hua, II: 29), that its apparent validity is critically challenged by an appropriate method, against a set standard of purity. That, however, seems to beg the question of how a critique of knowledge, as being based upon knowledge itself, could ever be possible. Although this almost sounds like a boot-strapping exercise, Husserl (Hua, II:

¹⁷⁹ *Wie kann sich aber eine solche Wissenschaft von der Erkenntnis überhaupt etablieren? Was eine Wissenschaft in Frage stellt, das kann sie nicht als gegebenes Fundament benützen. In Frage gestellt ist aber, das die Erkenntniskritik die Möglichkeit von Erkenntnis überhaupt, und zwar hinsichtlich ihrer Triftigkeit als Problem setzt, alle Erkenntnis.* (Translated by Alston and George Nakhnikian)

4) explains that this question is only seemingly one. *Calling into question* does not at all entail that everything needs to be denied or that anything and in every possible sense would need to be subjected to doubt. Husserl thus leaves an apparent possibility for some sort of knowledge which is not called into question by this knowledge-critical endeavour. In this respect one important question emerges:

What sort of knowledge would qualify for Husserl to be beyond being critically *called into question*?

This leads to the issue of immanence and transcendence.

5.2.2. Immanence–Transcendence

In trying to get a secure grip on Husserl's notion of immanence it is probably best to start with a very general characterisation of the Latin *in manere* (to stay within). Immanence thus denotes the fact that a determined area will not be left, or – alternatively – that immanent contents remain uninfluenced by outside interferences. From this general definition one could now draw – figuratively speaking – an enclosing circle around consciousness, and would be left with an epistemological conception of immanence, i.e., a concept referring to that which goes on within consciousness. But such a picture may evoke the temptation to put immanence into a crude binary opposition with that which is to be found on the outside, i.e., that which would be transcendent to consciousness. So one might end up with a consciousness filled with nice images of objects, that are presumed to be out there, but that one could never be sure about the reality of.

This is the background for Husserl (Hua, XIX/1: 366) to take issue with Brentano's claims regarding inner and outer perception (see section 3.3.4). Brentano differentiated outer perception, to be brought about through the sense-organs, from inner perception, characterised as an awareness of one's mental acts. Instead of Brentano's *inner–outer* perception, Husserl prefers to speak about *adequate* and *inadequate* perception. Hence, Husserl wants a perception to be classified by its suitability, sufficiency or appropriateness.

Husserl speaks about *Wahrnehmung*, and the German term *Wahrnehmung* stands – literally translated – for *taking something to be true*.¹⁸⁰

But when it comes to Husserl's *Wahrnehmung* (perception) one has to remember Husserl's alterations to Descartes' claim that what is perceived *clear* and *distinct* must be the truth. Earlier (see section 3.3.2) I explained how Husserl changed the balance here, putting more weight on the *clear* and less weight on the *distinct* side of the scale, while nevertheless gaining an evidently true perception, one that is invariably steeped in an apparent *mine-ness*, so much so that I cannot doubt it. And that is the crux here: Husserl provides an account for a sort of experience that appears to be able to withstand the Cartesian doubt and that thereby cannot be *called into question*. Although this move thus allows for a perception beyond doubt, it still lacks assurance that what is actually perceived stands in a meaningful relation with the world. And that is where the qualification of any perspectival experiences as either *adequate* or *inadequate* comes in.

The crux of Husserl's attempt to provide an account of adequate, immanent knowledge – being able to a) withstand universal Cartesian doubt and b) to tell something about the world out there – is that Husserl breaks with Brentano. The latter held that only psychological acts appear evidently within inner perception.¹⁸¹ Husserl maintains that “not only acts are immanent, but also the sensuous contents, as these are equally given via inner perception” (Costa, 2010: 150). By incorporating these phenomenologically purified real aspects of the stream of consciousness, i.e., by allowing the *reelle* parts to contribute as well (see section 3.3.1), Husserl is able to offer an account of what he calls the ideal of ultimate fulfilment (*das Ideal der letzten Erfüllung*), which I need to explain in more detail.

Based upon the perceptive series as it moves through time, stringing one now-moment to the one that has just been (see sub-chapter 4.4) intentionality

¹⁸⁰ I have already mentioned this in a foot-note within section 3.3.2.

¹⁸¹ Brentano writes about psychological acts, but the English translation uses *mental acts*.

strives towards fulfilment in terms of its protentional anticipation but is limited by an always and inherently incomplete series of adumbrations. Nevertheless, within this graded fulfilment, which spreads over the intensive series, Husserl (Hua, XIX/2: 647) proclaims an emerging character of fullness (*Fülle*), which is part of the aperceptive act-character (*auffassender Aktcharakter*) (see section 3.3.4). Hence, a sufficient fullness brings it about that one takes some elements “as final presentations of the corresponding objective elements”, not only as “mere representatives” but instead as “the *thing itself* in an absolute sense.”¹⁸² Husserl’s (Hua, XIX/2: 647) fullness, as something to be strived towards, is

*a goal in which increase of fulfilment terminates, in which the complete and entire intention has reached its fulfilment [...] ultimately and finally [...]. Where a presentative intention has achieved its last fulfilment, a genuine adaequatio rei et intellectus has been brought about. The object is actually ‘present’ or ‘given’, and present as just what we have intended it...*¹⁸³

This is then an *adequate* relation between an objectifying (intentional) act and its objective correlate – i.e., the things out there. As part of the objectifying act, there is the “*full agreement* of what is meant with what is *given as such*” and this “*agreement we experience in self-evidence*” (Hua, XIX/2: 651).¹⁸⁴ With this move Husserl offers a means by which to undercut the danger of scepticism-induced solipsism that threatens his immanence-based account. By including the *reelle* (sensuous) aspects along with the concept of experienced fullness, providing immanent evidence of an adequate relation

¹⁸² *Danach gilt uns [...] manches Element der Fülle als endgültige Präsentation des entsprechenden gegenständlichen Elements: es gibt sich als mit ihm identisch, nicht als sein bloßer Repräsentant, sondern als es selbst im absoluten Sinne.* (Translated by Findlay, italics in original)

¹⁸³ *So weist die Erwägung der möglichen Erfüllungsverhältnisse auf ein abschließendes Ziel der Erfüllungssteigerung hin, in dem die volle und gesamte Intention ihrer Erfüllung [...] eine endgültige und letzte Erfüllung erreicht hat. [...] Und wo sich eine Vorstellungsintention durch diese ideal vollkommene Wahrnehmung letzte Erfüllung verschafft hat, da hat sich die echte adaequatio rei et intellectus hergestellt: das Gegenständliche ist genau das, als welches es intendiert ist, wirklich „gegenwärtig“ oder „gegeben“ ...* (Translated by Findlay, italics in original)

¹⁸⁴ *... die volle Übereinstimmung zwischen Gemeinten und Gegebenen als solchem. Diese Übereinstimmung wird in der Evidenz erlebt ...* (Translated by Findlay, italics in original)

between what is meant within the intentional act and the object toward which this act is directed, Husserl can maintain that he is able to account for the emergence of knowledge. However, this account nevertheless does not warrant Husserl to make any claims about the nature or the existence of the world outside, other than those that are experience-based. Husserl (Hua, XIX/1: 26) acknowledges this by stating that such a question would be a metaphysical one, no longer within the phenomenological remit. But – and this is the issue here – choosing to remain ambivalent towards the existence of a world outside is something completely different from a solipsistic denial of such a world.

So far I have elaborated upon the *reelle* immanence, which makes adequate given-ness experientially available as a fit between the *reelle* parts of the stream of consciousness and *what is meant*. Hence, so far, Husserl has provided an experience-based account of how *meaning for me* is constituted and how I can *have something present in direct intuition*. However, although experience-based *meaning* is not fixed by a causal relation, the possible experiences that I could have are linked to the spatio-temporal situation of my body. I thus experience the world and I *have a world* via my body. It goes without saying that such an account appears to be highly relevant to Varela, who also proposes system-internal ‘descriptions’ of external objects. Husserl’s account of how these acts gain an experiential fullness, indicating their match between available sensuous contents and that *which is meant* seems to open the possibility of Varela establishing some sort of a link between the level of scientific descriptions and that of emerging *sense* or *meaning*,¹⁸⁵ i.e., linking aspects of the spatio-temporal body with its specific and unique perspective to what is sensed from this individual perspective. It is to be assumed that Husserl’s immanently felt character of *fullness* could be accounted for in Varela’s overall framework as some evolutionary feature that sees to the fact that perceptions – in order to be just that – remain normally close enough to

¹⁸⁵ ‘Sense’ in the system-theoretical terminology, ‘meaning’ in Husserl’s terms.

the objects of the world to safeguard prolonged system-maintenance.¹⁸⁶ Nevertheless, this is still not the full picture.

5.2.3. The Phenomenon

Phenomenology concerns itself with a *critique of knowledge*, rejecting all “natural objectivations” and empirical judgements to reach a secure epistemological foundation (Hua, XXIV: 217). But, by “up-lifting” (*erheben*) myself from a “natural consciousness” I also rise from “empirical” consciousness to a “phenomenological” one; I thus gain, via the immanence of the *cogitations*, access to experiences, and these experiences point towards “an experiencing ego, towards an experiencing individual, a mental individual.”¹⁸⁷ (Hua, XXIV: 212) This is the point where the question emerges of how far a phenomenology as a “universal science of consciousness” could reach, how far phenomenology could analyse the “pure phenomena” and determine the essential laws of consciousness (Hua, XXIV: 219). To answer this question it is necessary to have a clear understanding of Husserl’s concept of the phenomena, something I aim to provide in this sub-section.

Husserl (Hua, XXIV: 212) starts with the case of natural cognition (*Erkenntnis*), which is available to myself. In a simple investigative step it is – so Husserl claims – possible for us to assess our own experiences regarding this cognition (*Erkenntniserlebnisse*). And this seems plausible: I can indeed remember seeing a lot of faces, trying to spot my wife in a crowd and the eventual warm feeling that overcame me when I recognised her amongst the others. It thus appears entirely possible to separate the actual perception from recollection and anticipation and so on, and this allows me to access my own experiences. For Husserl, within this natural attitude the having of these (natural) cognitions depends upon what he calls a *positing of an ego* (*Ich-Setzung*). Although the act of experiencing cannot be doubted, the positing of

¹⁸⁶ See also the discussion about McDowell’s feature of object-dependence as discussed in section 3.3.4.

¹⁸⁷ *Vom natürlichen Bewusstsein muss sich die Erkenntnistheorie [...] vom empirischen zum phänomenologischen erheben. Wir sprechen also zunächst von „Erlebnissen“, ein Ausdruck, der also hinweist auf ein erlebendes Ich, auf ein erlebendes Individuum, geistiges Individuum.* (My translation)

the ego is something that goes beyond the pure experience. And by means of a reduction,¹⁸⁸ Husserl wants to put this positing of the ego into question as an *accomplishment* in itself, and to thus suspend any judgement regarding the existence of this ego. It is important to be clear about the fact that this required attitudinal ambiguity does not at all equal an annihilation of the ego; I just need to refuse to make any judgement regarding its existence (see section 5.3.2). With this suspension Husserl (Hua, XXIV: 212) turns the judgemental *ego-positing* into a “positing phenomenon” (*Setzungsphänomen*). And this phenomenon concerns everything entailed in the positing of the ego as it happens within normal cognition. But by suspending the judgement I gain access to the “ego-phenomena” (*Ich-Phänomen*), i.e., it becomes possible to investigate this positing of the ego, which – within the natural attitude – appeared to be given and not available to investigation at all.

However, that is not where Husserl stops. He wants the suspension of the positing judgement to include all the natural relations of the ego, its physical surroundings, the world and even objective time and space as far as these are conscious. Husserl (Hua, XXIV: 213) explains that the suspension of the positing of “the continuance of a matter of fact, the existence of a thing (*Sache*) [*must not T.F.*] be taken to be valid.”¹⁸⁹ And this further suspension of judgment leads Husserl to the “phenomenon of the perception of an ego” (*das Phänomen „Wahrnehmung des Ich“*).

Nevertheless, these perceptions – as long as they are actual, natural perceptions – are also based upon the belief (*Glaube*) that these objects exist. These perceptions posit the objects as actually present. And it is again this belief in the object’s existence that needs to be suspended. Husserl (Hua, XXIV: 213) wants to switch this belief off – “I will not make use of this belief” – to be able to turn perception into the phenomenon “perception” (*Phänomen „Wahrnehmung“*). And with these phenomena (ego, perception of an ego and

¹⁸⁸ Details about the natural attitude as well as the reduction, but also about the suspension of judgement will be discussed in the following chapters.

¹⁸⁹ ... *der Bestand eines Sachverhaltes, die Existenz einer Sache [darf nicht] als gültig in Anspruch genommen werden.* (My translation)

perception) Husserl – at this stage – explains that the sphere of phenomena – in the sense of phenomenology – is comprised by

every actual perception, every actual judgement, itself as that which it is, but nothing of what is perceived or judged in these, what is posited or implicitly co-positioned in a transcendent sense.¹⁹⁰ (Hua, XXIV: 213)

However, this collection of phenomena, now available via the suspension of any positing beliefs, remains somehow incomplete in terms of what is the actual content of perceptive phenomena as experienced by me. I have already discussed Husserl's move to bracket the positing belief regarding an appearing object, what Sommer called *stripping the object of its existence* to gain the noema (see sub-chapter 4.5). And that is actually how Husserl gets round this problem of turning the transcendent object into a subject for a phenomenological investigation. Husserl (Hua, XXIV: 213) explains that the phenomenologist must look at the phenomena, but also at the things that manifest themselves or which are meant (as effected by thought) within these phenomena. Any investigation regarding the essential structures of consciousness must include

each and every thing, ergo everything transcendent as well: but we cannot preform a positing with regards to its existence.¹⁹¹ (Hua, XIX: 213)

And with this suspension of any existence-implying positing Husserl has made available a transcendent content as it is immanent within the perceptual phenomenon. Hence, this all results in an ability to investigate the essence of this immanently available content.

5.3. The *Ēpochē*

As discussed within the previous section, Husserl's phenomena are gained by the suspension of a positing attitude. This brings the topic of this attitudinal relation towards the world into focus. Therefore I want to start the discussion regarding the suspension of judgement in the form of Husserl's *ēpochē* with a

¹⁹⁰ ... jede aktuelle Wahrnehmung, jedes aktuelle Urteil, es selbst als das, was es ist, nichts aber von dem, was in ihm wahrgenommen, geurteilt, in transzendente Sinne gesetzt oder implizit mitgesetzt ist. (My translation)

¹⁹¹ ... also auch alles Transzendente: Nur dürfen wir keine Setzung vollziehen hinsichtlich eines „Daseins“. (My translation)

brief and general introduction to attitudes (see section 5.3.1). As a next step it is important to gain a clear focus on Husserl's 'natural attitude' (see section 5.3.2), to subsequently introduce the *epochē* as an attempt to break away from the natural attitude by suspending judgement (see section 5.3.3). However, when discussing the *epochē* it is necessary to be aware of Husserl's ambiguity in the usage of the term.¹⁹² As much as the *epochē* promises to open up a perspective upon the way in which the transcendental ego manifests itself within consciousness and/or achieves the constituting positing, I will – at the moment – specifically discuss the phenomenological, the universal *epochē* as Husserl develops it within *Ideas I*.

5.3.1. Attitude and Attitude-Change

If an attitude is taken to be something like a settled way of thinking about or relating to something or someone (or even oneself) with subsequent implications upon our reactive repertoire, then attitudes appear to be some sort of mediating device allowing us to relate to experiences in a certain pre-set way. And it is probably tempting to think that if it would be possible to recognise/identify well-loved or much-hated, but most frequently tacit, attitudes then it might be possible to wriggle a way out of the constraints they impose upon us. There seems to be a general ability to recognise at least some attitudes, and it seems perfectly possible to put these recognised attitudes out of action or to adopt an alternative attitude. In that respect it seems safe to claim that attitudes provide a possible horizon within which experiences are sorted to make sense out of them. Even more so, these attitudes are not a fixed given, they can – at least partially – be adopted, discarded and exchanged for others.

5.3.2. The General Thesis of the Natural Attitude

These general comments about attitudes in general lead me back to Husserl. He (Hua, III: §§ 27 ff.) starts his methodological considerations with what he calls the *thesis or positing of the natural attitude* (*Thesis der natürlichen*

¹⁹² Staiti (2010: 84) explains that this is owing to the fact that the *epochē* is closely linked to the phenomenological and the transcendental reduction. Husserl therefore uses both terms (*epochē* and reduction) synonymously at times.

Einstellung) and he proposes a method to overcome exactly this natural attitude by switching it off (*Ausschaltung*) or bracketing it (*Einklammerung*). These are thus two equally important aspects a) a natural attitude which enables the positing (*setzen*) of what one encounters and b) a methodological proposal to put this natural attitude out of action. Within this subsection I shall remain focused upon a), while b) will be discussed later (see sub-section 5.3.3).

When considering the natural attitude, it is best to quickly remember the scientific assessment of psychological functions (see chapter 1) as cognitive psychology utilises them. To ascribe the term function to a certain observed event, the psychologist has to presuppose a certain purpose that makes that event a function to achieve the presupposed goal.¹⁹³ But – although the event may still be observed – it may just be the case that it happened accidentally or out of totally different purposes with totally different goals. The point is that the constitution of sense remains – both for Husserl and Varela – an individual achievement. Even more so, such a sense-bestowing achievement does not realise itself in a particularised manner: sense emerges in relation to all other possible relational connections (see chapter 4), sense-bestowing happens within a sense-horizon. This is the underlying thought, the one that has to be kept in mind when Husserl introduces the natural attitude by developing a layered structure describing the way in which the world is encountered. Life itself entails being aware of living in a world as an endless space, but also endlessly becoming in time. I find objects within this space as present, and this presence within my perceptive field (*Wahrnehmungsfeld*) is not dependent on me devoting my attention to all these objects. They are merely there, co-present (*mitgegenwärtig*), forming a surrounding environment of which I am immediately aware as well (*unmittelbar mitbewusste Umgebung*) while I am directing my attention towards a specific object within my perceptive field. So perceiving one specific object always entails a non-conceptual knowing of co-present objects. But for Husserl (Hua, III: 57) the world does not exhaust itself

¹⁹³ Subject *A* does that to achieve this...

with these co-present environments encircled (*umringt*) by ones perceptive field:

[o]n the contrary, in the fixed order of its [*the world T.F.*] being, it reaches into the unlimited. What is now perceived and what is more or less clearly co-present and determinate (or at least somewhat determinate), is penetrated and surrounded by an obscurely intended to horizon of indeterminate actuality.¹⁹⁴

And although it is possible to send out illuminative rays into this horizon, to direct attention towards this empty mist of obscure indeterminacy (*dunkle Unbestimmtheit*), in which

only the 'form' of the world, precisely as 'the world', is pre-delineated¹⁹⁵

this mist-like horizon is nevertheless always present. Even more so, as much as every object is spatially surrounded by a co-present environment and an indeterminate horizon, so every object is also surrounded by a two-sided, endless temporal horizon, a known or an unknown, a living or a life-less past and future (see the earlier discussion in sub-chapter 4.4).

The importance of these horizons for Husserl's considerations is that they reach beyond the actual, attended-to experiences. Although it is always possible to attend and specify aspects of this horizon, any such attempt would only result in the newly attended-to object being itself surrounded again by yet another horizon. Husserl's horizons provide thus an always co-experienced web of interrelated reference, pointing towards past and future, towards the spatial arrangement of the environment and thus towards an open spatio-temporal possibility.

For Husserl (Hua, III: 58) all conscious acts, including explication and conceptualisation as well as acts and states of emotions and of willing, are related towards this world. While living along naturally, as Kersten translates

¹⁹⁴ *Sie reicht vielmehr in einer festen Seinsordnung ins Unbegrenzte. Das aktuell Wahrgenommene, das mehr oder minder klar Mitgegenwärtige und Bestimmte (oder mindestens einigermaßen Bestimmte) ist teils durchsetzt, teils umgeben von einem dunkel bewussten Horizont unbestimmter Wirklichkeit.* (Translated by Kersten)

¹⁹⁵ *... und nur die "Form" der Welt, eben als „Welt“, ist vorgezeichnet.* (Translated by Kersten)

Husserl's *natürliches Dahinleben* (Hua, III: 59), we find ourselves always living within this fundamental form of all actual living (*Grundform alles aktuellen Lebens*), i.e., within the natural attitude. And this living along naturally – within the natural attitude – is what Husserl (Hua, III: 61) calls the *General Positing which characterises the Natural Attitude* (*Generalthesis der natürlichen Einstellung*):

I find the “actuality”, the word already says it, as a *factuality existent actuality and also accept it as it presents itself to me as factually existing*. No doubt about or rejection of data belonging to the natural world alters in any respect the *general positing which characterizes the natural attitude*. “The” world is always there as an actuality...¹⁹⁶

As discussed already (see chapter 3, but also section 5.2.1) the existing sciences are not able to go beyond this referential web provided by the natural attitude. They do not have the means to distinguish the essences from the sensory mass in which they are embedded (Hintikka, 1995: 101), that is they still remain in the natural attitude, although this specific natural attitude is comprised by just another sort of – scientific – references within the horizon of an individual's world (Hua, III: 61). So Husserl works on the notion of a natural attitude which provides a spatio-temporal horizon of reference whereby the world as one experiences it is experienced as an actuality, i.e., its existence is always already taken for granted and it is posited as such. Without wanting to expand on this, these horizons fit well with Varela's system-theoretical account regarding the creation of *sense* by individualised actualities brought about by establishing one and not another referential relation out of the multitude of the referential relations, i.e., Luhmann's *Verweisungszusammenhang* (see sub-chapter 2.7)

5.3.3. The Bracketing of the General Thesis: The *Épochē*

As early as 1905 Husserl had discovered the method of reduction, and in *Ideas I* he uses this methodological reduction as a means to achieve a radical alteration of the natural positing (*Radikale Änderung der natürlichen Thesis*)

¹⁹⁶ *Die “Wirklichkeit”, das sagt schon das Wort, finde ich als daseiende vor und nehme sie, wie sie sich mir gibt, auch als daseiende hin. Alle Bezweiflung und Verwerfung von Gegebenheiten der natürlichen Welt ändert nichts an der Generalthesis der natürlichen Einstellung. „Die“ Welt ist als Wirklichkeit immer da* (Italics in original, translated by Kersten)

(Hua, III: 61). To introduce this radical alteration Husserl (Hua, III: 62) specifies that

[t]he general positing, by virtue of which there is not just any continual apprehensional consciousness of the real surrounding world, but a consciousness of it as a *factually existing* “actuality”, naturally *does not consist of a particular act*, perchance an articulated judgment about existence.¹⁹⁷

What Husserl is saying here is that the general positing is not to be understood as a single act – something to be added as the *world-constituting icing on the cake*. The general positing as a web of references constantly presents the world as an actuality to consciousness. This mundane background noise, if one wants to call it this, constitutes the world for us and this does not necessitate any articulated judgments about the existence of these constituent parts; they are always presented as “there” or “on hand” (*da oder vorhanden*) for us within the natural attitude. But

it is essentially possible to base on this characteristic [*of being “there” T.F.*] an explicit (predicative) judgment of existence agreeing with it (Hua, III: 62).¹⁹⁸

Ergo, for Husserl it lies totally within our abilities to single out one specific object from the factual world as it is presented by the potential and inexplicit positing (*potentielle und nicht ausdrückliche Thesis*) and relating to this particular object, and by taking it as existing, engaging in an explicit positing judgment (*ausdrückliche Urteilsthesis*).

Husserl’s (Hua, III: 62) next move is to remind us how Descartes’ method of doubt, “a procedure, possible at all times”, belongs to the “realm of our perfect freedom”. However, Husserl is not interested in a universal Cartesian attempt to doubt everything (*universeller Zweifelsversuch*). Husserl’s emphasis upon immanence resulting in apparent clarity, able to withstand all doubt (see section 5.2.2) and with it the adumbrations that allow for a lesser degree of

¹⁹⁷ *Die Generalthesis, vermöge deren die reale Umwelt beständig nicht bloß überhaupt auffassungsmäßig bewusst, sondern als daseiende „Wirklichkeit“ bewusst ist, besteht natürlich nicht in einem eigenen Akte, in einem artikulierten Urteil über Existenz.* (Italics in original, translated by Kersten)

¹⁹⁸ *... ein Charakter, auf den sich wesensmäßig gründen lässt ein ausdrückliches (prädikatives) mit ihm einiges Existenzurteil.* (Translated by Kersten)

distinction (see section 3.3.2) affords Husserl the means to tame Descartes' universal doubt. Husserl applies it to the positing, but not to the legitimacy of intuition. Husserl (Hua, III: 51) captures this limiting move with his principle of all principles (*Prinzip aller Prinzipien*):

that every originary presentive intuition is a legitimizing source of cognition, that everything originarily [...] offered to us in "intuition" is to be accepted simply as what it is presented as being¹⁹⁹

Husserl is thus giving an account according to which whatever appears in my consciousness – as a principle – is the legitimising source for all my cognitions and thus beyond doubt, but what can be doubted is the positing as effected by the natural attitude. To avoid this positing Husserl (Hua, III: 63) proposes his method to be

something wholly peculiar. We do not give up the positing we effected, we do not in any respect alter our conviction which remains in itself as it is as long as we do not introduce new judgments [but rather T.F.] the positing undergoes a modification: while it in itself remains what it is, we, so to speak, "put it out of action" we "exclude it," we "parenthesize"²⁰⁰ it²⁰¹.

Husserl's method is supposed to leave the natural attitude as still experienced but not utilised (*erlebt, aber nicht gebraucht*). Husserl (Hua, III: 64) refers to this method as *epochē*, a term already used in ancient Greek philosophy and there linked with the sceptic position of Pyrrho of Elis.²⁰² But quite different from

¹⁹⁹ *dass jede originär gebende Anschauung eine Rechtsquelle der Erkenntnis sei, das alles, was ich uns in der "Intuition" originär [...] darbietet, einfach hinzunehmen sei, als was es sich gibt...* (Italics in original, translated by Kersten)

²⁰⁰ Kersten translates Husserl's *aus- oder einklammern* as parenthesizing, while other English speaking authors have chosen to translate this as bracketing.

²⁰¹ *Es ist vielmehr etwas ganz Eigenes. Die Thesis, die wir vollzogen haben, geben wir nicht preis, wir ändern nichts an unserer Überzeugung, die in sich selbst bleibt, wie sie ist, solange wir nicht neue Urteilmotive einführen [...] und doch erfährt sie eine Modifikation – während sie in sich verbleibt, was sie ist, setzen wir sie gleichsam „außer Aktion“, wir „schalten sie aus“, wir „klammern sie ein“.* (Italics in original, translated by Kersten)

²⁰² Pyrrho was concerned with what he saw as an in-principle un-decidable balance of *reasons for* and *reasons against* a decision. He therefore drew the theoretical conclusion to suspend judgment and as thus no statement would be possible at all, to remain silent in order to reach inner peace and stability (Röd, 1994: 215). Husserl re-introduces the term *epochē*, and this despite its historical sceptic connotations; but in doing so, Husserl is pursuing a different goal as for him the *epochē* is a method quite apart from Descartes' universal doubt.

Pyrro's all-inclusive, constantly maintained endeavour, Husserl's *epochē* is the method by which to achieve a certain refraining from judgement (*eine gewisse Urteilsenthaltung*) in specific cases.

5.4. The Problems with a Suspension of Judgement

Husserl's *epochē* is thus the gateway into any kind of application of phenomenological methods. The *epochē* as such is not uncontested,²⁰³ but for current purposes I will have to focus upon three main-issues: it is important to address a) the danger of an assumed totality of the *epochē* (see section 5.4.1); and as Varela wants to utilise the alteration of attitude for his proposal to unite phenomenology and cognitive science, it is necessary to assess b) the actual possibility to perform the *epochē* (see section 5.4.2) and to outline c) the use-value of such an *epochē* (see section 5.4.3).

5.4.1. The Danger of an Assumed Totality of the *Epochē*

As discussed, Husserl's starting point is Cartesian (see section 3.3.2), and in this respect one may be tempted to view Husserl's *epochē* as a variation of Cartesian universal doubt. And indeed Husserl himself may be partially responsible for this, as he associates the *epochē* "a little too closely with the 'methodological doubt' of Descartes" (Overgaard, 2004: 42) Such proximity could then entail the danger of the *epochē* being a world-excluding exercise and thus merging into a solipsistic position.²⁰⁴ I suggested (see discussion in section 2.7.1) that Varela was able to evade this danger by situating his system in a world that matters; and Husserl suggests something similar.

Husserl (Hua, III: 65) wants to replace universal Cartesian doubt with his *epochē*, which he therefore defines in a sharply determined and new way. To avoid a complete suspension, which would exclude all objectivity that could be judged (*jede beurteilbare Gegenständlichkeit*), Husserl (Hua, III: 65) limits the universality of the *epochē*. Husserl's *epochē* is an exercise in abstinence from any supposition of judgments. And this is the crucial difference between Husserl's *epochē* and Cartesian universal doubt: within Husserl's *epochē* the

²⁰³ See for example Blumenberg's 2007 *Zu den Sachen und zurück*.

²⁰⁴ For a more in-depth discussion of this issue see Overgaard (2004: 43).

world as presented via the natural attitude is continuously there for us (*beständig für uns da*), it is neither doubted nor negated, but within the phenomenological *epochē* every judgment about spatio-temporal being (*räumlich-zeitliches Dasein*) is merely suspended.²⁰⁵ And in this respect Husserl's *epochē* is not world-excluding at all and has to be understood in relation to his overall aim, i.e., his concern with

precisely the real world, or better, the existence of that world nevertheless. (Overgaard, 2004: 43)

Or, as Husserl (Hua, III: 174) explains himself:

Figuratively speaking, that which is parenthesised is not erased from the phenomenological blackboard, but only parenthesised, and thereby provided with an index. As having the latter it is, however, part of the major theme of inquiry.²⁰⁶

Husserl's *epochē* thus does not lead into the realm of solitary subjective acts and can thus withstand the lurking danger of solipsism.

5.4.2. The Possibility to Perform the *Epochē*

I have already mentioned some critical comments regarding the relation between science and phenomenology,²⁰⁷ and indeed the phenomenological methods in particular have received a rather critical reception by the sciences.²⁰⁸ One major problem is captured – for example – by Searle (1994: 97) who claims that

The very fact of subjectivity, which we were trying to observe, makes such an observation impossible. Why? Because where conscious subjectivity is concerned, there is no distinction between the observed and the thing observed. [...] Any introspection I have of my own conscious states is itself that conscious state.

²⁰⁵ This is what Sommer (2009: 89) described as Husserl's move to deprive the objects of their existence (see discussion in sub-chapter 4.5).

²⁰⁶ *Bildlich gesprochen: Das Eingeklammerte ist nicht von der Tafel weggewischt, sondern eben nur eingeklammert und dadurch mit einem Index versehen. Mit diesem aber ist es im Hauptthema der Forschung.* (Translated by Kersten)

²⁰⁷ See for example Wheeler's (2014) comments on the asymmetrical relation between science and phenomenology in sub-chapter 3.4.

²⁰⁸ See for example – as these will reoccur within our discussion – Wheeler (2014), Dennett (1991) or Searle (1994) to name a few of the many critical voices.

Such a position – if it were to hold – seems to imply an epistemological *a priori* impossibility of gaining direct assessing-access to ones own subjective states and thus renders any first-person methodology, including the *epochē* incoherent.²⁰⁹ Any subsequent assessment of the object under the bracketing *epochē* would be just another act, that of assessing, but not one concerning the previously held object.

To counter Searle’s claim one could simply employ an argument built upon the conceptual difference between introspection and the phenomenological method. I suggested that introspection implies a representational picture whereby the objects of outer perception are made available to the ego via inner perception, and that such a conception does not at all fit with Husserl’s constitutive account.²¹⁰ However, this objection could be silenced by the declaration that the term *introspection* captures any kind of first-person method in its extension. And indeed, even Varela (Depraz, Varela and Vermersch, 2003: 7) portrays his neurophenomenological practicalities as a “re-awakening of introspective psychology.” It may thus be more than good enough for the scientist, exclusively engaging in third-person methods,²¹¹ to treat any kind of first-person method as ‘introspection’. But, as I have discussed elsewhere (Feldges, 2013: 226), locating the phenomenological method in too close a proximity to the ill-reputed method of introspection (see section 1.2.2.) does not appear to be a particularly good move if one wants to found a new science of consciousness via a proposed utilisation of the inherently different method of phenomenology. For the current purposes, and for reasons that will become clearer later (see section 6.2.5) I suggest keeping introspection and phenomenological methods apart.

²⁰⁹ This problem is sometimes formulated in a more metaphorical way by stating that one cannot stand on the balcony overlooking the street while being in the street at the same time.

²¹⁰ See sub-chapter 1.2 in relation to Wundt’s introspection and section 3.3.4 in relation to representational accounts (and Husserl’s rejection of these).

²¹¹ However – as I discussed in section 2.8.1 – Varela had already pointed towards the fact that even the supposedly secure third-person data is obtained via a scientist’s first-person access to the phenomenon under observation (albeit by calibrating machinery). This fact was recently re-emphasised by Zahavi (2007b) in a critical engagement with third-person data.

A philosophical argument against the claim of Searle's *a priori* epistemological impossibility could utilise Husserl's temporal structure with the *widened now* as it was developed earlier (see sub-chapter 4.4). The *widened now* has two dimensions. One of these, the retentional moments of the recession phenomena, captures the *nows* that have been in a fading sequence (comet-tail) of previous *nows*, marked out by their temporal orientation as *having been*. In this respect the experience of this *widened now* seems to provide the structural means to evade Searle's epistemological impossibility, as much as it helped earlier to evade the observer-problem in relation to Rinfner-Kreidl's objection (see sub-chapter 4.4)

Of course Husserl's proposed temporal structure as derived via phenomenological methods would presumably not suffice to satisfy a scientist critical of exactly these methods. Even the intuitive claim that it must be that way to safeguard experienced object-identity over time²¹² could be disregarded as providing a *just-so* story which may fit, but due to its methodological failings does not provide evidence for its necessity. This is where it is necessary to provide a wider explanation. The suspension of judgement – Husserl's *epochē* – is undoubtedly a philosophical method and – as such – would not necessarily need empirical confirmation. But to find approval in terms of Varela's envisaged marriage-proposal, the utilisation of a philosophical method suggesting the ego-assessment of experiences as they present themselves *to me* without any positing achievements necessitates a minimum of scientific credibility in terms of its *do-ability*. Hence, Husserl's *epochē* must be a psychologically possible process! And that begs for empirical evidence for the possibility of performing such a required suspension of judgement – but is that possible?

²¹² I have briefly mentioned this object-identity already briefly (see sub-chapter 4.4), but it might be helpful in this specific case to add an example. When sitting in front of my meal, I perceive my meal, and it remains that meal of mine, even if I go through a perceptive series of various adumbrations by slowly turning the plate (horizontally) on the table in front of me. And it remains my meal, even if I close my eyes for a brief moment to enjoy the aromas: on opening my eyes I do not see another meal, but still my very own meal.

To answer this question one has to bear in mind that Husserl worked with a lived centre-point, the *pure ego* (see chapter 3) while Varela elaborated on the *affected ego* (see chapter 4). When it comes to the perception of intentional objects, both relied upon a *transcendental ego* bringing about all the necessary constitutive (and positing) achievements (see sub-chapter 5.2). This differentiation may thus provide the chance to see if the achievements of Varela's knowing ego could be 'bracketed' to gain access to the underlying – direct – experience of the affected ego.²¹³ In an attempt to utilise this differentiation I will take two distinctive steps. At first I will consider pathological cases that indicate that it is possible for a self to experience direct affectedness without the normal – *sense-providing* – horizon and that a self can even observe itself perceiving. But as this is linked to pathological cases, I will, in a second step, provide empirical evidence for the contribution of different neuronal structures in a wilful suspension of judgement.

The first hint of the possibility of such a dissociation of actual experience and further ego-related processes comes from psychiatry.²¹⁴ Fuchs (2012) assesses the implications of schizophrenia and works with a spectrum that reaches from a) a basic, pre-reflective and bodily self towards b) an enlarged, reflective and personal self. Fuchs' account is based upon Zahavi's (1999) investigations regarding the self and self-awareness. Fuchs (2012: 888) takes "a basic self-awareness [as] inherent in all conscious processes". Hence, Fuchs' basic self-awareness is one of a direct affectedness whereby experiences are experienced as *mine*. This is a position similar to Husserl's second concept of consciousness and to Varela's account (see section 3.3.2). The other end of Fuchs' (2012: 890) spectrum is based upon a child's developing ability to perceive external objects and itself, to become – as

²¹³ I utilise Varela's terminology here, as the need to provide empirical evidence for the do-ability of the *epoché* is a problem that emerges within his proposed project of uniting phenomenology and cognitive science.

²¹⁴ I do not want to concern myself all too much with the current discussion regarding the scientific status of psychiatry. Fulford, Thornton & Graham (2006) provide a complete account of the relevant debates. I only intend to utilise the psychiatric detour as a gateway to pursue the aim of providing some empirical evidence for the purpose of this chapter's argument.

Varela puts it – a *knowing self*. It is not necessary to elaborate upon Fuchs' fine-grained description of the numerous 'self-variations' here; what is important is the notion of a directly affected 'core-self' on one side and an increasing level of conscious-sophistication reaching towards the other end of the spectrum. What Fuchs calls the *personal self* is thus – depending upon the level of individual development (or Varela's ontogenic system-evolution) – to be located somewhere along this spectrum. Fuchs thus works with a differentiation of self-hood that allows for a direct affectedness and an increasing sophistication in the constitutive achievements of – what he calls – the personal self making sense of *its* direct affectedness. This is then where Fuchs' case studies come in to provide evidence for the possible dissociation of the two self-concepts to achieve a suspension of the sense-making constitution as required by Husserl's *epochē*,

Amongst the pathological implications of schizophrenia one is of particular interest in this current context. It is a possible disruption, pushing the *personal self* into an eccentric position and blurring the boundaries between the self and Others. Fuchs (2012: 894) provides evidence concerning the eccentric effects upon individual perception with accounts from mental-health patients, reporting being unable to perceive a coherent whole; instead of seeing a watch, they saw the parts and had to assemble them – willingly – in their mind. Others reported that there were no longer any recognisable relations between the objects of the world, i.e., objects appeared as solitary items, no longer woven into a coherent world for the individual. In some cases this alienation went so far as to disrupt the normal unity of perception and intentional content. This patient was thus able to become the spectator of her own seeing. These sad effects of a severe mental illness seem to indicate that it appears to be within human capability to de-personalise oneself from one's experiences and thus perceive objects without the normal horizon of *meaning*, and even to assess the act of perceiving.

However, the scientist may counter that

- a) these results are derived from pathological cases and the reason for their claimed possibility may be found in exactly the underlying pathological alterations, and
- b) even this evidence is based upon first-person accounts.

I will address these possible objections in that order. The capability, or the burden of an experienced alienation or estrangement from ones own thoughts, body or the real world, is known as depersonalisation (Sierra, 2009). And as much as it is often connected to severe mental illnesses, Sierra (2009: 44) explains that the effects of depersonalisation occur with a prevalence of 30% in the general population and up to 70% amongst young people as non-pathological cases. This 'normal depersonalisation' is often brought about by anxiety, low mood, anomalous arousal, sleep- or sensory deprivation and alcohol withdrawal, but also during physical illnesses and fatigue (Sierra, 2009: 45).²¹⁵ However, the Depersonalisation Research Unit of King's College London (2014) explicitly states that normal depersonalisation can also be brought about by meditation. Hence, and this invalidates the scientist's counter-claim a), the effects of depersonalisation, opening an observer-divergence between different parts of a structured self, are not exclusively limited to pathological cases, but rather prevalent in the normal population, and these effects can even be deliberately initiated by meditation. And in fact, Varela himself suggests the utilisation of a Buddhism-inspired meditation to perform the suspension of judgement.²¹⁶

That leaves only objection b), concerning the general insufficiency of the first-person methods. But instead of taking on this counter-claim, one that is supposed to promote the damaging verdict regarding the *epochē* in its most far-reaching form, I intend to stay focused upon what has been established so

²¹⁵ It is quite interesting to mention Meyer's (2009: 30) evaluation of Husserl in this context: "Husserl increasingly seems to utilise phenomenology not only as a philosophical, but also as a self-therapeutic endeavour: the *epochē*, as a suspension of judgement and a reduction of ones own ego, as a gaze upon ones own conscious experiences, helps him to cope with his own personal suffering."

²¹⁶ See for more details on this, Varela, Thompson & Rosch (1991), Pettitmengin (2009) and Depraz, Varela & Vermersch (2003)

far. And in doing so it seems totally adequate to evade this insufficiency-claim by relating back to the self-observations under depersonalising effects to then provide empirical evidence that these depersonalisation effects can actually be brought about by meditative practice. Hence I try to evade this specific claim by providing empirical evidence that this depersonalised state can actually be brought about and that such states, as the necessary pre-condition, can thus be utilised as an observational point.

Lutz (2007) provides a comprehensive assessment of the relevant research, but for current purposes it might suffice to provide just one single example here. Lou et al. (1999) used brain-imaging technologies²¹⁷ to establish a dissociation between

- a) conscious experience of the sensory world²¹⁸ and
- b) conscious experience of the fact or illusion of voluntary control.²¹⁹

And that is nothing short of an empirical confirmation that meditation-induced states allow a dissociation between a basic self and a reflective self positioning itself in relation to its basic consciousness, similar to the self-concepts Fuchs used earlier.²²⁰ The exact details, interesting as they are, need not be spelt out in greater detail here, but the observed differences manifested themselves as increasing or sustained activity in some and decreasing activity in other parts of the brain, locations that are usually – by the neuroscientific community – assumed to process the relevant functions of either the basic or a reflective self. Hence – and in direct opposition to Searle,

²¹⁷ PET-scans

²¹⁸ The relevant areas showing an increased activity were the bilateral hippocampus and parietal and occipital sensory and association regions. According to Lou et al. this pattern suggests an activity-increase in areas involved in imagery.

²¹⁹ Decreasing activation patterns were located in the orbitofrontal, dorsolateral, prefrontal and anterior cingulate cortices, the temporal and inferior parietal lobes, the caudate, thalamus, the pons and the cerebellum. These areas are – according to Lou et al. – normally identified with executive functions and the control of attention, while the dorso-lateral prefrontal cortex especially participates in working memory.

²²⁰ Again, the fact that this dissociation may manifest itself on various levels (object-integrity, dissociation from the world and others, self-observing episodes) is of no concern here, as I merely want to establish that such a dissociation can be evidenced empirically.

who maintained that there is only one *conscious subjectivity* as he called it, unable to gain an observer-distance regarding its own conscious states – empirical evidence shows that a dissociation is possible and can be brought about wilfully.

As I discussed earlier, Husserl is working from the notion of a self as it manifests itself on various levels (see chapter 4). Self-observational accounts in pathological cases but also wilfully, meditation-induced cases provide empirical support for the assumption of such a spectrum. But even more so, it is possible to substantiate this assumption with empirical data, indicating different neuronal structures being engaged with different aspects of the functioning of a self on various levels. It thus seems perfectly reasonable to accept the scientific possibility of Husserl's required suspension of judgement, i.e., the *epochē*. Searle's claimed epistemological *a priori* impossibility to make one's own conscious states subject to an internal observation has to be rejected. However, merely being able to do something does not necessarily entail that what could be done would be useful as well, and it does not answer the question of how – away from this first step of depersonalisation – it ought to be done, and that is my next concern.

5.4.3. The Use–Value of the *Epochē*

To open this section it is probably best to utilise Husserl's (Hua, III:200) own account:

Let us suppose that in a garden we regard with pleasure a blossoming apple tree, the freshly green grass of the lawn, etc. It is obvious that the perception and the accompanying liking are not, at the same time, what is perceived and liked. In the natural attitude, the apple tree is for us something existing in the transcendent realm of spatial actuality, and the perception, as well as the liking, is for us a psychical state belonging to real people. [...]

Let us now go to the 'transcendental' phenomenological attitude [...W]e exercise the *epochē* in relation to 'positing' its actual being. We now ask what, of essential necessity, is to be discovered in the complex of noetic processes pertaining to perception and in the valuation of liking.²²¹

²²¹ *Angenommen, wir blicken mit Wohlgefallen in einem Garten auf einen blühenden Apfelbaum, auf das jugendfrische Grüne des Rasens usw. Offenbar ist die*

And this explanation of the difference between natural attitude and the bracketing effects of the *epochē* in relation to the apple-tree perception and the apple-tree valuation highlights the role of the object perceived while practicing the *epochē*. This object is a mere starting point for a transcendental investigation focusing upon the essential processes that must be in place for a subject to become consciously aware of that apple-tree and his or her liking of it.

It is here that Dennett's (1991: 67) objection against a necessarily infallible, or at least incorrigible, notion of our experiences goes astray. Dennett uses this concern to raise his readers' critical awareness of the questionable use-value of introspective methods. But, and this seems to be what he remains oblivious to, I could mistake a pile of clothes left behind carelessly for my sleeping cat. However – and this is the point – I could nevertheless utilise this (wrong) perceptive image in relation to a completely different object (i.e., cat-image vs pile-of-clothes-object) as a starting point to assess the structural necessities bringing about this intentional object and my associated liking of it. And if it eventually dawns on me that this is indeed not my cat, I could even investigate the change of the modes under which I held that object to be my cat, being surpassed by some emerging doubt and a final judgement of mine that it is really not my cat at all.

But this investigative possibility is of no concern to Dennett. Instead of concentrating upon this – lost for him – potential investigative avenue, he wanders through what he calls the *phenomenological garden*, and elaborates upon the difficulties when trying to draw or paint a realistic picture. Dennett

Wahrnehmung und das begleitende Wohlgefallen nicht das zugleich Wahrgenommene und Gefällige. In der natürlichen Einstellung ist uns der Apfelbaum ein Daseiendes in der transzendenten Raumwirklichkeit, und die Wahrnehmung, sowie das Wohlgefallen ein uns, dem realen Menschen zugehöriger psychischer Zustand.

Nun gehen wir in die phänomenologische Einstellung über [...] wir üben in Beziehung auf ihr Wirklichsein epochē. Wir fragen nun, was im Komplex noetischer Erlebnisse der Wahrnehmung und gefallenden Wertung wesensmäßig vorzufinden ist. (Translated by Kersten)

(1991: 53) explains: “The penny is circular and the table-top is rectangular” but, as he adds to enlighten us, to achieve a realistic two-dimensional picture one has to safeguard that, within the painting, “the penny shape is elliptical, the table top trapezoidal”. Dennett then goes on to claim:

Those who master the art know that it requires special habits of attention, tricks such as slightly defocusing the eyes to permit one somehow to *suppress the contribution of what one knows* ... (Italics not in the original)

And in this respect Dennett – as an outspoken advocate against self-observational methods and the *epochē* – seems to almost make the case for Husserl’s *epochē*, as a means to leave the background of what is known out of focus (we do know that pennies are indeed circular), but to attend to things as they present themselves (due to the laws of optics pennies necessarily appear elliptical if viewed from any other perspective than a 90° vertical top-view upon their obverse or reverse face). The fact that I might be mistaken about an appearing penny’s elliptical eccentricity-value would be a warranted, but otherwise useless concern for him. As long as I manage to avoid the positing attitude that would result in my subsequent conviction that a penny is circular, I have the direct observations under the *epochē* of changing elliptical eccentricity values over a perceptive series as I move around the penny. I am thus able to investigate what is necessary to achieve the penny’s identity over time. But I am also able to investigate what it takes to posit an obviously elliptical–appearing object as circular nevertheless. What has to go on in consciousness to take the circular penny to be the truth (*wahrnehmen*), although I only possess elliptical aspects? With this in mind it is necessary to discard Dennett’s objections towards the phenomenological method of the *epochē*, and in doing so, I find myself in good company as Zahavi (2007b: 31) explains that Dennett appears to be mistaken in the way he interprets Husserl.

It thus turns out that there is a method that seems to enable the investigating phenomenologist to avoid the “realist prejudice that what appears” within the natural attitude “is truly the state of the world” (Depraz, Varela & Vermersch, 2003:25). And I have identified some empirical evidence that indicates that the

assumed suspension of judgement (as realised in different brain-locations) is actually possible. With Husserl's proposed phenomenological method I thus

- a) have the ability to differentiate any actual conscious appearance and
- b) attend to it – so Husserl's claim – without the normally distorting effects of an individually existing sense or meaning–providing background²²² as it is made available via those brain structures showing decreasing activity during a meditation-induced *epochē*.

And in this respect, along with the aforementioned list of the phenomenologically interesting phenomena (see section 5.2.4) I have now developed Husserl's account as a valid access-route for further investigations regarding consciousness.

5.5. Chapter Summary

At this point I have thus managed to establish a few important aspects of Husserl's phenomenology and have suggested a possible utilisation of phenomenology for Varela's neurophenomenological proposal. I will recap these briefly:

Husserl's critique of knowledge (see section 5.2.1) provided the framework within which the important concept of immanence – being able to withstand all methodological doubt – has to be placed to gain the security for the subsequent phenomenological investigation utilising exactly these immanent appearances as their starting point (see section 5.2.2). By avoiding a positing judgement in terms of myself, the perceptions of myself, perception in general and the object Husserl claims that it is possible to investigate this positing as the phenomena of the ego, perception and object. Hence, Husserl provides a means by which to investigate all aspects of *Wahrnehmung* – or perception²²³ – as a constitutive achievement of consciousness (see section 5.2.3). Relating these constitutive achievements to the empirical ego's spatio-temporal characteristics, Husserl might appear to provide the means whereby Varela could align the mechanical working of the autopoietic system with

²²² This claim of the possibility to purify the appearance of all sense- or meaning providing background is what will occupy me throughout the remaining chapters.

²²³ Perception in the German sense of 'taking something to be true'.

individualised sense (see section 5.2.4). However, Husserl envisages a transcendental investigation and it is not yet clear how that could be employed for Varela's purposes.

It is open to debate where Husserl's method can be placed in relation to the scientific method. Science itself utilises inherently individual experiences – that of the scientist – to assess the extra-subjective world in a method-guided approach, trying to minimise subjective influences on the so-gained data while validating this data against conventionalist standards (measurements). Husserl, on the other hand, is not interested in the extra-subjective world in terms of the object (see section 5.2.2 where I explained that Husserl dismissed such a focus as metaphysical) he concentrates upon the subjective, which, as I will discuss within the next chapter, does not rule out the important dimension of intersubjectivity. Consequently he dismisses the scientific detour of trying to objectify subjective experiences and then facing the problem of having to explain a *subjective add-on* to these objectified occurrences. And by doing so, he – as he himself sees it – places phenomenology prior to the science, or as the scientist may argue – outside of the scientific realm altogether. I will not follow this problem up right now, but with the apparent difference that experience plays in both opposing accounts, it becomes clear that Varela's proposed utilisation of phenomenology may be able to effect a paradigm-shift in order to establish Varela's new science of consciousness.

To forward this investigation engaged with the concept of attitudes (see section 5.3.1), leading to a more focused discussion of Husserl's natural attitude as a referential spatio-temporal web (see section 5.3.2), an account that fits well with system-theoretical generation of sense.

Husserl's *epochē* is supposed to purify subjective experiences from this contingent referential horizon (see section 5.3.3). But, and this is quite important for Varela's project and its strived-for scientific value, the possibility of such an *epochē* itself has to be somehow compatible with a scientific framework to be able to claim the needed credibility in terms of its supposed achievements (see section 5.4). I established that the *epochē* is not as total as

to annihilate the world for the subject, hence the *epochē* is limited in its effects. Following this I took on a standard argument against the possibility of the *epochē* as voiced by Searle. By carefully developing a counter-argument I argued for the possibility of a dissociation of various parts of the self, opening an access-route for phenomenological investigations, and that backed up by scientific evidence.

But by taking this *epochē*-induced dissociation as a proof for the possibility of self-observation, then one is left with an account that requires

- a) a basic self-awareness as Fuchs called it, a concept which seems to fit with Husserl's second concept of consciousness (see section 3.3.2), which was found to be compatible with Varela's ego, in some specific structures of the brain and
- b) a more elaborated ego, one that can take the 'raw-experience' of ego a) and transform this into posited givens to be utilised in relation to one's own projects. Such an ego also appears to be compatible with Husserl's and Varela's ego, utilising habitualities and personal traits (see section 4.5.2). Varela's account even provides an explanation of how these habitualities may form a sediment within the biological substrate via the ontogenic drift (see sub-chapter 2.5) and how these precipitations are utilised by specific brain-structures different from those involved in basic self-awareness according to ego a).

But it is important to be totally clear about the fact that any scientific localisation of different ego-relevant brain processes is not at all Husserl's concern. And it is equally important to be clear about the limitations of the utilised imaging technology, as these do not show mental states as such, but only neuronal processes which are supposed to stand in some relation to the processing of sense or meaning. Nevertheless, these facts play an enormously important part for Varela's biologically driven autopoietic account.

But this – scientifically established – possibility of a dissociation of two different neural aspects of the ego as located in different structures of the brain indicates that the *epochē* constitutes – at least within Varela's framework – a means by which to assess one's immediate experience from an always

co-present, individual sense-horizon as provided by the sediment of previous – and always individual – experiences.

However, that still leaves the question of what sort of use such a mere possibility could entail. By turning Dennett's objection against any kind of self-observation on its head it was shown that Dennett's considerations against phenomenology, when put into the right (properly construed Husserlian) context and applied correctly, could actually reveal where the possible use-value of the *epochē* is to be found (see section 5.3.4). But this nevertheless did not answer the question of how the actual phenomenological investigation would need to be pursued after the dissociation-effects of the *epochē* have been achieved.

So at the close of this chapter there are still two questions pending: a) how to continue the phenomenological investigation once the *epochē* has been practiced and b) as to whether the separation of the two ego-aspects as achieved by the *epochē* can suffice for Varela's purposes. These questions will form the focus of the next chapter.

6. The Phenomenological Reduction

6.1. Introduction

Varela envisages a three-step approach in the utilisation of Husserl's phenomenological methods. The first one, the suspension of judgement – or the *epochē* – was the topic of the previous chapter and it appeared as if the required suspension of judgement is – even within a scientific framework – a possibility. Within this current chapter it is time to consider Varela's second methodological step, which is, as Varela calls it, the phenomenological reduction. The overall topic of the reduction is a complicated one and that is due to – at least – two factors.

The first one concerns the fact that Husserl wanted a purified phenomenological investigation, i.e., a transcendental one. However, Varela and his followers argue for a utilisation of Husserl's methods while nevertheless pursuing a broadly empirical project. This issue is tied up with the second difficulty, which is the fact that Husserl's methods are often divided into a descriptive and a transcendental phenomenology, with the elaborated reductions belonging to the realm of transcendental phenomenology. The neurophenomenologists argue for the possibility of utilising these transcendental reductions to pursue an otherwise descriptive phenomenology. Because of these difficulties it is necessary to provide a thorough introduction of the relevant aspects of the reductions as developed by Husserl (see sub-chapter 6.2). This will not only afford for a clear understanding of what is supposed to happen within these reductive attempts, but it will also highlight Husserl's phenomenology as an inherently transcendental project. Following this I will discuss issues around Varela's proposed application of the phenomenological reduction (see sub-chapter 6.3).

These two strands together leave neurophenomenology in a position whereby (traditional) phenomenologists remain critical of Varela's proposal, while neurophenomenologists work with this proposal nevertheless. By highlighting the compromises that seem to be implied by such an application (see sub-

chapter 6.4), I argue that such an approach loses its ability to make (phenomenologically founded) universal claims and would remain situated.

6.2. Husserl's Reductions

The term 'reduction' is derived from the Latin *reducere* for *leading back* or *to return* and Husserl uses it to capture what is supposed to happen once the natural attitude has been suspended via the *epochē*. The reduction is thus Husserl's next methodological step, returning to the lived experience, i.e., to what is immanent to consciousness, with the aim of revealing the noetic-noematic structure of consciousness. But although that may sound rather straightforward, things are not so easy.

When engaging with Husserl's reduction one encounters, as Luft (2010: 252) explains, a rather complex method:

The reduction is completed in a series of steps and Husserl explains and performs it out of differing systematic contexts. However, Husserl's own attempts to provide a systematic account of the reduction (as in his 1925 *Encyclopaedia Britannica* article) remain rather insufficient to gain a general understanding of the reduction.

Although Husserl had already discovered the reduction as early as 1906/1907 (see section 5.2.1) he nevertheless continued to develop it further throughout his life. Luft continues to explain:

Over the years Husserl used a number of concepts for the process of reduction: *epochē*, phenomenological, transcendental, eidetic, apodictic (etc.) reduction.

But, as Luft claims, these concepts denote partial aspects of the overall reduction, and it thus appears justified to unite them all under the concept of *reduction* to be able to provide an overall account of Husserl's motivation.

Varela (1995: 336) also aims to take a

fresh look at experience in a specific gesture or reflection or phenomenological reduction

and that appears to fit with Luft's umbrella-concept of the reduction.

With this first and most general fit established, it is time to have a closer look at a variety of reductions and their motivation to see if Husserl's reductions

could work for Varela, who appears to be quite selective about what he wants and what he does not want to utilise from Husserl's method. I will first discuss the early concept of the phenomenological reduction (see section 6.2.1), followed by a brief summary of the reasons that lead Husserl to make his transcendental turn (see section 6.2.2). Prepared in such a way I will then introduce three transcendental reductions (see section 6.2.3) to provide a clearer picture of how these reductions are supposed to work, what they are supposed to reveal and how they relate to the earlier (see section 6.2.1) phenomenological reduction. Finally I will introduce the eidetic variation (see section 6.2.4) to argue that the differentiation between the phenomenological and the transcendental reductions is owing to the insufficiency of the former one for Husserl's project.

6.2.1. Psychological or Descriptive Phenomenology

Within the first edition of the *Logical Investigations* Husserl had differentiated between the phenomenological stream of consciousness and the stream of consciousness of the empirical ego. It is important to remain carefully aware here that the term *differentiation* between the real (empirical) and the *reelle* (phenomenologically relevant) parts of experience does not imply two separate entities.²²⁴ It is rather that this differentiation is based upon the mode of access. The *reelle* parts of experience were those immanent – and thus beyond doubt – to the experiencing consciousness. These *reelle* parts were central to Husserl's account of object-constancy (see section 3.3.4). Husserl uses descriptive accounts here, gained from the first-person perspective, regarding the psychological mechanics that bring about object-constancy in the experience of space and objects. These investigations are thus an endeavour in a descriptive psychology or a descriptive science, utilising the reduction to reveal the basic structures of consciousness (Hua, XXIV). Husserl (Hua, XIX/I: 24) himself described this early approach in the first edition of the *LI* by stating that “phenomenology is descriptive psychology”,²²⁵ a statement that evoked some misunderstandings and one that was omitted in the second edition of the *LI*, but I will have to come back to this issue later.

²²⁴ I have discussed this issue already in section 3.3.1.

²²⁵ *Phänomenologie ist deskriptive Psychologie*. (My translation)

6.2.2. Transcendental Phenomenology

I have already discussed Husserl's turn towards a transcendental investigation (see section 4.3.2) and I have discussed Husserl's understanding of the relation between science and phenomenology (see chapter 3). Phenomenology, as discussed earlier, is an *a priori* investigation of the essential structures of consciousness, and it is always prior to any scientific *a posteriori* investigation situated in the *here and now*. Husserl set out to trace the workings of this ego within the relevant acts by the means of a transcendental investigation.

In line with this overall aim, Husserl is quite clear in rejecting attempts to naturalise consciousness. Naturalising would for Husserl (Hua, XXV: 293), writing in 1911, give up ideality²²⁶ (*Idealität*) and with that the objectivity of what is posited (*Objektivität der Geltung*); it would lead to scepticism, i.e., a position that questions the possibility of human cognition (*Erkenntnisvermögen*). But, any scepticism taken so far as to challenge one's genuine ability to assess one's own experiences would invalidate Husserl's project outright, as phenomenology goes back to exactly these experiences – as experienced – to provide the foundation for a phenomenological science, as Husserl (Hua, II) had outlined already in 1907 – a project, that because of this secure, non-naturalist foundation, was deemed to be a phenomenological science beyond doubt (see section 5.2.3). Husserl's non-naturalist foundation of phenomenology is by no means the same as an anti-naturalist position. The crux of Husserl's project (see section 3.2.3) was to undercut the opposing argument between realism and idealism to replace it with “a radical reflection upon the universal correlation of any sense-bestowing” (Held, 1962: 66).

Separately from these epistemological reasons, Husserl remains clear about the fact that phenomenology and the sciences share a common interest in investigating consciousness. Nevertheless, both do so in different ways, with different attitudes (*Einstellungen*). And Husserl (XXV: 302), already in 1911,

²²⁶ See Held's definition and the discussion in section 3.2.2.

leaves no room for uncertainty: psychology focuses on “empirical consciousness”, i.e., concentrates upon

consciousness in the attitude of experiencing, as something present in relation to nature, while phenomenology [*concerns itself T.F.*] with “pure” consciousness²²⁷

Husserl (XXV: 302) however envisages a non-psychological science of consciousness, “a phenomenology of consciousness as opposed to a natural science of being conscious.”²²⁸ In relation to the apparent closeness of early phenomenology and psychology Husserl looks back in his 1925 lectures on *Phenomenological Psychology*. Here he (Hua, IX: 41) explains that his earlier attempts to do phenomenology descriptively revealed that his investigations, although independent from empirical psychology, shared some of the problems of psychological research. Scientific psychology was not quite up to the job of investigating consciousness, so his phenomenological investigations needed to be something quite different and independent from an empirical-psychological pursuit. I have discussed the fundamental differences between natural-scientific investigations and phenomenological ones throughout this investigation. It should thus be absolutely clear that Husserl’s turning towards a transcendental investigation and to maintaining a neutral position in relation to naturalising claims were owing to epistemological and ontological considerations. Husserl’s philosophical goal was to uncover universal conditions of possibility for world-involving phenomena, including uncovering essential features of a constituting consciousness that posits the objects of such phenomena.

6.2.3. Transcendental Reductions

The notion of the transcendental reduction is not one restricted to one pathway only. Indeed, the literature mostly recognises three ways leading towards transcendental subjectivity (e.g.: Bernet, Kern & Marbach, 1989: 63). These three pathways are known as

²²⁷ ... *Psychologie es mit dem “empirischen Bewusstsein” zu tun habe, mit dem Bewusstsein in der Erfahrungseinstellung als Daseiendem im Zusammenhang der Natur; hingegen die Phänomenologie mit dem „reinen“ Bewusstsein ...* (My translation)

²²⁸ ... *eine Phänomenologie des Bewusstseins gegenüber einer Naturwissenschaft vom Bewusstsein* (My translation)

- a) the *Cartesian Way*,
- b) the *Psychological Way* and
- c) the *Ontological Way*

and I will introduce all three in that order.

a) *The Cartesian Way of the Transcendental Reduction*

For Husserl (Hua, VIII: 122) the transcendental reduction is supposed to lead back towards the totally uncharted area of our experiences by establishing a non-normal (*widernatürliche*) direction for the investigative gaze. In his aim to investigate “pure subjectivity”,²²⁹ Husserl (Hua, VIII: 431) wants an investigation that does not plainly accept any natural given-ness, but tries to link this *taken-for-granted given-ness* back to consciousness itself (Hua, VIII: 430). For that reason any reduction can only begin once the naivety of the natural attitude has been suspended, once the *epochē* is performed (see section 5.3). Husserl, inspired by Descartes (Hua, VIII: 4), is interested in pure subjectivity – the one that Descartes reached in a sceptical manner with his method of universal doubt, but that he also missed at the same time, as he did not see the importance of his revelation in terms of it exposing the “realm of pure consciousness and the pure ego”²³⁰ (Hua, VIII: 328). Husserl, aiming for an

elucidation regarding the essential possibilities of cognition, as derived out of the sources of a purely thematised intentional-productive conscious life, one that constitutes objectivity in a multitude of ways (Bernet, Kern & Marbach, 1989: 65)²³¹

follows Descartes in claiming that the doubting ego remains beyond doubt. After all, the *ego cogito* is obviously ‘doing’ the ‘doubting’. However, Husserl takes issue with the naïve acceptance of Descartes’ *cogitatio*, as discussed earlier (see sections 4.5.1 and 5.2.3). For Husserl even this *cogitatio* cannot be taken for granted, but needs to be reduced phenomenologically. Husserl (Hua, XXIV: 187) explains, in 1906, i.e., a couple of years before the second

²²⁹ *Mein Beruf ist das Studium der reinen Subjektivität.* (My translation)

²³⁰ *... als Freilegung des Reiches des reinen Bewusstseins mit dem reinen Ich.* (My translation)

²³¹ *... um eine Aufklärung der Wesensmöglichkeiten der Erkenntnis aus Quellen des in seiner Reinheit thematisierten intentional leistenden Bewusstseinsleben, das in mannigfaltigen Weisen Objektivität konstituiert.* (My translation)

edition of *LI*, that no actuality is to be accepted. Any theory of cognition (*Erkenntnistheorie*) that does not start out with an absolute *epochē* will fail to address the real cognition-theoretical (*erkenntnistheoretische*) problems. Hence the *epochē* must include Descartes' *ego cogito* as well, as otherwise this *ego cogito* would remain connected to the world. Husserl (Hua, I: 24) calls it a "*Weltendchen*", i.e., the *ego cogito* as a *little tag-end of the world*. And such a mundane *ego cogito* would lead straight back to the *problem of human subjectivity*, i.e., it becomes subject to causal determination (see section 4.5.1).

Husserl wants a transcendental investigation regarding the ego as it experiences the world, and such an ego

cannot at the same time be *in* the world, or be of the same ontological quality as worldly being. (Luft, 2014: 248, italics in original)

Husserl thus sets out, as Luft explains, to use the Cartesian thought experiment to establish the apodictic necessity whereby the world remains only experience-able from the first-person perspective, i.e., from the position of an experiencing subject. And Husserl's insistence on bracketing even the positing of the *ego cogito* leaves him with pure, transcendental subjectivity, and that transforms the *ego cogitatio* into a

shorthand for the transcendental sphere as that of experience (*cogito*) and what is experienced in it (*cogitatum*). (Luft, 2014: 248)

Husserl's earlier (descriptive) phenomenological reduction aimed at the actual stream of consciousness, or to be more precise, towards the succession of the sub-set of *reelle* parts of that stream (see section 6.2.1). But such an investigation, being based upon momentary and fleeting processes as they occur within the stream of consciousness does not allow the formulation of a transcendental account, one that would be able to capture what is required for an ego to take an intentional object, or the 'world', as actually existing (*Daseinsgeltung*) *qua cogitatum* (Bernet, Kern & Marbach, 1989: 66). And with this shortcoming of the descriptive method in terms of the conditions for *world-constituting* Husserl was also not able to account for this constituted world as one that is always one shared with others. Hence, Husserl's earlier method could not provide a 'world' to be a world shared with others, i.e., a potentially

intersubjective space. Husserl thus develops the transcendental reduction to investigate the constitutive achievement of an experiencing ego in terms of taking the intentional object or the 'world' as actually existing.

The Cartesian Way of Husserl's transcendental reduction is not uncontested, but that is not the point here.²³² What is important is the fact that Husserl – as early as 1906 – started to reject the naïve acceptance of any posited actuality (including the *ego cogito*) and thus opened a way for a truly transcendental theory of cognition, one that – following the publication of *Ideas I* in 1913 – was elaborated upon and that is now known as the Cartesian way. Husserl's transcendental phenomenological project is thus a truly *a priori* investigation, leaving the contingency of the *here and now* behind, concerning itself with the essential structures for subjectivity to be conscious of something transcendent to itself.

b) The Psychological Way of the Transcendental Reduction

Husserl (Hua, VI: 158) acknowledged a certain difficulty with his Cartesian way. He admits that the reader, following this way of reduction is almost jumping towards the transcendental ego, leaving the reader – as he himself explains – with a seeming emptiness and some puzzlement about what it was that was supposed to be gained by the exercise. Husserl's reflective considerations upon the Cartesian Way thus provided the motivation for him to develop another way to accomplish the transcendental reduction, one that would not leave any room for the emptiness once transcendental subjectivity has been reached.

I have discussed the psychological struggles to account for human experience (see chapter 1 and section 3.2.1) and Husserl's phenomenology has always

²³² An early critique was brought forward by Husserl's former tutor Carl Stumpf, unsatisfied with the possibility of an inwardly directed, pure gaze revealing the transcendental ego, which, for Husserl, was carrying the burden of constituting *all that is* (Seiendes) within an otherwise purified consciousness. Stumpf (cited in Hirschberger, 1980: 599) explains: *The pure ego, made visible via the pure gaze directed at the ego itself, reminds us too much of the Nirvana of the Indian pennants, constantly gazing at their navels ... here we are staring into the darkness, even more so ... into absolute nothingness.* (My translation)

stood in a close relation to psychological attempts to account for subjectivity. Against this background, and while engaging with Kant,²³³ Husserl (Hua, VI: 105 ff.) sets out to clarify the transcendental problem in relation to the function of psychology. Husserl (Hua, VI: 116) takes Kant's transcendental subjectivity as somehow constructed and – according to Husserl – it displays obscurities in terms of transcendental-subjective abilities or functions. For Husserl, Kant's account makes it difficult to understand what transcendental subjectivity actually entails,²³⁴ and Husserl (Hua, VI: 117) suspects that Kant's understanding of the psyche (*Seele*) and the task of psychology might still be influenced by empiricism and that this may leave Kant's psyche still within the psychological sphere as it exists in time and space.

When discussing Husserl's struggle with the neo-Kantian conception of the psyche and psychologism in relation to the centre of subjectivity (see section 4.5.1), I pointed out that Husserl's phenomenological project is a transcendental one, a transcendental phenomenology that renders his earlier descriptive phenomenology a mere propaedeutic or a preliminary stage for that transcendental project (Hua, IX: 344 and 616). Although Husserl had historical and pedagogical reasons to develop the psychological pathway (Luft, 2010: 53) he wanted that (more easily accessible) pathway to lead into transcendental subjectivity nevertheless.

Instead of requiring the performance of an initial universal *epochē*, one that brackets the whole *world* and even *myself*, the psychological way starts with the naïve ego-life (*Ichleben*) that, in its directedness, is available via reflection. However, such an initial reflection will necessarily take the act-performing subject as an objective human ego (*objektiv menschlich*); I reflect – naïvely – upon an aspect of my life and while doing so, I take it as a given that I am an

²³³ On more than one occasion Kant provides a contrast-foil against which not only Husserl, but also Varela, try to develop their own accounts. It is however not possible to unpack this relation in all detail as the relation between Varela/Husserl and Kant is not the issue here, but the relation between Varela and Husserl.

²³⁴ This is somehow echoed by Varela's reading regarding Kant's transcendental subjectivity as mentioned already in section 4.3.2.

objective part of this life as well. It thus follows that any such naïve reflection must fail to account for exactly that ego that is supposed to be the source of the conscious experience of an intentional object (Hua, VIII: 120). Hence, while reflecting naïvely I cannot investigate the role of the ego itself in bringing about or facilitating consciousness.

Therefore it is necessary to practice the *epochē* in terms of these acts of naïve reflection, to suspend every affective and volitional interest, any accomplished positing and every practical intention as we would have these within our normal ways of life (Hua, VIII: 128). Hence, Husserl (Hua, VIII: 292) asks us to study these acts in a descriptive manner, by taking examples of natural or cultural knowledge as guiding thread for an intentional analysis. But Husserl does not want ultimately to make a case for the success of the descriptive-psychological reduction. Even with the initially performed *epochē* such descriptions are always based upon singular reductions, concerning specific acts. Hence they are not useful for an investigation of consciousness *per se*, as an interconnected mess (*Durcheinander*), a whole of intentional-interwoven motivations, not at all analogous to anything physical, neither in form nor principle (Hua, VIII: 123).

Husserl can thus not stop at a solitary reduction of specific acts to gain their phenomenological purity via a mere descriptive-psychological account. What Husserl (Hua, VIII: 128) suggests sounds much more complex:

As the reflecting ego, instead of performing the described reduction in relation to single acts and act-relations, and in the direction of that which each of these acts sets as valid, I constitute myself as a transcendental-phenomenological ego. This in the form of the subject that undergoes the transcendental-phenomenological reduction and at first takes its own transcendental subjectivity as an open and endless field of its phenomenological experience and investigation.²³⁵

²³⁵ *Statt als reflektierendes Ich an einzelnen Akten und Aktzusammenhängen die beschriebene Reduktion auszuführen, und in Richtung auf das, was jeder dieser Akte als einzelner als geltend setzte, konstituiere ich mich selbst als transzendental-phenomenologisches Ich, und zwar in Form des Subjektes, das transzendental-phenomenologische Reduktionen übt und zunächst seine eigene transzendente Subjektivität zum offen endlosen Feld seiner phänomenologischen Erfahrung und Forschung überhaupt macht.* (My translation)

Husserl must have anticipated his audience's uneasiness and poses the question "What does that mean?" himself. His answer is:

I become that transcendental observer and my *epochē* becomes a *transcendental* one, by making it [*the epochē T.F.*] in a sense universally all-encompassing and radical, in a sense unbeknown to the previous psychological reduction.²³⁶

As even this answer might not quite solve all the questions in connection to the second step of the proposed method, Husserl (Hua, VIII: 129) explains that every "I perceive" could be phenomenologically reduced to its subjective (psychological) contents. But, while performing these act-related phenomenological-psychological reductions, I myself am still apperceiving myself in the continuity of the ongoing reductive processes. And this fact provides its own horizon, its own relativity of *I-myself* in relation to these reductions. Husserl (Hua, VIII: 316) points towards the difficulty of not only having to include the horizons of the natural attitude into the suspending bracket, but also those emerging during the process of the phenomenological investigation as they continuously open up newly. And to overcome this difficulty, to reach the highest possible purity, in which *I myself* no longer posit myself, where I suspend my belief in my own situated-ness as me, it is necessary to further purify phenomenological descriptive psychology by a universal *epochē*. It is necessary to engage in the *epochē* which is not only all-encompassing but which also soaks up everything (phenomenologically-) psychological with it (Hua, VIII: 129).

The whole process of reaching transcendental subjectivity in the psychological way is not without problems, as the access to transcendental subjectivity is gained via the descriptive assessment of psychological acts which need – to get the investigation started – be posited first (Luft, 2010: 54). Husserl's psychological way thus depends upon the Cartesian way as well, and the

²³⁶ *Ich werde zu diesem transzendentalen Betrachter und meine Epoche selbst wird zur transzendentalen, dadurch dass sie in einem Sinn universal umspannend und radikal ist, den die vorige psychologische Reduktion noch nicht gekannt hat.* (Italics in original, my translation)

former cannot be taken to be a replacement of the latter, remaining more of a modification of the Cartesian way (Hua, VIII: 316).

c) The Ontological Way of the Transcendental Reduction

However, there is a widely recognised third way to reach transcendental subjectivity, which needs to be understood in relation to an alleged weakness of the Cartesian way. As this is of importance in relation to this thesis, I will develop Husserl's third reductive pathway by outlining this alleged weakness first.

Husserl is strongly influenced by Descartes, and in the famous/infamous § 49 of *Ideas I*, Husserl (Hua, III: 103) argues that absolute consciousness would still remain possible after the destruction of the world (*Weltvernichtung*) but that *world* would not be possible at all without a constituting subjectivity. Claims like these may

easily [*lead T.F.*] to the belief that the task of phenomenology is to investigate pure subjectivity in isolation and separation from both world and intersubjectivity. (Zahavi, 2003: 50)

This, however, is not the case and Husserl evades the dangers of this lurking solipsism by addressing both issues – world and intersubjectivity – when developing his transcendental reduction via the ontological way, a route that could be seen as the counterpart to the psychological way (Luft, 2014: 249).

This ontological way takes its departure from a somewhat opposite starting point (Hua, VI: 175), not from the *ego cogito*, but from the object, to provide a view upon what Bernet, Kern & Marbach (1989: 66) call the transcendental-subjective correlation. Husserl thus aims to unearth the ultimate meaning of objectivity as it is grasped by subjectivity and he hopes to find it within object-directed subjectivity, i.e. in the correlation between subjectivity and the objective (Hua, VII: 386). With this in mind, and despite Husserl's overall appreciation of Descartes (Hua, I: 3), he nevertheless critically engages with the Cartesian differentiation between *res extensa* and *res cogitans*. Husserl acknowledges the fact that the natural sciences have succeeded in providing an explanatory frame regarding the *res extensa* (i.e., the world), but that there

has been confusion in psychological attempts to account for the *res cogitans* (see chapter 3 and section 4.2.1). Husserl (Hua, VI: 218) thus identifies an overemphasis upon naturalistic/natural-scientific accounts of the world. He explains:

From the outset the world was seen “naturalistically” as a double-layered world of real matters of fact, ordered by the laws of causality. Therefore souls were seen as real annexes of their lived bodies which were thought of in an exact-scientific manner, truly of a different structure than the lived bodies, not *res extensae*, but still real in the same sense as these, and in this interrelatedness to be investigated following the same “causal laws”: hence with theories of the same sort as the example-providing and fundamental physics.²³⁷

And this picture of a “naturalised” world as opposed to the one experienced by a consciousness-affording, transcendental subjectivity allows Husserl to wedge the world apart and gain a world of two layers:

- a) a world as human beings find themselves experientially to be living in it and
- b) a second world, one accounted for, one explained by, one founded upon the natural sciences.

Husserl is thus proposing a difference between the *world* as directly and pre-scientifically experienced by a psychic being and the “natural-scientific, rational nature” as a world of *objects as such* (Hua, VI: 62). For reasons that will become clearer as I progress further it is quite important to mention explicitly that Husserl’s move to differentiate the pure, pre-scientific *life-world* (*Lebenswelt*) from one scientifically accounted for does not in itself warrant the assumption that Husserl is thus moving towards an anti-naturalist position as well. And this is so despite Husserl insisting that the *life-world* as experienced by psychic beings is the “pure” one (Hua, VI: 151). This pure world is completely and exhaustively *the one*, and it gains sense and validity-of-being

²³⁷ *Vorweg war also die Welt „naturalistisch“ gesehen, als doppelschichtige Welt realer Tatsachen, durch Kausalgesetzhelchkeiten geregelt; demnach auch die Seelen als reale Annexe an ihren exakt-naturwissenschaftlich gedachten k6rperlichen Leibern, zwar von einer anderen Struktur als die K6rper, nicht res extensae, aber doch real in einem gleichen Sinne wie diese und in dieser Verbundenheit eben auch in gleichem Sinne nach „Kausalgesetzen“ zu erforschen: also in Theorien prinzipiell derselben Art wie die der vorbildlichen und zugleich fundierenden Physik. (Italics in original, my translation)*

(*Sinn und Seinsgeltung*) via conscious life, i.e., via being directly experienced, finding manifestation in the respective conscious experiences as a constantly streaming living horizon that provides validity within natural living; a validity

directly or indirectly reaching back in the dark necessary underground, of sometimes accessible, reactive validities, all interconnected with each other and with the real acts, providing the only and inseparable context of life.²³⁸ (Hua, VI: 152)

The life-world as a living horizon is also a shared life-world, albeit individually experienced, nevertheless shared with other psychic beings. Husserl is thus drawing a picture of

- a) a life-world as a horizon within which the experienced objects are individually constituted by a transcendental ego, but one which is nevertheless
- b) a life-world shared with other psychic beings, whose transcendental egos will utilise this shared life-world as a basis for their individual constituting achievements as well.

With the concept of an inter-subjectively shared life-world in place Husserl (Hua, VI: 157) has the means to add to the two already introduced transcendental reductions.

Husserl (Hua, VI: 158) explains that, although this ontological way starts with the life-world as the universal basis of mundane human life, it is important to focus on how this universal basis serves as a function for worldly human life. Within the natural attitude we tend to ignore the fact that any connection between subject and object is inherently dependent upon an ego-pole **and** an object-pole, i.e., that it is always a relative relation. But despite the relative character of individual experience, the life-world as such has

in all its relativities its *general structure*. This general structure, binding for everything that relatively is, is itself not relative.²³⁹ (Hua, VI: 142)

²³⁸ ... *unmittelbar oder mittelbar zurückreichend in den einen notwendigen Untergrund dunkler, aber gelegentlich verfügbarer, reaktiver Geltungen, alle miteinander und mir dem eigentlichen Akten einen einzigen untrennbaren Lebenszusammenhang ausmachend.* (My translation)

²³⁹ ... *in all ihren Relativitäten ihre allgemeine Struktur. Diese allgemeine Struktur, und die alles relativ Seiende gebunden ist, ist nicht selbst relativ.* (Italics in original, my translation)

Hence, despite the fact that the life-world is constituted subjectively by a transcendental ego, the possible range for such constitutive (relative) processes is not unlimited. It is always restricted by an underlying essential structure according to which the possible relative connections between these two poles can manifest themselves. By attending to this relativity, i.e., the relation in which subjectivity connects to the life-world, it becomes possible to see the world

as the one in which we intuitively live, with its realities, but in a way as these are initially given.²⁴⁰ (Hua, VI: 159)

The seeing of these realities as given in intuition (*Anschauung*) requires an anterior suspension of judgement, bracketing all prior knowledge, all assertions regarding *true being* and all predicative truths as they are typical for us while living along naturally,²⁴¹ but – and this is the point – this universal *epochē* does not entail a suspension of our attention towards the things of the life-world. Husserl rather suggests the utilisation of this new way of seeing as a basis for an investigation into the things' appearance or manifestation for consciousness as constituted correlates (Zahavi, 2003: 51). Husserl (Hua, VI: 175) explains the process:

First comes the straightforwardly given life-world, taken initially as it is given perceptually: as 'normal,' simply there, unbroken, existing in pure ontic certainty (undoubted). When the new direction of interest is established, and thus also in strict *epochē*, the life-world becomes a first intentional heading, an *index* or *guideline* for inquiring back into the multiplicities of manners of appearing and their intentional structures. A further shift of direction, at the second level of reflection, leads to the ego-pole and what is peculiar to its identity.²⁴²

²⁴⁰ ... *die Welt in der wir anschaulich leben, mit ihren Realitäten, aber so, wie sie uns zunächst in der schlichten Erfahrung sich geben, ...* (My translation)

²⁴¹ Or as Husserl puts it: *im natürlichen Dahinleben* (see section 5.2.3)

²⁴² *Das Erste ist die schlicht gegebene Lebenswelt, und zwar vorerst so, wie sie als „normale“, schlicht, bruchlos in purer Seinsgewissheit (also zweifellos) daseiend sich wahrnehmungsmäßig gibt. Mit der Etablierung der neuen Interessenrichtung und somit in ihrer strengen Epoche wird sie ein erster intentionaler Titel, Index, Leitfaden für die Rückfrage nach den Mannigfaltigkeiten der Erscheinungsweisen und ihren intentionalen Strukturen. Eine neue Blickrichtung, in der zweiten Reflexionsstufe, führt auf den Ichpol und das seiner Identität Eigene.* (Italics in original, translated by Zahavi)

Husserl (Hua, VI: 168) thus takes the life-world as a basis for approaching the transcendental ego, where subjectivity and the object form a subjective system of correlation, indexed by the things. Hence, with the index of the things one does not have to jump into the transcendental endeavour, but one works oneself into the transcendental reduction. But phenomenology does not merely focus upon the subject, it takes the *subject-world* relation as its basis, as this is where all *meaning* (Sinn) for a subject emerges, where the phenomenological project is able to supplement “the generality of cognitive units” with a “generality of a regulated typicality of subjective cognitive modes”²⁴³ (Hua, VII:41).

Husserl’s transcendental reduction in the ontological way thus provides the means to utilise the life-world to account for a subject’s relative first-person perspective, one necessitating that individualised perceptions (*Wahrnehmungen*) of this life-world happen within an inherently intersubjective space.

6.2.4. The Eidetic Structure of Consciousness

These transcendental investigative methods have implications that are relevant in the current context. Empirical-psychological accounts focus upon a specific act of cognising (as for example when looking at Dennett’s penny in section 5.4.3). But when leaving this specific instance behind by trying to devote attention towards the more general way of cognising, towards the phenomenology of cognition (*Phänomenologie der Erkenntnis*), then the investigation is one regarding the essential or eidetic structures of consciousness in its totality. These eidetic structures (from the Greek *eidōs*, meaning *Wesen* in German or *essence* in English) are to be understood as the universal basis for consciousness (see section 4.5.1). But how does Husserl make the move from a specific phenomenological investigation – albeit a transcendental-reductive one – towards the proposal of these eidetic, universal structures?

²⁴³ ... *der Allgemeinheit der Erkenntniseinheiten [...] Allgemeinheit geregelter Typik der subjektiven Erkenntnismodi ...*

This question brings me back to one pending issue (see sub-chapter 5.4), i.e. the difference between introspective and phenomenological observations. For the purpose of moving away from the individual instance regarding a specific phenomenon, as it would supposedly be available to mere introspection, Husserl (Hua, XIX: 238) utilises what he calls an eidetic variation. This variation is founded upon the idea that

[i]t is self-evident, in regard to *certain* contents, that the modification or elimination of at least *one* of the contents given with them (but not contained in them), must modify or eliminate those contents themselves. (Hua, XIX: 233)²⁴⁴

Husserl is thus saying that, when it comes to *consciousness of something* there are some contents that are invariably necessary for a given conscious occurrence, while others could be different or missing altogether. By running the overall contents through a free imaginative variation it is, Husserl claims, possible to differentiate those essential contents from the non-essential ones.²⁴⁵ Husserl thus advocates a method of imaginatively altering aspects of the original intuition by substituting parts in such a way that it allows the essence to come into view, while the merely contingent drops away (Moran & Cohen, 2012: 161). This further methodological step towards a purification of

²⁴⁴ *Wir haben in Ansehung gewisser Inhalte die Evidenz, dass die Änderung oder Aufhebung mindestens eines der zusammen mit ihnen gegebenen (aber nicht in ihnen eingeschlossenen) Inhalte sie selbst ändern oder aufheben müsse.* (Translated by Findlay, italics in original)

²⁴⁵ It might be helpful to provide an example here. When discussing the temporal aspect of consciousness (see section 4.4) I reconnected with these necessary structures that bring about the constancy of a perceived object over time via the example of the meal in front of me while turning the plate and still perceiving my meal and not a mere sequence of different aspects (see footnote within section 5.3.4). When investigating these phenomena, it is possible to exchange one meal for another or even achieve the same effects with an empty plate (or any other suitable object). It is equally possible to turn the object to the left or to the right, or vertically (although not advisable in the case of a meal). Hence, with this little list of examples I have put my finger on some contents that I could easily modify by an eidetic variation, and have done so without modifying or eliminating the relation between the phenomenon and the relevant recession-phenomena, which bring about the perceived constancy of the object. The relation between the phenomenon and the recession phenomena (as discussed in section 4.4) however could not be altered by me, as that would eliminate the object-constancy, and in that respect this eidetic variation provides the tool with which to divide necessary from merely contingent aspects of the phenomena.

the appearing phenomena allows the phenomenologist to uncover what is universal and necessary within the subject-object correlation while the introspective psychologist would only be able to make statistically derived probability claims. Phenomenology thus gets a hold of the *a priori* structures of consciousness, the ones that are not available to the introspective psychologist whose introspective accounts must remain limited by the contingent character of the described conscious appearance.

All these reductions lead towards the *a priori* working of the transcendental ego required to bring about the conscious subject-object relation. Husserl's phenomenology is thus undoubtedly a project that reaches further than the scientific question of how conscious experiences can be accommodated within a biological system. Husserl wants to use the undoubtable validity of immanent experiences without any naïve acceptance of any positing, and it is thus different from natural-scientific accounts in its fundamental, neither naturalistic nor idealistic approach.

Discussing these transcendental reductions thus provides a clearer picture of the relation between science and phenomenology, both approaching consciousness in a different manner and with different aims. Husserl's transcendental project is a phenomenological critique of cognition (*Erkenntniskritik*) concerning

the 'immanent' structures of consciousness, regardless of its possible, real or merely thought-of relations towards the transcendent object, and that while any relation towards a concrete (human) *I* as a centre of these acts is suspended. (Luft, 2010: 253).

To this end Husserl wants these transcendental reductions to reach further than the earlier phenomenological reduction. Husserl (Hua, XXIV: 210) wants the reduction to be a tool for the investigation concerning

the absolute phenomenon only, the one that carries nothing transcendent within itself and that therefore contains no longer anything that would characterise it as a psychological matter of fact.²⁴⁶

²⁴⁶ ... *nur das absolute Phänomen, das nichts von Transzendenz in sich birgt und darum auch nichts mehr von dem an sich hat, was es als Tatsache der Psychologie charakterisiert.* (My translation)

With the fundamental aim of Husserl's project in mind,²⁴⁷ it does not appear to be warranted to conceive of the transcendental reductions as a second set of investigative methods somehow placed alongside previously existing ones as some kind of pool from which one can draw whatever one chooses. The previously developed descriptive method has proven to be insufficient to provide the wholly general structures of consciousness. By the earlier, descriptive method, Husserl was thus unable to accomplish the task he set himself. But I will come back to this issue (see section 6.3.4).

6.3. Varela's Phenomenological Reduction

Varela (1995: 336) wants to utilise a reflective, phenomenologically reductive approach to take a fresh look at subjective experiences. And he wants to do this along the lines of Husserl's phenomenology with an overall aim of providing a basis for a new science of consciousness. Such a proposal seems to require that Husserl's phenomenology could be incorporated into Varela's framework. But, despite some initial fit between Varela's system-theory and Husserl's phenomenology in terms of the priority of first-person accounts (see chapter 3), the self-observing ego (see chapter 4), and even the possibility of performing a suspension of judgement (see chapter 5), it also became apparent that the pairing of phenomenology and science is – to say the least – inherently problematic (see chapter 3 and section 6.2). The apparent incompatibility of phenomenology and science can hardly be watered down, as any compromise on the phenomenological side would somehow invalidate that which phenomenology set out to achieve in the first place.

The neurophenomenologist's self-chosen task involves the collecting of phenomenological data while judgement is suspended. This data then provides the basis for descriptions regarding the reductively derived structures of experience, and these descriptive results are to be mathematised to develop algorithms that could be incorporated into a naturalistic account or used to run this data alongside neurological data. These plans are, as Petitot

²⁴⁷ A project that is deemed to be so fundamental that it undercuts the differentiation between idealistic and naturalistic accounts as discussed earlier in section 6.2.2.

et al. (1999: 43) put it, a “naturalist reversal of Husserlian phenomenology.” There is a multitude of ways in which to achieve this reversal. Petitmengin (2009) for example suggests an attempt to correlate neurological data with experiential accounts as derived via a phenomenological method, while Thompson (2010) suggests the utilisation of experiential accounts to serve as a heuristic aid to interpret neurological data. However, Petitot et al.’s *reversal idea* in particular is the one that provides the most detailed account of how to accomplish the turning of Husserl’s phenomenology into an exercise that fits naturalism and thus warrants a closer examination.

This naturalising attempt appears to rest upon the neurophenomenologist’s construal of Husserl’s phenomenology as an anti-naturalist endeavour, an endeavour that could be turned around into a naturalist one if it was possible to invalidate “the scientific motives of Husserl’s anti-naturalism” (Petitot et al., 1999: 39). The charge of being anti-naturalist could find a possible basis in Husserl’s (Hua, XXV: 322) staunch rejection of naturalism as a “flawed philosophy by principle”,²⁴⁸ but that would be to misconstrue what Husserl’s project is about. Phenomenology is the science of the transcendental, pure and universal mind (*Geist*), it is a universal endeavour, invalidating the division between the arts (*Geisteswissenschaften*) and the natural sciences (*Naturwissenschaften*)²⁴⁹ as a more fundamental project (Hua, VIII: 361). Because of his phenomenology’s foundational character Husserl (XIII: 296) wants an investigation

in undetermined embodiment (or none at all) and in undetermined personality.²⁵⁰

Husserl’s relation towards the naturalist sciences is thus one (see especially chapters 3 and 5) whereby phenomenology is prior to the natural sciences, trying to undercut the difference between realism/naturalism on one side and idealism on the other (see sections 3.2.3 and 6.2.2). It thus follows that one

²⁴⁸ ... *den Naturalismus als eine prinzipiell verfehlte Philosophie erkennen ...* (My translation)

²⁴⁹ See explanatory footnote in sub-chapter 3.1 about the German difference between the arts and the natural sciences.

²⁵⁰ ... *in unbestimmter Leiblichkeit (oder gar keiner) und in unbestimmter Persönlichkeit.* (My translation)

might be warranted to speak of Husserl's non-naturalism, but it appears to be unwarranted to portray Husserl's position as anti-naturalist just because he maintained that naturalism could not cater for the needed transcendental investigation of consciousness that phenomenology has as its task (see chapter 5).

Within this sub-chapter I thus need to discuss these naturalising attempts to make phenomenology fit with natural-scientific accounts. But before doing so, it might be best to look at the argument for the possibility of these naturalising attempts as brought forward by neurophenomenologists. They take Husserl's phenomenology to be *anti-naturalist* and it is maintained that Husserl had *scientific reasons* to take this anti-naturalist position. The discussion around this naturalisation thus aims to invalidate Husserl's (alleged) anti-naturalism and focuses upon Husserl's scientific reasons for rejecting a naturalisation of phenomenology. Therefore I need to start by developing this envisaged naturalisation in more detail (see section 6.3.1). My second concern focuses upon the goal of mathematisation and the use of algorithms (see section 6.3.2), while the further discussion relates to the proposed utilisation of Husserlian descriptions (see section 6.3.3). This then enables me to introduce some of the actual proposals of how to achieve this naturalisation in practice (see section 6.3.4) with a clear focus upon Varela's and Petitot's work.²⁵¹ This discussion leads to a dead-lock between phenomenologists and the protagonists of neurophenomenology. A dead-lock that might be solved by abandoning Husserl's goal of a universal science of consciousness by applying only some of his methods within a scientific framework.

6.3.1. The Naturalisation of Phenomenology

From that discussed throughout this investigation in relation to Husserl's phenomenology it seems as if the pairing of naturalising projects and phenomenology will be difficult. This is due to Husserl's philosophical reasons (see chapters 3, 4 and 5) for engaging in a transcendental and non-naturalist

²⁵¹ The reason for this is that the overall-idea of the neurophenomenological proposal is owing to Varela himself, and that Petitot follows Varela's conception of such a neurophenomenology rather closely.

phenomenological investigation which aims to clarify the essence of the subject–object relation. Husserl (Hua, IV: 297) is very clear about this point:

Subjects cannot be dissolved to be nature only, because then, that which gives nature sense would be missing.²⁵²

As neurophenomenologists construe Husserl's transcendental investigations as being essentially anti-naturalistic, their hope for achieving a naturalisation of his phenomenology rests upon an attempt to invalidate Husserl's alleged anti-naturalism. If that worked, so the hope, Husserl's phenomenology could be incorporated into the natural sciences. This is where two issues emerge. The first one is the fact that the neurophenomenologists engage exclusively with Husserl's *scientific reasons* for rejecting the possibility of naturalising phenomenology, while not considering Husserl's philosophical reasons that rendered his investigation a transcendental, non-naturalist one.²⁵³ This will be the main topic of this section. There is however a second issue, and that is that some of Husserl's own remarks regarding the natural sciences appear to open a door for a naturalising attempt. While accounting for these remarks I will clarify the issues around Husserl's *scientific reasons*.

Husserl (Hua, VI: 48) argued that the modern natural sciences are subject to multiple changes of *sense* in that the sciences account for the given manifold of experience in terms of standardised ideal forms, especially those of mathematics. These changes of *sense*, from an experienced one to a scientifically accounted-for *sense*, happen because the sense-bestowing influences of the *habitualities* (see section 4.5.2) and/or the *life-world* are not taken into account. Lived experience thus provides vague essences that cannot be fully captured by the standardised, ideal forms of the natural sciences.

²⁵² *Subjekte können nicht darin aufgehen, Natur zu sein, da dann das fehlen würde, was der Natur Sinn gibt.* (My translation)

²⁵³ As pointed out repeatedly across the earlier chapters, Husserl's phenomenology aims to undercut the position from which a decision for or against naturalism could be made.

But in an addendum (XXIII) to *Crisis* Husserl (Hua, VI: 482) considers the following:

For the human being biology is essentially guided by its humanity, which is experience-able in a truly original manner; there alone life is given in an original way and in the most authentic manner through the self-understanding of the biological dimension.²⁵⁴

Hence, Husserl sets the biological sciences apart from the sciences of physics and mathematics in that there is something specific to biology that includes this feature of *Menschlichkeit* which Keane translates as humanity, but which could equally be translated as *human-ness*. Biology's presupposition of the feature of 'being alive' brings it thus close to the life-world (see section 6.2.4 – the ontological way) as the original source of all evidence. This close proximity of biology to transcendental phenomenology allows Husserl to take biology to be “better able to avert falling into the Crisis that is inherent to mathematical physics.” (Meacham, 2013: 12). *Crisis* in this context is Husserl's (Hua, VI: 483) term for characterising sciences – especially mathematics and physics – that have become a “pure work of art” (*Kunstwerk*),

referring only to themselves and no longer able to trace the genesis of their meaning structures back to the life-world as the source of all the originary evidence. (Meacham, 2013: 20)

Hence, when wanting to naturalise Husserl's phenomenology one could be tempted to try and make phenomenology fit biology. Biology and a biologically influenced – enactive – psychology could thus appear to be the scientific partner of choice for such a naturalisation project, and exactly the biological foundation together with an enactive psychology are the positions entailed in Varela's framework.

However, there are two problems to be considered. Firstly, neurophenomenology aims to include the multiple influences shaping *lived experience* with a descriptive science able to account for the “non-exact, vague or morphological essences” of *lived experience* (Zahavi, 2004: 334).

²⁵⁴ *Die Biologie ist beim Menschen wesensmäßig geleitet von seiner wirklich original erfahrbaren Menschlichkeit, da allein ist überhaupt Leben original und in eigentlichster Weise im Selbstverständnis des Biologischen selbst gegeben.* (Translated by Keane)

Neurophenomenology wants to capture these *vague essences* via a phenomenological investigation to develop a mathematical description of these (Petitot et al., 1999). I will need to say more about this shortly, but for the moment it is important to point out that Husserl (Hua III: 9) rejected the idea of imitating the mathematical method for use in philosophy. For him this “is not only unfruitful but wrong, and has the most injurious consequences.”²⁵⁵ However, and this is where Husserl’s ‘*scientific reasons*’ come in, Petitot et al. (1999) construe Husserl’s rejection of the possibility for such a mathematisation as one that is due to the fact that mathematics had certain limitations which Husserl took as absolute. With further scientific and mathematical developments – beyond what Husserl thought possible at the time – Petitot et al. (1999) make their naturalising-claim. This claim is built on the presumption that Husserl could no longer uphold his *anti-naturalist* position because his “so-called scientific motives” for rejecting a mathematical formulation of the structure of experience (Zahavi, 2005: 335) have been invalidated by recent scientific and mathematical progress.

But – and this is the second problem – even the phenomenology–biology pairing is not without problems. Biology concerns itself with the universal study of sense-formation in the *life-world*. But it still remains a regional ontology nevertheless – i.e., a science of regional type: *living things* (Meacham, 2013: 20). It thus follows that although such a regional (biological) ontology would appear much closer to life, phenomenology, by Husserl’s account, would still remain prior to and more fundamental than biology. Hence, the initially appealing suggestion to utilise biology as a *science of life* to somehow establish the needed link between science and phenomenology is still problematic. With this in mind it is best to get back to the actual naturalisation project.

While trying to make a case for the naturalisation of Husserl’s phenomenology, Petitot et al. (1999: 53) discuss what they take to be

²⁵⁵ ... *jede Nachahmung des mathematischen Verfahrens ist in dieser Hinsicht nicht nur unfruchtbar, sondern verkehrt und von schädlichsten Folgen.* (My translation)

forerunners of their own attempts.²⁵⁶ With recourse to Daubert, Merleau-Ponty and Chambon the authors portray their own attempts as something of a movement towards naturalisation, a movement that can – historically – be traced as far back as Daubert, who spent a holiday together with Husserl in 1905 (see sub-chapter 4.3) and engaged with Husserl’s phenomenology. However, Daubert’s position was – as Petitot et al. (1999: 52) acknowledge themselves – the view that consciousness was no more than a function, a function that cannot be isolated by neutralisation, *epochē* or reduction. But taking consciousness as a mere function and rejecting the possibility of *epochē* and reduction, one seems to be left with a naturalisation project that – although it has been formulated in relation to Husserl – does not actually propose the naturalisation specifically of Husserl’s phenomenology but rather sounds like an attempt to formulate a completely different way of accounting for consciousness, but I will have to come back to this issue a little later.²⁵⁷

Petitot et al. call Merleau-Ponty in as another challenger to Husserl’s project, this time stressing the importance of perception for Merleau-Ponty, a conception whereby natural organisations (i.e., Varela’s autopoietic systems) put the surrounding physical space to use. The authors (Petitot et al., 1999: 53) take it that Merleau-Ponty’s “perception-driven utilisation” of physical space is dependent upon a *phenomenal topology* and a *phenomenological phusis*. Taking the phenomenal topology – according to Petitot et al.’s (1999) construal of Merleau-Ponty – as the realm in which the phenomenal events are experienced consciously, this construal of Merleau-Ponty then seems to fit with Husserl’s project, i.e., the investigation of a subject’s object-experience. But – and this appears to be the crux of these authors’ argument – the pairing of the phenomenal topology with the *phenomenological phusis*, i.e., the physical pre-condition and – if that is what is implied by the author’s usage of *phenomenological* – structure implies that the phenomenal topology appears

²⁵⁶ Petitot et al. provide a comprehensive overview on the problem and project of naturalising phenomenology. The book is edited by Petitot, Varela, Pachoud and Roy, providing a collection of papers from 22 contributors, all in favour of naturalising phenomenology one way or another.

²⁵⁷ For greater detail on Daubert’s position see Schuhmann & Smith (1985) *Against Idealism: Johannes Daubert vs. Husserl’s Ideas I*.

to nevertheless depend upon exactly that phenomenological *phusis* – or to switch from the Greek to the English: the *phenomenological nature*. And that – so Petitot et al.’s hope – could link the phenomenological pursuit directly to a naturalist underpinning, one that Husserl’s phenomenology remained neutral about.

Chambon on the other side is called in by Petitot et al. to initiate a re-thinking of the idea of nature and the dualism between objectivity and subjectivity.²⁵⁸ This is a more complex and further reaching approach, challenging first and foremost the concept of nature. It thus somehow fits with what is at the heart of the naturalisation problem, i.e., to

make intelligible the fact that one entity can have both the properties characteristic of matter and those characteristic of mentality in spite of an apparent heterogeneity between them (Petitot et al., 1999: 46)

It is thus an attempt to make the heterogeneity between matter and the mental disappear by changing the way in which we characterise mental properties (Petitot et al., 1999: 46), or – in relation with Chambon – how we define the concept of nature, as this definition may imply this heterogeneity, or – alternatively – make it go away.

With these brief accounts of their forerunners in place Petitot et al. move on to focus upon Husserl’s rejection of the possibility of naturalising phenomenology. Any success in mellowing this presumed anti-naturalist position ascribed to Husserl may provide hope of achieving the aimed for naturalisation of phenomenology, despite the different – more fundamental – intentions of its originator. In trying to achieve just that, the authors claim:

it can be argued that most of the genuinely scientific reasons that Husserl might have had for refusing his phenomenology to be integrated into the field of the natural science [...] have been invalidated by the progress in the sciences and can now be regarded as false. (Petitot et al.: 1999: 54)

²⁵⁸ Chambon’s 1974 *Le Monde comme Perception et Realite* is more of an epistemological project and Chambon has not been named as a French phenomenologist, neither within Waldenfels’ (1987) extensive anthology of French Phenomenology, nor in Gondek & Tengelyi’s (2011) anthology focusing specifically upon the New Phenomenology in France.

Hence, their attempt exclusively addresses Husserl's *scientifically motivated* rejection of a mathematising naturalisation. This proclaimed scientific progress is supposed to manifest itself in the form of physical-mathematical theories able to explain macro-level emergence of structures based upon micro-level constituents, coordinated by an intermediary meso-level. It is not necessary to go into all much detail here, but – and this is quite remarkable – such a theoretical framework is seen by the authors (1999: 55) as “the first steps of a qualitative physics of phenomenal morphologies.” Or, to put it more plainly, these mathematical theories are supposed to provide the **first steps** in Petitot et al.'s attempt to account for emergent macro-levels of experience.

It is not exactly clearly defined what constitutes these micro- and macro-levels of experience, but the authors claim that the macro-level is dependent upon encountered deformations. Hence, the experiences are structured on this macro-level, while these macro-level structures themselves are shaped by the experiences. This structural influence of the experiences is mediated by a meso-level, functioning as described by the mathematical algorithms that Petitot et al. want to gain from their mathematising naturalisation of phenomenology. In this respect it looks as if this project aims for a mathematical-algorithm mediated, structural account of phenomenal properties, instantiated upon micro-level constituents, which is – presumably – the equivalent of Husserl's *hyletic* experiences. I leave the question of how such an attempt stands in relation to Varela's non-reductive agenda for a while and instead focus on the mathematisation issue here.

Petitot et al. admit that these first steps are still in the process of constantly improving our understanding of what exactly is going on here. But the tentative nature (*first steps* and a still *on-going improving*) of our understanding indicates a currently limited ability to understand what is not fully understood yet. Nevertheless, the authors claim that the current achievements already warrant them to claim that Husserl's *scientific reasons* for the impossibility of a physics of phenomenality have become void and can thus no longer validate Husserl's rejection of naturalising phenomenology.

6.3.2. Mathematisation and Algorithms

Mathematics thus plays a crucial role in Petitot et al.'s attempt to argue for the fact that Husserl's *scientifically motivated reasons* for rejecting naturalism were based upon considerations that could now – with the scientific progress of almost a century at our hand – no longer be upheld. As the mathematical reconstruction of descriptions that are derived from Husserl's phenomenology is at the heart not only of Petitot himself, but also of Varela, it is necessary to get a clearer picture here.

While Varela (1999b: 266ff.) provided an account of how to mathematise time consciousness, Petitot (1999: 330ff) targeted perception. But both contributions unfold within the overall general hypothesis that

when provided with adequate characterisations such as those conducted along the lines of Husserlian phenomenology, phenomenological data can be adequately reconstructed on the basis of the main tenets of Cognitive Science, and then integrated into the natural sciences. (Petitot et al., 1999: 48)

And this reconstruction is to be achieved by the utilisation of mathematical tools. With reference to Husserl's (Hua XVI) 1907 lectures *Thing and Space* Petitot (1999: 330) agrees with Husserl that the descriptive results of phenomenology could not, in Husserl's time, be translated into mathematical models. However, newly developed mathematical tools of differential geometry and topology do now provide the ability to derive morphodynamic models of Husserl's phenomenological descriptions (Petitot et al., 1999: 56). Petitot's paper provides an account of how a mathematical algorithm can be formulated, providing an explanation of how Husserl's sensuous moments, the *hyle* (see section 3.3.4), are to be *segregated* or *morphed* together to result in *salience*, i.e. how the *hyle* has to be organised to produce perceptive results (noema) that somehow stand out against their background (Petitot, 1999: 333–338). According to Petitot (1999: 343) such a morphological schematisation allows for a mathematisation of the components of the phenomenological descriptions, i.e., for the noetic synthesis of hyletic data whereby experienced objectivity would be nothing but the noematic correlate

of eidetic constitutive rules operating noetically upon hyletic data (Petitot, 1999: 362).

However, and despite its probable initial appeal, this proposal is not without problems. Petitot is interested in the individual constitution of the visible object, space and movement as accessible to visual perception. But that leads to the inherent difficulty that his morphodynamic approach, utilising geometry and topology, must remain focused upon geometrical form and structure. But this focus upon visual perception seems to somehow ignore constitutive contributions from other sense-modalities. A second problem is the suggested mathematisation itself, but this breaks down into two sub-problems, one

- a) regarding the algorithms, while the other one
- b) concerns the argument that the availability of new mathematical tools renders Husserl's alleged anti-naturalist position flawed.

I will discuss these in that order.

The process of mathematisation is supposed to provide a non-naïve formal version of noematics by formulating algorithms (Petitot, 1999: 338). These algorithms are to be thought of as general mathematical procedures following a schematic structure. And these algorithms are hoped to be implemented by natural processes. Hence, by deriving these algorithms from phenomenological descriptions one is, after their mathematisation, able to naturalise these descriptions, i.e., to collapse them into a more fundamental scientific theory. In relation to Varela's and Maturana's logical accounting, based upon the differentiation between system-internal and system-external observation (see section 2.3), any such naturalising achievement would necessarily manifest itself in two ways. When viewed from the *outside* of a system, one would gain a macro-physical theory, while an *inside*-view would provide the means to implement such an algorithm upon a neuronal net (Petitot, 1999: 338).

But any such *outside*-account must remain within the explanatory limits posed by Varela's and Maturana's closed systems, hence only capturing coarsely what is going on inside such a system. The internal account on the other

hand, as an algorithm-implementation upon a neuronal net would require an initial endorsement and acceptance of some sort of a connectionist framework. This connectionism – in relation to the cognitive sciences – aims to develop biologically realistic models of the brain and of mental processing. Nevertheless, and this is the point here, these *biologically realistic models* are – currently – just that: i.e., they are mere models. These models would need to be instantiated within a living, self-referential system, but that seems currently out of the explanatory reach of the physical and chemical sciences (see chapter 2). If the envisaged mathematisation of phenomenological descriptions could be made to work, one would most likely still end up with

- a) an outside-account of a formal noematics, or one may want to say a functional account, one that only provides a theoretical – disjunct – approximation of what is really going inside, while
- b) the possibility of a confirmation that this theory actually matches what is going on inside the neuronal net of an autopoietic system would need to rely upon a mere model.

All this does not appear to provide much more than the fact that the acceptance of a connectionist framework – one that intuitively fits well with the notion of an autopoietic system – provides the chance to utilise descriptions from the first-person perspective and make these fit the genesis of space and object constitution as modelled upon a artificial neuronal net. Alternatively, Thompson (2010) seems to imply that it is possible to utilise mathematisation, based upon interpreted experiential data in relation to neural data-sets to derive explanatory algorithms, i.e. formulas that could explain the interplay between experience and physical system-processes. This is an issue that will find more consideration in relation to the search for the descriptive invariants (see chapter 7).

I leave this mostly empirical mathematisation/algorithm-issue at this point, as there is still the second problem to be attended to. That was the question as to whether scientific and mathematical developments have indeed pulled the

carpet from under Husserl's position.²⁵⁹ If they have not, then Husserl's rejection of any naturalising attempt would still stand unharmed, and that would require us to find different means by which to nevertheless try to naturalise Husserl's phenomenology. However, Petitot et al. justified their naturalising-attempts of Husserl's phenomenology by providing an argument to invalidate what they perceive as Husserl's *scientific reasons* for his rejection of naturalising phenomenology. But I discussed earlier that Husserl's reasons for rejecting a naturalising agenda for phenomenology were not merely scientific, but that he had genuine philosophical reasons for his position (see section 6.2.2). If one thus breaks free from Petitot et al.'s exclusive focus upon Husserl's so-called *scientific reasons* and considers the actual and wider motivation for Husserl's position, then it is highly questionable as to whether a mere weakening of these *scientific reasons* provides in itself enough of a justification for ignoring Husserl's overall intentions by nevertheless trying to naturalise phenomenology.

6.3.3. The Actual Plan

In the investigation so far Petitot et al. address what they take to be Husserl's *scientific reasons* for rejecting a naturalist agenda. But if Husserl's phenomenology nonetheless remains to be inherently non-naturalist, the prospects of naturalising it just so may not look as easy as neurophenomenology would want. It also remains questionable whether Husserl's stance towards biology as a science of life – closer to transcendental phenomenology than the other natural sciences – could provide support for the naturalising agenda.

Petitot et al. (1999: 64) remain critical of *classical reduction* as a means to achieve the sought after naturalisation. Such a classical reduction would entail that the entities, concepts, laws and theories at a higher level are simply re-descriptions of more fundamental theories with a unifying aim.

²⁵⁹ See Zahavi's (2004) critical remarks regarding the mathematisation project of neurophenomenology, one that should be – according to the reading of the neurophenomenologists – possible within Husserl's framework, a claim that Zahavi rejects with his own reading.

The favoured approach appears to be a naturalisation as a form of mutual constraining. Varela (cited in Petitot et al., 1999: 67) captures this in his *Working Hypothesis of Neurophenomenology*:

Phenomenological accounts of the structure of experience and their counterparts in cognitive science relate to each other through reciprocal constraints.

The idea here is that neuro-biological data in the form of mirror cortical neurons, efference copy and resonant cell assemblies have phenomenological counterparts in the form of intersubjective constitution, voluntary action and cognitive states. But these counterparts do not bridge a clear-cut differentiation between the two; that would leave phenomenological data as a mere adornment. These two accounts are mutually-constraining and any naturalisation effort thus has to strive to account for

- a) the externally induced emergence of neurobiological events in relation to encountered fluctuations (see chapter 2), while
- b) phenomenological descriptions are supposed to stay structurally close to the underlying experiences of these fluctuations.

However, all this is supposed to happen in relation to earlier mentioned considerations of Chambon, i.e., the enlarging of the concept of nature. This enlarging or widening of the concept of nature should safeguard that nature can henceforth accommodate the “phenomenalisation of physical objects” (Petitot et al., 1999: 69).²⁶⁰ It is important to remember here that Varela’s concept of cognition was of a basic autopoietic process, one that serves the system by collapsing environmental contingencies into internal actualities. In this respect the biological foundation of the autopoietic system seems to provide the means to account for such a widening of the concept of nature. Varela can thus utilise this needed phenomenalisation of the physical objects that constitute his autopoietic systems: this phenomenalisation is already accounted for by the fact that his systems are *alive*.

²⁶⁰ This notion of a widened concept of nature bears some resemblance to Wundt’s Psychophysical Parallelism and – of course – with the mysterious phenomenal property Chalmers started to search for.

The basic idea is that phenomenological reductions show that individual world-constituting achievements are brought about by a transcendental consciousness, a consciousness that is structured generally in such a way that it provides the condition of the possibility to be conscious at all. However, when sorting this condition of the possibility to be conscious into an evolutionary framework a different approach seems possible. On the individual, ontogenetic level consciousness appears to be a relation that is *always becoming*, i.e., one that constantly emerges newly in the relation formed between the experiencing subject and its world. Nevertheless, approaching consciousness upon the species or phylogenetic level, it reveals itself as one that *became already*. The phylogenetic perspective thus leaves consciousness as a possibility that results from a structural layout that has developed (within an evolutionary timeframe) out of a given species' adaptive radiation. And that would – on the phylogenetic level – leave consciousness as a functional possibility, a hardwired precaution to enhance species-survival in a way that resembles the earlier mentioned idea of Daubert.

This, then, is where the importance to Petitot and Varela of the mathematisation finds its basis. To account for the individual world-constituting achievements it is important to be able to provide a naturalistic description of these constitutive processes to account for

the morphological and qualitative structures of the *Umwelten* as emergent macroscopic organisations. (Petitot et al., 1999: 69)

But these physical descriptions are to be developed in relation to a prior phenomenological description, and that is what we need to consider next.

6.3.4. Using Husserlian Descriptions

From the discussion throughout the earlier section of this chapter (see section 6.2) it is clear that Husserl had more than what Petitot et al. refer to as *scientific reasons* to take a non-naturalist position. His aim was to carry out a phenomenological investigation of transcendental subjectivity, undercutting naturalist and idealist positions. But although, as Zahavi (2004: 335) states rather diplomatically

[I]t would, of course, be something of a slight exaggeration to claim that the notion of transcendental subjectivity is universally accepted in contemporary philosophy

it remains nevertheless undisputed that exactly this transcendental subjectivity is what Husserl's phenomenology is about. And to conduct an investigation with this aim, the transcendental reductions are necessary. However, the promoters of the naturalisation of Husserl's phenomenology want to utilise, as they call it, *Husserlian descriptions* to achieve their goal. But despite the attributive modifier 'Husserlian', the successive noun – *description* – of this pairing gives it away nevertheless: the naturalising agenda is to be achieved by the utilisation of Husserl's early descriptive method (see section 6.2.1). Varela (1999: 267) explains that he wants to derive these descriptions by bracketing phenomena as they appear “directly to our flesh-and-bone selves.” Hence, Varela wants to phenomenologically assess the *reelle* parts of the stream of consciousness, the phenomenologically purified subset of the flesh-and-bone incarnation constituted by the real parts of that very same stream.²⁶¹

The so suggested way of utilising one, but not the other method of reduction requires the differentiating of Husserl's phenomenological project into two separate projects – the descriptive phenomenological project as elaborated within the *Logical Investigations* and the transcendental phenomenology that followed within *Ideas I*. One might think that these two strands are independent. The second edition of the *LI* dates back to 1913, as does *Ideas I*. This seeming co-existence of a *descriptive* and a *transcendental phenomenology* at the same time may make it seem as if there were indeed two different phenomenological projects. But that would constitute a misconception of what has actually happened here.

Husserl's *LI* shows distinct alterations between the first – 1901 – edition and the second – 1913 – edition. In the first edition of the *LI* Husserl (Hua, XIX/1:

²⁶¹ See discussion in section 3.3.1. on the difference between *reelle* and real in relation to Husserl's first concept of consciousness.

24) explains that “Phenomenology is descriptive psychology.”²⁶² This statement is omitted in the second edition of the *LI*, and replaced with:

Phenomenology is precisely not a descriptive psychology, its very characteristic “pure” description [...] is not an empirical (natural-scientific) description, as phenomenology remains neutral about the natural completion of all empirical (naturalistic) apperceptions and positings.²⁶³

Husserl (Hua, XIX/1: 365) makes a clear differentiation between a descriptive-psychological and the phenomenological approach whereby the latter necessitates a “phenomenological purification.” Husserl thus recognised that a descriptive psychology or a phenomenological psychology remains inherently tied to what it must overcome, and that is the natural attitude with its positing. That positing – i.e., the naïve belief in the existence of *this or that* within the *here and now* – forms the basis of empirical descriptive accounts. It thus follows that Varela’s self-imposed limitation to employ a descriptive neurophenomenology only, leaves the project within the natural attitude. But if that is the case, then such a descriptive neurophenomenological project can hardly qualify as a truly phenomenological one any longer. This is where Zahavi (2004: 339) claims that this limitation to a phenomenological psychology would constitute a mere “local regional-ontological investigation”. Hence, every such attempt would fail to be a true “global” phenomenological investigation regarding the constitutive dimension of subjectivity.

There are certainly good heuristic reasons to carve Husserl’s overall work into distinct stages to make the progression of his thoughts more assessable. However, these reasons do not extend beyond their heuristic application. It follows from the discussion so far that a selective utilisation of these distinct phases leaves at least two questions to be asked:

²⁶² *Phänomenologie ist deskriptive Psychologie.* (My translation)

²⁶³ *... ist Phänomenologie eben nicht deskriptive Psychologie, die ihre eigentümliche „reine“ Description [...] ist keine empirische (naturwissenschaftliche) Deskription, sie schließt vielmehr den natürlichen Vollzug aller (naturalistischen) Apperzeptionen und Setzungen aus.* (My translation)

- Would such a programme still deserve to be called one conducted along the lines of Husserl's phenomenology – as Varela explicitly does?

And even more so,

- could such a project still count as a phenomenological one? At the end of the day, the chosen descriptive method has not even left the natural attitude behind and still keeps a naïve belief in relation to the *flesh-and-bone self* in play.

Zahavi (2004) and Gallagher (2008) thus remain critical about the proposed selective utilisation of Husserl's methods. But Depraz – writing in 2013 – nevertheless explains in terms of the “rigorous first-person phenomenology” she and Varela (Depraz et al., 2002) have in mind, that

[s]uch a phenomenology needs to be distinguished from a theoretical conceptual one: the method of the latter is hermeneutical and its object primarily textual; the former takes a specific lived situation as its singular (each time different) object, and its method of accounting for it is of a descriptive kind. (Depraz, 2013: 281)

Depraz thus sees a clear-cut distinction between a theoretical and an empirical phenomenological project. Nevertheless, her so defined descriptive phenomenological project and Husserl's transcendental phenomenology are not supposed to be autonomous. Depraz insists that both need each other historically and hermeneutically to grow from each other.

It looks as if a partial utilisation of Husserl's phenomenological methods (which would probably thus cease to be Husserlian and/or truly phenomenological) may enable a fresh approach to first-person investigations, distinct from the earlier introspective (Wundt-like) approach that has fallen into disrepute. Nevertheless – due to Husserl's clear phenomenological vision – any kind of neurophenomenological utilisation of Husserl's phenomenological methods seems to take place by ignoring the goals of Husserl's foundational project. It thus looks as if the envisaged use of Husserl's methods within a scientific context has strict limitations.

6.4. Chapter Summary

Varela's utilisation of Husserl's methods entails an initial suspension of judgement, a reduction and the elucidation of structural invariants. Assessing the second step of this proposal, I discussed Husserl's reductions, as Varela's proposal is intrinsically linked to Husserl's phenomenology and its methods.

The discussion of the reductions (see sub-chapter 6.2) revealed Husserl's own realisation that the first – descriptive-phenomenological – could not do the job he required of it, and it thus had to be refined to become a methodological tool fit for Husserl's phenomenological project. That led me to argue that there are *not* two separate investigative access-routes, one descriptive phenomenological and one transcendental-phenomenological, waiting in the methodological tool-shed to be grabbed by whomsoever to be utilised according to their own agenda.

Varela's envisaged application of the reduction (see section 6.3) is complex; it entails a planned reversal of Husserl's alleged anti-naturalist position, with a subsequent naturalisation of his phenomenology utilising his descriptive-phenomenological method. Neurophenomenologists concentrate their efforts upon Husserl's *scientific reasons* against naturalising phenomenology, countering them with developments in mathematisation and with the now available identification of localised neural events. However, this proposed mathematisation appeared to result in almost functional (system-external) accounts that seem to depend upon a system-internal verification that – at the moment – appears to be only available as an (artificial neuronal-net) model or via localising, neural imaging technologies. But despite these difficulties, with the sole focus upon the scientific reasons – which carried the mathematisation accounts forward – one has to bear in mind that Husserl's non-naturalism was not concerned with these scientific reasons. Husserl's phenomenological project is more fundamental because it provides the transcendental conditions for the sciences, hence it is supposed to undercut differentiations between naturalism and idealism. This fundamental project and its consequences appear not to have been addressed by the neurophenomenologists.

In relation to the proposal of a mutual constraint of phenomenal and natural-scientific occurrences I discussed the proposal for a re-conceptualisation of *nature* to accommodate a naturalisation project. Such an altered concept of nature, one that can accommodate for the phenomenalisation of sufficiently organised physical objects is one that intuitively seems to fit well with the main tenets of Varela's biologistic system-theory (see chapter 2). This, alongside Husserl's later considerations about the proximity of biology to transcendental phenomenology, may nurture the hope of an explanatory relation: The re-conceptualisation allows for living systems to emerge. One could thus hold the conviction that the close proximity of biology and phenomenology would allow phenomenology to be (at least biologically) naturalised and instantiated by Varela's biological autopoietic systems.

Husserl however remains very clear that even the biological sciences are limited to the regional ontology of life, and that means that they would – inherently – fail to deliver the further-reaching aim and universal results of his phenomenological project, which requires transcendental, not empirical methods.

With Husserl's claim that any neurophenomenological investigation could only constitute a *regional ontology* versus Depraz' suggestion to dissect a *theoretical* from a *rigorous first-person* phenomenology a dead-lock seems to appear. Presumably Depraz' dissection would need to sever the aspired *universality* of phenomenological investigations to utilise experiences by phenomenological methods, to explore consciousness. Hence, neurophenomenology would lose the phenomenological demand to be able to make universal, necessary and *a priori* claims about consciousness. However, perceiving Husserl's and Depraz' apparently opposing claims as forcing a decision for one or the other position runs the danger of neglecting the possibility that a descriptive project may still be useful and/or that a transcendental investigation could nevertheless inform an empirical project.

This is where the discussed differentiation between a phylogenic and an ontogenic perspective upon consciousness comes into force. If – at least some – consciousness-enabling structures could be explored from the phylogenic perspective, i.e., by taking consciousness as resulting from an evolutionary process across the generations, then a descriptive, empirical project may still prove useful, and such a project may even be enriched by transcendental investigations. To assess such a possibility it is necessary to focus upon the neurophenomenological aim to reveal invariant structures of experience as a starting position for the envisaged empirical project. The next chapter will thus focus upon the ability to get hold of experiential structures, as neurophenomenology could only work successfully if it is possible to reach and describe these experiences and to derive structural invariants from these.

7. Varela's Descriptive Invariants

7.1. Introduction

I discussed Varela's phenomenological reduction in relation to Husserl's reductive methods in the last chapter. Varela wants to utilise selected aspects of Husserl's methods and he hopes to access experiences as a secure basis for the elucidation of descriptive structural invariants within conscious states as a foundation for his project. Varela hopes to account for these experiences by uncovering a mutually constraining relationship with the underlying naturalist basis, provided by the autopoietic system. This puts the experiences centre-stage, and I will discuss these in relation to a proposed elucidation of the descriptive invariants involved in these experiences.

As these structural descriptions – hoped to be invariant – are to be derived from self-observational reports based upon the experiences at least two problems emerge immediately. Within this chapter I will focus upon these two problems. The first problem to address (see sub-chapter 7.2) is – as it was for Wundt – the difficulty that self-observational reports – even if gained by Husserl's methods – may still be somehow influenced by the utilisation of language. I will argue that linguistic influences pose a problem when it comes to accessing the experiences, a problem readily admitted by the protagonists of neurophenomenology. However, as neurophenomenology aims to evade these linguistic influences by focusing upon structure and by utilising a deep, pre-linguistic layer of experience, I also need to discuss the possibility of cultural influences upon these structures (see sub-chapter 7.3). Supported by empirical evidence I will argue for the fact that there are possible structural differences within pre-linguistic experiences and differences in the structure of emerging sense. In a second step I will argue that, due to Varela's decision to utilise a descriptive phenomenological approach, his project will only ever be able to provide culturally situated accounts of these structures. With these two strands of the discussion I will sum up the overall chapter (see sub-chapter 7.4), claiming that Varela's neurophenomenological proposal remains an inherently culturally situated project.

7.2. Linguistic Influences and Richir's Critique

I have, on several occasions, discussed the importance of individually constituted *meaning* for Husserl or *sense* for Varela. But with Varela's notion of a linguistic domain there is a risk that intersubjective influences may render his envisaged investigation regarding the individual constitution of *sense* as one skewed by this linguistic domain. Hence, an investigation may not capture the experience as it is originally experienced but only those experiences that can be conceptualised via the linguistic domain (see sub-chapter 2.7) The tacit influences of the linguistic domain may manifest themselves within a wide field of possibilities. On one end of the spectrum we may find Wundt's problem, concerning the individually realised variation in linguistic proficiency. Hence, intersubjective influences would manifest themselves as an individual, expressive lack or an un-equal distribution of expressive abilities across a sample-population. On the other end of the spectrum we may find a position as developed in cultural anthropology. Geertz (1976) for example claimed that the occidental conception of the person as a clearly defined individual, with a – more or less – aligned cognitive and motivational universe, understood as a dynamic centre of consciousness, experience, judgement and action is, although intuitively seeming so right to ourselves, a rather strange idea in the context of other cultures.²⁶⁴ This latter position would reduce the very idea of

²⁶⁴ Elias (1939/1997a: 12) has further elaborated upon concerns like this by conducting an investigation regarding cultural influences upon the "structure of human individuality." Elias utilises a historical/sociological methodology, as at the time of writing (1939) neuroscientific validation was not yet available and the investigation concerns a period reaching as far back as the mediaeval times, hence firmly out of reach of any current psychological validation. However, Elias (1939/1997a: 12) provides an argument for a gradual structural shift "towards an increased consolidation and differentiated control of human affect, and with that also of their experiences." This process of culturally shaping experience leads to an alteration of affects in relation to a culturally expected regulation. Elias (1939/1997a: 283) uses the example of children, who, during their upbringing, struggle to develop these culturally required structures of personality and claims that the difference between medieval adults and their children was, when compared with the distance between modern adults and children, rather miniscule. And that is nothing short of claiming that the way according to which an average adult individual experiences and relates to a given environment is dependent upon the instilled structure formed by the surrounding culture to be individually acquired. But, and this is the crux in relation to Geertz' claim, Elias

individuality down to nothing but a social construct, and would thus render any sort of investigation starting there – i.e., at the individual – as being one intrinsically entrapped in this (potentially unwarranted?) belief regarding individuality. Evidently such an extreme social constructivist position can have no place within this thesis investigating the possible usefulness of Husserl’s methods for Varela’s neurophenomenology. Entertaining such a point of view would render this investigation superfluous before it had even started. However, cultural influences manifest themselves by various degrees and they must not necessarily threaten the overall notion of individuality. To nevertheless trace the potential impact of cultural or intersubjective influences upon experiences, I will – at this stage – utilise aspects of Marc Richir’s phenomenology.²⁶⁵

The reason for utilising Richir in this context is that he takes linguistic abilities and cultural influences as a point of departure to utilise the fact “that

(1939/1997a: 284) takes the achieved mastery of the required affect-control as being dependent upon the development of a sufficient grasp of oneself and one’s conduct in relation to one’s environment. This culture-induced, structural psychogenesis brings about that spontaneous outbreaks of affects are harnessed for the sake of “a widening of the space of thought, beyond the now and reaching into past causal chains as much as anticipated future outcomes.” (Elias, 1939/1997b: 333) This “widening of the space of thought” thus becomes a “control-organisation (*Kontrollorganisation*)” for individual behaviour by placing the self opposite itself (Elias, 1939/1997b: 336); it is the means by which a surrounding culture “breeds (*züchtet*)” an ego that possesses the necessary distance to make itself the object of its own observations (Elias, 1939/1997b: 383). For Elias (1939/1997b: 389) one is thus encountering a psychologisation of the individual in terms of a culturally induced need for an extended control, internalised into the individual structures of experience and thought to adhere to the cultural demands of the surroundings. But these effects remain hidden to us as we normally perceive psychology as an un-historical science and quite happily differentiate between society on one side and the “world of thought (*Gedankenwelt*)” or the ideas of humans on the other side (Elias, 1939/1997b: 369).

But, as I mentioned, Elias’ whole historical/sociological account may lack the relevant empirical evidence for the cognitive scientist to actually accept such a cultural implication, conceiving as it does even the ego as I developed it earlier (see chapter 4 about the ego and especially about the ego ‘living’ in what we back then called the widened now) as an – at least partially – culturally induced achievement.

²⁶⁵ Richir’s oeuvre, although rather voluminous, is not available in English translation.

constantly forming sense is always an adventure”,²⁶⁶ i.e. a potentially open-ended journey (1992: 28). He refers to the fact that experience (*expérience*) always conveys some sense that remains strangely unavailable. Richir aims to show that the sense-formation of an intentional consciousness as revealed by Husserl cannot account for this sort of sense-surplus, hence Husserl’s account – especially within the *LI* – of the sense-constituting noeses with the resulting noema being at least partially incomplete. Richir is thus formulating a critique regarding Husserl’s early phenomenological project by specifically engaging with the *LI*.²⁶⁷ The *LI* are – as I discussed already (see chapters 3 and 4) – the relevant text in which Husserl developed his descriptive method, i.e., the one that Varela envisages using. However, for the sake of a focused discussion it is not necessary to place Richir’s critique in relation to others or to even follow Richir’s critique in relation to Husserl’s project. Richir’s considerations will thus only provide a lens through which I will assess Varela’s chances of utilising experiences as an appropriate means to derive the descriptive invariants central to his project. To do this, I will first recapture the relationship between the constitution of *meaning* and linguistic expression as Husserl envisaged it (see section 7.2.1). This provides the basis for contextualising Richir’s adventure of forming *sense* (*fait sens*) in relation to language (see section 7.2.2). With Richir’s considerations in mind, it appears as if any neurophenomenological data-elucidation is inherently one limited by linguistic constraints (see section 7.2.3).

7.2.1. Meaning and Language

From what I have discussed so far, one may think that Husserl’s constitutive account of intentional meaning is not one intrinsically linked to, or necessarily dependent upon, linguistic expression. And indeed, that would be true, at least partially. Already within *Ideas I* Husserl assesses specific problems of the noetic-noematic structures (Hua, III: 241-312). Husserl re-asserts the parallelism between noesis and noema, but points towards the danger that, when it comes to applying the terms of ‘expression’ (*Ausdruck*) and

²⁶⁶ ... *que le sens se faisant est toujours une aventure* ... (My translation)

²⁶⁷ See for example the first chapter: »*Le problème de l’analyse phénoménologique dans les Recherches Logique*» (Richir, 1992: 11ff.).

'signification' (*Bedeutung*) to either of these, one may end up with a certain ambiguity if not separating the parallel structures carefully. Husserl (Hua, III: 303) explains that

if that occurs, care must be taken so that there can be no doubt as to which of the structures the terms ought to be referred.²⁶⁸

In particular Husserl (Hua, III: 304) is concerned about

the familiar distinction between the sensuous, so to speak, the corporeal side of the expression, and its non-sensuous or "mental" side. We need not enter into a closer examination of the first side; likewise, we need not consider the manner of unifying both sides. [...] We shall restrict our regard exclusively to "signifying" and "signification".²⁶⁹

But as Husserl's exclusive restriction towards the 'mental side' and his solemn regard for the issue of signifying/signification somehow seems to relate to the linguistic sphere (*sprachliche Sphäre*) of expressing (*ausdrücken*), Husserl (Hua, III: 304) wants his reader to take the un-avoidable but

important cognitive step, [*of T.F.*] extending the signification of these words [*i.e., signification or signifying T.F. ...*] so that they can find application [...] to the whole noetic-noematic sphere: thus application to all acts, be they now combined with expressive acts or not.²⁷⁰ (Hua, III: 304)

Husserl has thus widened the extension of the term signification (*Bedeutung*) and he suggests using the term sense (*Sinn*) henceforth when referring to this broadened extension in terms of the signification of intentional acts. What Husserl thus captures as sense is what adds a new stratum to the intentional

²⁶⁸ *Ist das aber geschehen, so haben wir nur dafür Sorge zu tragen, dass es jeweils außer Zweifel ist, auf welche der Strukturen die Reden bezogen sein sollen.* (Translated by Kersten)

²⁶⁹ *Wir knüpfen an die bekannte Unterscheidung zwischen der sinnlichen, sozusagen leiblichen Seite des Ausdruckes und seiner unsinnlichen „geistigen“ Seite an. Auf die nähere Erörterung der ersteren brauchen wir nicht einzugehen; ebenso nicht auf die Weise der Einigung beider Seiten. [...] Wir blicken ausschließlich auf „Bedeuten“ und „Bedeutung“ hin.* (Translated by Kersten)

²⁷⁰ *Es ist aber nahezu unvermeidlich und zugleich ein wichtiger erkenntnisschritt, die Bedeutung dieser worte zu erweitern und passend zu modifizieren, wodurch sie in gewisser Art auf die ganze noetisch-noematische Sphäre Anwendung findet: also auf alle Akte, mögen diese nun mir ausdrückenden Akten verflochten sein oder nicht.* (Translated by Kersten)

acts, a stratum of manifest sense, available to thought and potentially expressible, but not dependent upon expression.

When perceiving, for example, a *white object*, beyond our initial first seizing, we explicate the given and posit it in such a way that we end up with: “This is white.” And although this does not need to be expressed at all, if something along the lines of the thought of “This is white” has been thought, then this additional stratum of logical signification – which is nothing but an expression, even without linguistic expression – has been added (Hua, III: 305). This all happens within Husserl’s strict structure whereby the noema is exclusively constituted by the noeses.

Of course, since Wittgenstein’s (1953/2003) famous *private-language argument* has been widely understood that such an extra layer of signification or sense is dependent upon intersubjective verification.²⁷¹ As I discussed earlier, Varela utilises his concept of the linguistic domain (see section 3.7.2) to achieve such an intersubjective verification and Husserl’s stratum of logical signification may appear as to share some similarities with Varela’s concept of the linguistic domain. But the crux is, here, that the phenomenological investigation is one that actually tries to undercut such a positing signification (see chapter 5 on the *epochē*). To stay with the white object, Husserl is not interested in the thought “This is white” but in the underlying experiences constituting the appearance of *this object* and its *white-ness*. And if Husserl’s stratum of the logical signification or expression (even without expressing) can thus be undermined, then any sort of linguistic influences should be out of play as well. But exactly that is something that Richir questions.

7.2.2. Richir and linguistic Influences

Richir agrees with Husserl’s widened concept of *sense* as a logical expression of thought. Even more so, Richir agrees with Husserl’s temporal structure that leads to the temporalising of the intentional object along the perceptual sequence beginning with the *Urstiftung* (see sub-chapter 4.4) and with the

²⁷¹ See discussion in sub-chapter 2.7.

spatialisation of the intentional object via the adumbrations, localising any object relative to the perceiver (see section 3.3.4). However, Richir (1992: 60) refers to these as a “language-based temporalisation/spatialisation” (*la temporalisation/spatialisation en langage*) as opposed to what he calls a *wild passion of thought*, “a primordial, not memorisable and immature wild-ness of thought”²⁷² (Richir, 1992: 56).

The notion of an emerging *wild sense* is not a new concept. Merleau-Ponty (1962/2002) had already questioned the efficiency of linguistic expressions, claiming that these expressions are insufficient to capture the actual experience of the world. In these situations, where possible description and actual experience of the world comes apart, one reaches the limits where that which *could-be-said* within the constraints of an existing – functioning – linguistic system is exceeded by that which *is-to-be-said*. Merleau-Ponty thus points towards a gap between:

- a) emerging sense, longing – so to say – for a logical signification, one which would normally be provided by the functioning linguistic system, and
- b) that which *could-be-said* within such a linguistic system, not providing the required fit.

Merleau-Ponty (1962/2002: 455) takes it that such a situation requires a creative expression (*l'expression créatrice*). However, and more important in the current context is the fact that this emerging sense takes the form that Merleau-Ponty (1968: 155) later calls *wild meaning* or *wild sense* (*sens sauvage*).

For Richir (1992: 59) this *wild-ness* of thought or this *sublime Stimmung*²⁷³ results from a) the passive – or even passible – reception of facticity as well as from b) an

²⁷² ... *une sauvagerie primordiale, immémoriale et immature, du penser*. (My translation)

²⁷³ Richir (1992:59) uses the term *Stimmung* (attuned-ness) in the German original.

opening in which the reception as a matrix of a phase of the world happens without any ontological-existential plan, an opening [...] that is not simply an activity, but “in progress” or “still emerging” constantly and always (phenomenologically) unconscious and tireless but always ready to “*sur-prise*”, exceeding any attempt to gain it as a “*prise*”.²⁷⁴

Hence, this wild or proto-sense manifests itself exactly where environmental contingencies are passively received, or even endured, and begins its continuous, unplanned and surprising collapse into individually realised actualities. Richir speaks here of a proto-temporalisation/proto-spatialisation as it is supposed to happen before the temporalisation/spatialisation which Husserl’s intentional analyses could reveal. And this differentiation allows Richir (1992: 60) to formulate the all-important question:

The overall question of the passion of thought is thus also a question of if and how the elated attuned-ness of the unlimited has to move into the temporalising/localising of linguistic phenomena, how thus a wild proto-temporalisation/proto-spatialisation needs to be structured in relation to the temporalisation/spatialisation within a functioning language [...] whereby the functioning language is to be taken within its phenomenological dimension, i.e., within the ‘reduction’ of signs to ‘signs’ of emerging sense.²⁷⁵

The key to Richir’s question is provided by the importance of language and the differentiation between the wild, continuously forming sense and that sort of phenomenon that appears to be tamed by Husserl’s temporalisation/spatialisation in line with the intentional structure. The constantly forming sense neither belongs to what is actually expressed, nor to an actual speech-act, i.e., to that which *could-be-said*, instead remaining rather hidden as that which *is-to-be-said*, providing the foundation (proto-temporalisation/proto-spatialisation) for Husserl’s phenomena, to which Richir refers as *linguistic phenomena*. Richir (1992: 60) is quite clear about the fact

²⁷⁴ ... et d’ouverture sans projet ontologique-existential du lieu même de l’accueil comme matrice ou phase de monde – ouverture elle-même transpassible en ce qu’elle relève, non pas simplement d’une activité, mas d’un « entre-en-œuvre » ou « au travail » aussi inconscient (phénoménologiquement) qu’inlassable, capable de « sur-prise » dépassant tout « prise ». (My translation)

²⁷⁵ Toute la question de la passion du penser est aussi toute la question de savoir comment s’articulent – et nous pressentons que c’est en abîme – la proto-temporalisation/proto-spatialisation sauvage et la temporalisation/spatialisation en langage – où il faut prendre le langage, dans sa dimension phénoménologique, avec la « réduction » des signes aux « signes » du sens se faisant. (My translation)

that these linguistic phenomena do indeed have their own phenomenological origin, outside of the functioning language, that they are

world-phenomena in their original inter-factual multitude and infinite schematisation – but that their origin, strictly speaking, is not outside the language.²⁷⁶

Hence, Husserl's *Urstiftung* is – for Richir (1992: 60) – always a linguistic one, as

the “idea” (the sense) of what *is-to-be-said* is always already emerging as the start of any temporalisation/localisation, in which sense is created and seeks for expression.²⁷⁷

Richir is thus challenging Husserl's account of the necessarily parallel structure of the noesis and the noema, i.e., that *sense per se* would be nothing but the noematic correlate of noetic acts of consciousness. Instead he tries to trace the possibility of a spontaneous forming of *sense* within thought **and** speech, a continuously emerging sense, one that is not available to consciousness itself, but one that inflicts itself upon consciousness (Gondek & Tengelyi, 2011: 44). Richir (1992: 60) explains:

This means that the temporalisation/spatialisation of sense is [*for Richir T.F.*] by no means a necessary one, it needs attention, concentration and elaboration – more or less favoured and disciplined, in many different ways, by the symbolic institution of culture²⁷⁸

This symbolic institution then opens up a cultural dimension to which I will turn shortly (see sub-section 7.3), but before doing so I need to discuss the implications of Richir's critique.

7.2.3. Linguistic Influences and Neurophenomenology

Earlier I discussed Varela's concept of cognition (see sub-chapter 2.5) and the linguistic domain (see sub-chapter 2.7). These concepts are of key-

²⁷⁶ - *les phénomènes-de-monde dans leur pluralité originare interfacticielle en incessante schématisation -, ils n'ont pas, a rigoureusement parler, de commencement hors langage ...* (My translation)

²⁷⁷ ... *parce que l' »idée« (le sens) de ce qui est a dire surgit toujours déjà comme amorce de la temporalisation/spatialisation en laquelle, se faisant, le sens cherche a se dire.* (My translation)

²⁷⁸ *C'est dire que la temporalisation/spatialisation du sens n'a rien de nécessaire, qu'elle nécessite une attention, une concentration une élaboration – plus ou moins favorisée et disciplinée, selon des modalités très diverses, par l'institution symbolique de la culture* (My translation)

importance now and I will – briefly – highlight the most important aspects of these concepts:

- Cognition is a purpose-driven, mechanical autopoietic process in relation to environmental *deformations*. These *deformations* manifest themselves within the system and its unfolding system-dynamics.
- The phylogenetic availability of a nervous system enhances the cognitive domain, which is shaped by ontogenic processes.
- System-internal *descriptions* of internally experienced *deformations* are non-representational. They convey *sense* or *meaning* for the one experiencing these internal *deformations*. These *descriptions* constitute what *is-to-be-said*.
- The *linguistic domain* is a consensual intersubjective domain, socially created, but individually acquired and physically incorporated via the ontogenetic drift of continuous system-evolution. Via this linguistic domain logical signification is possible as what *could-be-said*.

According to Varela's picture, thinking, i.e., the sequencing of what Husserl calls logical expressions, is thus dependent upon the utilisation of the linguistic domain as a means to sort experiences relevant to specific system-internal descriptions as these are processed within the cognitive domain. And that is where Varela encounters a problem.

Every investigation, as a reason-driven pursuit, has to find its beginning within Husserl's realm of logical signification or from Varela's linguistic domain. An investigation by means of Husserl's *epoché* and phenomenological reduction, one that aims to reach below the linguistic domain while trying to get hold of the underlying experiences, thus starts with the already posited intentional object or noema. Hence, the investigation starts with the end product of accomplished *sense*-constitution. But such a starting-position makes it difficult to see how one would be able to grasp all relevant experiences – especially those constituting the *wild sense*, the ones that belong to what *is-be-said* but which did not find sufficient expression through the processing Richir's of *wild* or *proto sense* into the resultant logical signification from which the investigation is supposed to start.

These considerations about thought, somehow being entangled in language and the difficulty of deciding where the influence of one ends and the other starts, are not new at all. The protagonists of a supposedly *do-able* neurophenomenology (Depraz et al., 2003: 8) have acknowledged this problem of elucidating data, while avoiding linguistic influences and restrictions upon that data, and refer to it as

the “excavation fallacy”, or in philosophical terms, the hermeneutical objection [...] these objections go to the heart of our project here. They all emphasise the claim that there is no such thing as a “deep” pre-linguistic layer of experience, since any account is “always already” enfolded in language. Hence any new account will be only an inflection of linguistic practices that “go all the way down.”

These authors’ reply to anyone convinced by this objection is refreshingly straightforward:

you might as well put this book down right now and save yourself some time and trouble, for we cannot offer an air-tight argument [*against these objections T.F.*].

Such an honest acknowledgement of this excavation/hermeneutical problem frees me – as I mentioned earlier – from discussing exactly this problem in relation to Husserl’s account as those who want to utilise Husserl’s methods have already clearly recognised this problem for their own project.

Of course it would be possible to dismiss neurophenomenology because of this apparently inevitable hermeneutic difficulty. Such a move could be motivated by considerations regarding the needed access to the *deep pre-linguistic layer*. Any descriptive account of the experiences on that level could only be provided by the means of the inherently cultural linguistic domain. Hence, one’s descriptive abilities regarding these experiences remain limited in their possible accuracy by the constraints of the linguistic domain as the necessary pre-condition to provide a description of these – a linguistic domain that only allows Varela to capture what *could-be-said* in relation to these

experiences, while that which *is-to-be-said* could probably not be expressed via the linguistic domain at all.²⁷⁹

It is possible to interject here that these concerns may hold, but that they are equally true for any other kind of scientific investigation. Hence, the limitation to investigate the *deep pre-linguistic layer* is one shared with every other scientific investigation. But such an objection somehow misses the point. Any recourse to a universally shared limitation of the scientific quest would fail to acknowledge the crucial importance of these *deep, pre-linguistic* experiences for Varela's project. The phenomenological investigation of consciousness necessitates access to individual experiences. Husserl's account (see discussion in chapters 3 and 5) rests on his argument that some of these experiences are beyond doubt, and Husserl utilises their indubitable characteristic to establish an Archimedean point for his phenomenology as a true science of the experiences, a science that has to – and with the indubitable character of these experiences can – rely on experiences as they are individually experienced.

So when it comes to Varela's attempt to get hold of the *deep pre-linguistic* experiences he is of course facing a potential imprecision in terms of an always limited linguistic ability to produce a sufficiently fine-grained account, capturing what is to be assessed. But Varela's problem is more severe: If *pre-*

²⁷⁹ Petitmengin (2009) has offered an interview method that is supposed to overcome this problem. A multimodal assessment of the interviewee's responses and the interviewee's explications regarding the experience is supposed to allow a genuine understanding of the interviewee's experiences by the interviewer, actively taking part in an interview-conversation – a method showing some similarities to the one already utilised by the earlier mentioned *Würzburg Schule* (see section 1.2.2). Nevertheless, due to the necessary context of the genuine conversation any so derived understanding of someone's experiences seems to manifest itself within this interviewing interlocutor only. That leaves it still questionable whether such an understanding could then be communicated outside of this conversation, i.e., as to whether a genuine understanding of someone's experience could be shared beyond the specific encounter between the *me* (first-person) and *you* (second-person) to be made available to a third-person assessment. I have elsewhere elaborated on the issues of understanding and neurophenomenology (Feldges, 2013) and on the relation of Gadamer's notion of the conversation and understanding (Feldges, 2014).

linguistic experiences remain (at least partially) beyond one's ability to provide a sufficiently precise account of these, then the question cannot be avoided of how far any so accounted-for experience could actually share the indubitable character of that experience which is so crucial for Husserl's project. Varela thus faces the problem that he might lose the sought after security of Husserl's phenomenology to provide a justification for his proposed utilisation of the first-person-method.

Depraz et al. (2003) nevertheless suggest utilising this *deep pre-linguistic layer of experience*. And this is clearly motivated by Varela's (1996) aim to start his investigation of consciousness with the experiences. Viewed from this perspective it has to be kept in mind that – despite these hermeneutic limitations – the proposed utilisation of experiential accounts still appears to be much closer to the experience than what cognitive-neuroscience (see chapter 1) is currently able to achieve. But away from these practical considerations, it is also necessary to remember that Varela wants to pursue a structural investigation. He thus may not need a totally precise description of the experiential content, as long as he gets the experiential structure right. And that is the question I need to address next, i.e., can Varela limit the extent of the excavation/hermeneutical problem by focusing upon descriptive structural invariants?

7.3. Cultural Influences and Richir's Critique

In order to gain secure access to the structural mechanics of the noetic-noematic correlation, Varela must overcome a problem: What would be the consequences of the neurophenomenological project if these structures turn out to be – at least partially – formed in relation to a surrounding culture? This is the question I will try to answer within this section. To do so, I will first revisit Richir's phenomenology, this time focusing upon the *symbolic institution* (see section 7.3.1). With this in place it is time to discuss the question of universal structures of experience – and I do this in relation to philosophical anthropology (see section 7.3.2). Arguing that this philosophical-anthropological discussion casts doubts on the possibility of a universal layer upon which experience would manifest itself, I utilise neuroscientific evidence

to argue for an individually realised variety in the enabling structural layout (see section 7.3.3). This empirical evidence relates to micro-structures (see section 7.3.4) as well as to macro-structures (see section 7.3.5), and I discuss both. In the closing section of this sub-chapter I will discuss the implications of structural variances in relation to Husserl and Varela (see section 7.3.6). I will argue that Varela's neurophenomenological investigation will always be an inherently culturally situated one; an investigation that can only make limited claims regarding the universal structures of consciousness.

7.3.1. Richir and the Symbolic Institution

Richir's *wild sense* (see section 7.2.2), in need of a creative expression to become available to thought, constituted one side of his critique. The other one is constituted by the concept of the symbolic institution (*institution symbolique*). Richir takes these symbolic institutions to get hold of the spontaneous – wild – sense, the symbolic institutions as the surrounding culture, or, to put it the other way round culture as the sum total of all symbolic institutions (Richir, 1988). These symbolic institutions are not restricted to the field of language, but they entail the various forms of culture, such as “rules of politeness, traditions, morals, legal regulations and religious rituals”, and they even capture “the arts, the sciences and philosophy” (Gondek & Tengelyi, 2011: 46).²⁸⁰ These symbolic institutions – as the foundation of sense – somehow encircle emerging *sense*, elaborating on it before Husserl's *Urstiftung* takes place (see section 7.2.3). This leaves the phenomena – as they appear consciously – as always already shaped by the symbolic institutions. For Richir that leads to the conclusion that what *is given* is by no means the same as Husserl's phenomenological field of investigation. Phenomenology, so Richir's claim, captures the logical expression of experience only, but this sort of experience is by no means the same as genuine intuition (*Anschauung*) or perception (*Wahrnehmung*) (Gondek & Tengelyi, 2011: 47).

By considering an example provided by Gondek and Tengelyi (2011: 47) Richir's position may become clearer:

²⁸⁰ See , in this context the footnote on Elias at the beginning of section 7.2.

We see a house *as such* in front of us, before we could ever inspect this house standing in front of us as that specific house. (Italics in original)

Hence, from Richir's point of view I may be capable of employing a phenomenological *epochē* in terms of this specific house in front of me, of engaging in reductive steps of various kinds, but I can only do so once the relevant cultural institution has equipped me with the means to single out this specific aspect of my overall experience and to categorise it accordingly as a house. For Richir it thus follows that I employ my *epochē* in terms of an already somehow categorised phenomenological experience which does not necessarily equal the relevant, originally given (*hyletic*) experience. Hence, I relate via intuition and perception towards specific objects that are apprehended as an always already classified generality.²⁸¹

One could probably try to disregard these forming influences by perceiving Richir's symbolic institution as nothing more than an additional dimension of the already acknowledged *excavation-problem* (see section 7.2.3), i.e., that *classified generalities* (Varela's *consensual discriminants* of the *linguistic domain*) pose a limit to the phenomenological excavation of the *hyletic* experiences. However, doing so would entail the danger of overlooking the structural problem of Richir's symbolic institution. This is the danger that experiences may manifest themselves upon different, i.e., culturally dependent, structures in terms of the emergence **and** in terms of the subsequent constitution of noematic sense. But if Richir's symbolic institutions *encircle* emerging sense and thus structurally influence sense-constitution, then these structural variations must manifest themselves against a presumed norm. This is what I will discuss first.

²⁸¹ As I stated earlier, I will not engage in a discussion about whether Husserl's or Richir's phenomenology has the better arguments, and in that respect I will not assess how far Husserl's (Hua, XI) transcendental phenomenology and his analysis of the passive syntheses may be able to evade some or all of these problems.

7.3.2. Universal Structures or Cultural Influences?

To get an idea about the problem it is probably best to use an example. The Inuit are supposed to have an unusually large number of words to refer to snow, as this white matter forms the predominant part of their environment (Cichocki & Kilarski, 2010).²⁸² The Inuit would thus show a perceptive adaptation to their natural and/or cultural environment resulting in an increased ability of this group of people to recognise and communicate fine-grained differences of their environment to thus better survive their surroundings. This seems to indicate the possibility of cultural influences upon perceptive abilities as such. But the question still remains whether these influences exhaust themselves merely within an increased ability to communicate or if it is indeed a different – culturally formed – perceptual structure that is brought about by these influences. If opting for the latter – and that is what I am arguing for – then the question becomes one regarding the forming reach of these cultural influences. I.e., how much does culture yield effects on the resulting perception whereby these influences may manifest themselves upon the visual input structures, providing the relevant experiences, but also upon the processing structures that lead to the perceptive judgement that this is – in the case of the Inuit – such-and-such a sort of snow?

This is an important question to ask within the framework of Varela's system-theory, according to which systems are constantly *evolving* in relation to the experiences of encountered environmental *deformations*, leaving henceforth their trace within this system. If culture and environment are able to influence the structure of becoming aware, Varela faces a problem. He wants to get hold of descriptive invariants regarding the structure of experience itself, i.e.,

²⁸² There is some debate as to whether the Inuit do indeed have an enriched vocabulary to refer to snow and sea ice, but it seems intuitively right that apart from the availability of linguistic references successful survival in these harsh environments would somehow require at least the perception of survival-significant differences which to the non-Inuit would probably remain invisible. Lévi-Strauss (1962) argues this point in relation to what he calls *wild thought*, i.e., the recognition of fine-grained details of the natural environment in relation to an object without being able to linguistically refer to these differences.

the deep, pre-linguistic layer of experience. And he equally wants to use Husserl's *epochē* to access this layer, but while doing just that, he may encounter cultural differences in the structure of bestowing sense upon these experiences (i.e., to perceive or *wahrnehmen*).

Hence, Varela's proposal for a structural investigation regarding the experiences appears to be under threat. This looming danger points towards the more general question of what exactly would need to be considered universal or essential in relation to human consciousness. This is where I reconnect with the phylogenetic/ontogenetic differentiation (see section 6.3.3). Hence, that phylogenetically speaking consciousness has always *already become*, while ontogenetically viewed, consciousness is supposed to be one that is constantly *becoming*. This is why Petitot et al. (1999) maintained that consciousness would manifest itself individually upon phylogenetically determined *a priori* (hence species-universal) structures. But such a claim – as interesting as it may sound – seems to be at odds with the key-feature of Varela's ongoing system-evolution – the *ontogenetic drift*. This ongoing system-evolution is supposed to happen constantly within the autopoietic system (see chapter 2). To discuss this issue of universal structures I take a bit of a wider approach.

Gehlen's and Scheler's philosophical anthropology aimed to capture what is deemed to be essentially (*wesenhaft*) human, i.e. that which, by necessity, distinguishes humans from all other animals. This basically ontological quest took human beings as a *lacking being* (*Mängelwesen*). Gehlen (1950: 35) defines humans as “contrary to all other higher mammals, as mainly determined by a “lack” in the form of being “un-adapted, un-specialised” and primitive in relation to environmental demands.²⁸³ To compensate for this insufficient physical development humans utilise reason or intellect (*Verstand*)

²⁸³ *Morphologisch ist nämlich der Mensch im Gegensatz zu allen höheren Säugern hauptsächlich durch Mängel bestimmt, die jeweils im exakt biologischen Sinne als Unangepasstheiten, Unspezialisiertheiten, als Primitivismen, d.h. als Unentwickeltes zu bezeichnen sind.* (My translation)

as a tool to overcome these bodily shortcomings. Scheler (1914: 184) explains:

Any ability to form such a tool, i.e. 'reason', can only arise where the power to bring forth organs, where vital developmental ability is exhausted by principle.²⁸⁴

It is against this background that Scheler (1914: 185) claims that reason is not an original virtue, but one that is caused by lack; reason is a virtue emerging out of a mistake.²⁸⁵ Gehlen (1950) explains that this lack of physical adaptation – together with the *tool of reason* – allows humans to not merely react, but to act. It liberates humans from the neurological constraints of the instinctive, reflective arc.

Humans are, so to say, not sufficiently well adapted to their environment to leave their fate as being dependent upon a merely reflective arc; they have to assess and to improvise as they go along. This liberation results in a general openness towards the world (*Weltoffenheit*), while always being tied back to the world (*Weltgebundenheit*) in which the so liberated being still has to survive (Habermas, 1958). This openness towards the world, i.e., the ability to develop a point of view regarding mundane objects and matters of fact, results in the fact that humans no longer live within a merely surrounding nature, but find themselves instead to be living within a culture (Gehlen, 1950: 77ff.), i.e., within a world where the objects have meaning or sense for the subject, shared with other subjects. And for Scheler (1928) it is this culture that provides the tools whereby humans are able to *have a world* (*welthaben*). Scheler (1928: 34) thus claims that:

The experience of reality – in all our presentations of the world – is thus never given subsequently, but is always pre-set.²⁸⁶

²⁸⁴ *Irgendein Vermögen solche Werkzeuge zu bilden, d.h. ‚Verstand‘, kann ja erst da entstehen, wo sich die Kraft Organe hervorzubringen, wo sich die vitale Entfaltungsfähigkeit prinzipiell erschöpft hat...* (My translation)

²⁸⁵ *Verstand ist keine ursprüngliche Tugend, sondern nur diejenige Tugend, die ein ursprünglicher Mangel zur Folge hat. Er ist die Tugend eines Fehlers.* (My translation)

²⁸⁶ *Das Realitätserlebnis ist also all unserer ‚Vorstellung‘ der Welt nicht nachsondern vorgegeben.* (My translation)

Scheler thus maintains that the possible ways according to which humans could ever experience their worlds are always ones pre-meditated or pre-set by culture.

This very brief account of philosophical anthropology must suffice here. But the notion of a *lacking being* or *Mängelwesen*, one that yields its own *ontogenetic adaptive radiation* towards its ecological niche, restricted only by the *phylogenetically determined* parameters, possesses an inherent openness towards the environment. When thus looking at a group of individuals, one finds that the overall group's fit towards a given environment is actually achieved by an individual diversification in relation to the shared environment, but within the limits of what Varela called the organisational variance (see section 2.2). Enhanced adaptive abilities are supposed to be brought about by Scheler's newly emerging *tool of reason* and Varela allows for an autopoietic system's ability – when sufficiently complex – to process sense along the consensual discriminants of the linguistic domain. But if Varela wants the autopoietic system to be able to develop such an adaptive ability to process sense and to reason, then the needed openness towards a world must find its counterpart within the enabling biological structures of such systems.²⁸⁷ Varela explicitly allows for this with his notion of the ontogenic drift and the on-going system-evolution (see sub-chapter 2.2). But allowing for such differences in ontogenesis, i.e., for an individually manifest biological variability, does not quite fit with the Petitot et al.'s assumption of universal biological structures beyond the – probably most general – structural necessity of being a sense-bestowing, conscious being.²⁸⁸

Structures thus appear to be at the heart of Varela's project aiming to reveal a mutually constrained alignment of experiential accounts – operationalised by the descriptive invariants – and the corresponding biological structures of the

²⁸⁷ I have discussed the needed adaptive openness already in section 3.2.3 where it served Varela to evade Husserl's psychologism-critique by the system's ability to learn, i.e. to incorporate learning via an individual (ontogenetic) system-evolution.

²⁸⁸ It is worthwhile mentioning here that one of the 'et al.' co-authors of Petitot is actually Varela himself.

autopoietic system that has these experiences. Hence, despite the fact that the philosophical-anthropological account promises to fit Varela's constantly evolving systems, the individual adaptive ability appears to make Varela's marriage-plans more difficult. So the question emerges as to whether there is any empirical evidence to support the philosophical-anthropological claim for a structural variability which may prove difficult for Varela's project.

7.3.3. Structural Variance

Varela's organisational variance, allowing for the needed adaptation of the human *Mängelwesen* is actually implemented biologically via a feature known as *synaptic plasticity*. The idea is that connections between the neurons – realised at the axon-dendrite synapse – follow two very basic rules:

1. neurons that fire together – wire together while
2. neurons that fire out of sync – lose their link (Bear, Connors & Paradiso, 2007:716).

Hence, exposure to strong and/or re-occurring stimuli establishes and/or strengthens the connections between neurons, and with that, between neuronal clusters (structures and structural pathways). However, the possible extent of this variation is restrained, as plasticity itself diminishes – but never totally ceases – while the organism matures. This fits well with Varela's account (see chapter 2) of

- a) how the organisational closure of autopoietic systems limits the extent of possible variation available to a system in relation to its adaptive efforts and
- b) how these autopoietic systems incorporate environmental stimuli into their ontogenesis via the ontogenic drift (see sections 2.7.2 and 4.5.2).

When discussing the *linguistic domain* (see sub-chapter 2.7) I mentioned that systems encounter *consensual discriminants* – as provided by the *linguistic domain* – as *fluctuations*, impacting upon this system. In these cases it is of no significance as to whether these stimuli originate within the very same system or emanate from another system. What is important is that any so induced fluctuation may also yield ontogenic effects via a continuous system-evolution. In that respect Varela's account appears to fit with the philosophical-

anthropological considerations regarding Gehlen's and Schlerer's *Mängelwesen*. Varela's system utilises the adaptive abilities of its reasoning-capabilities as these manifest themselves upon the system's nervous system: one that develops in relation to the environment – but also in relation to its own past experiences. But if one allows for such a *malleability* of the neuronal structures – and neuroscientific research does not seem to leave much room to argue against this – where would that leave the naturalisation project? At the end of the day, the plan was to align macro-level, experiential structural invariants with the (experiential) micro-constituents by developing meso-level mathematical algorithms that account for their mutual constraining relation and to align these results with dynamic processes as they unfold within an autopoietic system (see chapter 6).

7.3.4. Neuronal Micro-structural and Cultural Differences

While discussing neuronal micro- and macro-structures in the next two subsections it needs to be kept in mind that *micro* and *macro* mark out a difference in the size of these neuronal structures. This usage is different to Petitot's utilisation of the same attributive qualifiers. He used these to refer to the macro-level of phenomenal experience and the underlying, constituent (experiential) micro-level. Here I will focus on certain micro-neuronal structures of the visual cortex.

The visual cortex is the brain area to which incoming visual information from the retina, processed by the lateral geniculate nucleus (LGN) is projected.²⁸⁹ The visual cortex shows distinct layers, and although I do not want to go into too much detail here, most of the input from the LGN terminates in one specific layer. Other layers (II and III) connect the neurons of the deeper layers (IV and VI) and these “connections play different roles in the analysis of the visual world” in terms of pattern-recognition (Bear, Connors, Paradiso,

²⁸⁹ This LGN is considered to be the gateway to conscious visual perception, and – in cross section – it shows six distinctive layers to which information from the eyes is projected in such a way that each layer receives information from either one eye or the other and thus allows subsequent stereoscopic processing (Bear, Connors & Paradiso, 2007: 316).

2007: 323). Especially layers II, III and some parts of layer IVB make neuronal output available to other cortical structures of the brain.

Ko et al. (2014) produced neuroscientific evidence regarding the development of the connectivity of these layers. Although a total absence of visual input does not generally prevent the emergence of some neuronal connectivity in layers II and III of the visual cortex, Ko et al. nevertheless affirm that the exposure to visual experience is a necessary requirement for the complete neuronal circuit maturation as it happens in relation to encountered visual experiences. Ko et al. conclude that phylogenetic factors **plus** the individual exposure to visual experience jointly govern the functional circuit-formation in layers II and III. And as I mentioned above, the results of what happens in these layers is then projected to other cortical areas of the brain.

For current purposes that translates into the fact that the available phylogenetic information may be sufficient to produce some sort of these structural connections – which would probably be universal, albeit incomplete – but a fully functional level of visual processing is achieved only by establishing neuronal connections and networks in relation to incoming visual experiences (*deformations*). And the enabling structures regarding these *deformations* or *fluctuations* change with environment and surrounding culture. The (neuronal) micro-structural brain-plasticity thus turns out to be a means by which to adapt towards a range of environmental demands. But that is where a problem occurs: cross-cultural research between people who live in open landscapes and people who inhabit dense jungle environments shows perceptual differences between groups (Segall et al., 1963). But if that is possible then two individuals may be left with, let's say, a tree-perception while their underlying hyletic experiences (Petitot's micro-level) manifest themselves upon potentially different (neuronal) micro-structures. This looks dangerous for Varela's descriptive invariants. Mathematical algorithms would start from experiential invariants which could be instantiated upon a potential variety of biological-structural possibilities.

Such a disjunctive account is already provided by functionalist accounts of the mind (see chapter 1). However, one has to keep in mind that Varela is – at this stage – not interested in linking the experiential constituents to their naturalist basis. He wants to account for the mechanics of how these constituent experiences (Husserl's hyle) are aggregated to make a phenomenon appear. In that respect one may assume that he can safely leave this danger of the multiple realisation of the experiences within an autopoietic system out of focus.

However, these differences in the underlying neuronal structure of an autopoietic system nevertheless pose a potential problem. It could be claimed that the respective groups do not only process visual information via different micro-structures but that these groups also experience differently and hence that not only the biological structure varies in these cases, but also the individual experience as processed upon these structures.

Such a line of reasoning would find its powers in the assumption that the relevant experiences, generated along different micro-structural layouts can never – because of this structural difference – be exactly the same. After all, experiences, by their very nature, provide individualised – and thus arguably unique – access, and therefore it would be difficult to maintain the exact sameness of the experiential character of two experiences. But then again, accepting such a claim for a *necessary uniqueness of every experience* goes hand in hand with the extended claim that – within the dynamic structure of an autopoietic system, and exactly because of the nature of this dynamic, Heraclitus-like flux – no experience will ever match another one, past or present. Endorsing this *experiential uniqueness* position would thus render attempts to investigate experiences as outright impossible. Hence, a classification across – and despite – potential differences is necessary; experiences ought be classed as (*more-or-less*) the same, as such a classification seems to form a necessary pre-condition to do science regarding these experiences at all. And that is what Varela's *descriptive invariants* are supposed to be about; they should enable a classification of similar

experiential features, presumed to be essential to such a point that they are invariable in terms of their description.

One could thus be tempted to compare these system-theoretical descriptive invariants with Husserl's investigative results as derived from the eidetic variation. But, for reasons that will become clear soon, that is not an option. However, accepting this classificatory necessity, one is left with potentially polymorphic structures upon which the 'same' experiences can emerge. Cognitive science tries to evade this problem by the utilisation of unified stimuli, supposed to evoke unified experiences, but this can only work as far as one is willing to accept the equation *same stimulus results in same experience*, a presumption that somehow runs counter to Varela's non-representational, system-theoretical framework with its autopoietic systems.²⁹⁰

One could, of course suggest letting the experiencing individual be the arbiter of 'same-ness'.²⁹¹ But that would limit the investigative reach to only one individual, which is a rather insufficient sample-group. Nevertheless, one would face the earlier mentioned hermeneutical problem. Even if the experience of one specific stimulus, brought about by different neuronal micro-structures (and that would necessitate at least two individuals), would result in different experiences, the question remains as to whether the linguistic domain is sufficiently fine-grained enough to make the relevant experiences available in the form of what *could-be-said*.²⁹²

²⁹⁰ Away from this incompatibility of this 'unified stimulus' assumption, with Varela's system-theory, this equation does not work for scientific psychology either, as I have discussed elsewhere (Feldges, 2014).

²⁹¹ Allowing the individual to be the arbiter regarding the 'same-ness' of experiences poses the problem of a lack of – what Wittgenstein called – the *criterion of correctness*, as I have already discussed earlier (see section 2.7)

²⁹² And although I already discussed this hermeneutical problem, for practical reasons of a supposedly *do-able* neurophenomenology, this question needs to be asked –and answered - at some point.

However, there are two issues I would like to concentrate on in relation to these potentially polymorph neuronal structures underlying similar experiences. The neurophenomenologist could claim that:

- a) This does not matter at all. The sought-after algorithms are supposed to start with the constituent experiences to mathematise the noetic noema-constitution. Hence, the experiences and their link to the autopoietic system must not be of any concern.
- b) These neuronal micro-structures are just too fine-grained for Varela's purposes and that a broader approach has to be applied.

The first claim appears to stand in a difficult relation with Varela's focus on the *reelle* parts of the stream of consciousness, i.e. those real (empirical) parts that have been phenomenologically purified (see chapter 3). Hence, the link between the experience (*reelle*) and biological (real) strata does matter for Varela, and the importance of the possibility for polymorph structures upon which experience manifests itself cannot be dismissed easily, and that despite Varela's otherwise non-reductive agenda.

The second claim would appear to accept this multiple-realisation point at the neuronal micro-level, and – to evade this difficulty – proposes a shift from the neuronal micro to the neuronal macro-level. I will discuss this issue in the next section (see sub-section 7.3.5).

7.3.5. Neuronal Macro-structural and Cultural Differences

When considering the neuronal micro-structure of the visual cortex as an example, I moved very close to the single-cell level of description. And one may want to object that this was probably too fine-grained an account to be of any help for Varela. Of course, endorsing such an objection would be something remarkable. Varela's system-theoretical account is quite close to a connectionist framework. It should thus actually consider dynamic processes within constituent neuronal assemblies and not dismiss these. Moreover, when turning the attention to the neuronal macro-structure, things do not get any better.

Nisbett and Miyamoto (2005) reveal cultural influences shaping different patterns of perception as revealed in a cross-cultural comparison between 'Westerners' and 'Asians'. Whereas the former group perceived presented objects context-independent and analytically, the latter group perceived them context-dependently and holistically. Based upon their results and an extensive review Nisbett and Miyamoto (2005: 472) thus claim that different social practices have forming influences upon the *mechanics of perception*, hence that the evidence

suggests that cognitive and perceptual processes are constructed in part through participation in cultural practices. The cultural environment, both social and physical, shapes perceptual processes.

Although such a statement seems to hint back to the neuronal micro-structural level as discussed already, it is important to remember that the visual cortex only performs part of the perceptive processes. Its output is made available to other areas of the brain. Sensory input from the visual cortex, alongside input from the various senses is thus further processed and grouped together or kept separate in various other areas of the brain resulting in the fact that one perceives a shining marble as cold, while appetite is raised by the combination of the sight of a tasty dish alongside its flavours.

Although one may take these effects for granted, it is important to bear in mind that the actual brain location to which the underlying information is projected is not universally set. Levi-Strauss (1962) explains how *wild thought*, utilised for the recognition of specific objects (plants), emerges in relation not only to the object, but also in relation to the object's surroundings along a multitude of sense-modalities. For Levi-Strauss the pre-linguistic experience and recognition of objects along this *wild thought* becomes thus possible due to a focus reaching beyond the singled-out object, including the object's environment as much as other sense-modalities.²⁹³ And in this respect it looks

²⁹³ This overlap of perceptive sense-modalities is different to the condition known as synaesthesia. The latter captures cases where the projection of information is slightly altered, leading to the fact that one can visibly experience olfactory, haptic or audio stimuli or vice versa. And although Day (2005: 17) maintains that the synaesthesia-induced projection of sensory information to the 'wrong' parts of the brain is not only genetically caused, but also influenced by

as if Nisbett's and Miyamoto's empirically evidenced claim is something that ethnologists had already encountered when leaving their own cultural environment, visiting and observing different cultures.

It thus seems safe to conclude that the cultural environment shapes at least partially the ways in which available experiential information – even across various sense-modalities – is sorted and grouped together and to which brain regions it is made available to constitute the intentional object. And this is where the structural difference in the processing of underlying experiences emerges, i.e., where different noetic processes bring about the noema-constitution. For example, myself as a 'Westerner' may look at the same object as my 'Asian' fellow, but the ways in which we constitute our experiences in relation to this object, the one we both look at to finally gain our noema, are different. This is not to say that there are no general communalities at all in either the 'Western' or 'Asian' constitutions of a spatio-temporal object out there. But the object-constitution obviously manifests itself along different structural layouts, bringing about that I focus exclusively upon the object in question, whereas my 'Asian' fellow adds a good measure of environmental information (probably even dispersed over various sense-modalities) into the constitution of the intentional object as it appears to him. And in that respect a naturalising mathematisation of the noesis-noema correlation would need to take – for the same seen object – different noetic contributions into account.

7.3.6. Cultural Influences and Varela's Project

What is the point of all this? Surely these cultural differences in the formation of experiences and in aggregating these experiential contents into intentional objects should not constitute too much of a problem at all? At the end of the day, these structural differences in the noetic constitution, as minor or as profound as they may turn out to be, should be revealed by performing the *epoché* and the reduction in relation to the relevant noema? And indeed, in the case of the constituting achievement they will be revealed, and so this

cultural factors, one would arguably find a complete different experience in these cases (some musical notes as red or something like that).

initial question in response to these culture-specific noetic differences appears to have already been answered. But that would not do justice to the depth of the actual problems as they unfold here. Therefore, I will unpack these issues in more detail.

Summing up the empirical evidence provided so far allows me to clearly formulate two problems and potential limitations facing the neurophenomenological project:

- a) With regards to the neuronal micro-structure I discussed how experiences, classified as the same, could manifest themselves upon different neuronal structural lay-outs.
- b) With regards to the neuronal macro-structures I discussed how a variety of sense-bestowing (noetic) processes could contribute to the constitution of the same noema.

As each of these has a different impact upon Varela's project I will discuss these in this order.

a) *Neuronal, Micro-structural Limitations*

I have discussed Varela's decision to attend to the *flesh-and-bone experience* via Husserl's descriptive-phenomenological reduction (see chapter 6). Varela's reasons for this move are obvious. Taking the risk of trying to re-introduce a mostly disregarded first-person approach back into psychology (see section 1.2.2) necessitates a justification, and that is what Husserl's phenomenology is supposed to provide. But Varela's project, aiming to bring phenomenology and modern cognitive science together, needs the prospect, or even better the possibility, of being able to somehow link experiences back to what could be established empirically in terms of consciousness. And that is what the naturalising project is supposed to achieve: Varela wants to access the *deep, pre-linguistic layer* of experience to gain *descriptive invariants* from what is – individually – going on in this (naturalising-project) micro-level of experience. The quest for the *descriptive invariants* is motivated by the assumption that invariance regarding (phenomenal) experience implies similarity in terms of the enabling structure of autopoietic systems. The naturalisation project thus tries to put these descriptive invariants in a mutually

constraining relationship with the (naturalising-project) macro-level of phenomena (noema) as they are constituted by the autopoietic systems. The mutually constraining relationship is to be carved out by a (naturalising-project) meso-level in the form of mathematical algorithms. Varela does not want to provide a reductive account. But the *reciprocally constraining*, binding experiential accounts to the phenomena depends upon *reelle* descriptive-phenomenological accounts that by their very nature relate to the empirical ego. Varela's project would be betrayed by anything less than that. Cutting the ties to the biological stratum – as following Husserl's transcendental phenomenology would necessitate – would henceforth no longer provide a basis for Varela's marriage proposal.²⁹⁴ Varela's neurophenomenology thus remains within the borders of his account of biological, autopoietic systems.

With these general considerations in mind it is now possible to assess potential limitations of culturally influenced (neuronal) micro-structures (as outlined in sub-section 7.3.4) by utilising an example. I am currently spending a considerable amount of time playing with my granddaughter, encouraging her to sort differently shaped and coloured objects into appropriately shaped and coloured slots, thereby enhancing her ability for the relevant (geometrical) shape and colour recognition. I am thus enhancing a skill, or – alternatively – imposing a cultural bias upon the neuronal micro-structure of her visual cortex layers (see sub-section 7.3.4), which may be as vital for her in our (urban and geometrically-shaped) Western culture as the recognition of various plants in a dense jungle is for the inhabitant of the tropical rainforest or the recognition of specific variations of snow may be for the Inuit. But her proneness to experience the relevant shapes, colours and edges of these objects does not entail that the rainforest dweller or the Inuit will not be able to experience these perception-constituting shapes, colours and edges as well; they only experience these according to a slightly different layer-connectivity, due to a lack of experiential exposure within their environment. And that is the point: the individual variance of the ontogenetic (neuronal) micro-structure is an

²⁹⁴ Of course, one could suggest utilising the conclusions of Husserl's transcendental reductions to inform Varela's project. This is a worthwhile suggestion and I will discuss this in the next sub-section.

individual means to connect to an environment formed out of the relevant objects **and** the culture shaped by a prolonged engagement with these objects.

But this potential *multiple realisation* of these perception-constituting experiences is a problem for the naturalisation of phenomenology as an important aspect of neurophenomenology. Mathematical models or algorithms are supposed to account for any subsequent noema-constitution. However, in a quest for a new science of consciousness, these phenomenal algorithms are to be aligned to the internal dynamics of an autopoietic system. And that is where the potential danger of this *multiple realisation* manifests itself. One may be able to reach the pre-linguistic layer of experience and one may even derive descriptive invariants from there. But when it comes to aligning these invariants or any algorithm based upon these to an underlying, enabling structure within an autopoietic system it turns out that these experiential descriptions can manifest themselves upon different enabling structures. Hence: these experiential invariants cannot be utilised as a reference-point for the alignment of experiential and autopoietic processes, and this despite the fact that they are supposed to be invariants of the *flesh-and-bone experiences* that Varela utilises.

b) *Neuronal, Macro-structural Limitations*

When discussing cultural influences upon the neuronal macro-structure I provided the empirical example of the object-perception of a 'Western' and an 'Asian' person. Obviously there are two different ways of becoming aware of an object and these could probably even be revealed by a phenomenological reduction and description. Nevertheless, the problem arises when it comes to deciding which specific parts of the so revealed noetic-noematic dynamics are to be counted as essential and thus qualifying to be Varela's sought-after descriptive invariants. At the end of the day, there are two different ways of constructing noema, and this is an issue that needs my careful attention.

As repeated throughout this investigation, Husserl envisaged an *a priori* investigation of the essential structures, forming the subjective pre-condition to

become conscious of something. For that he bracketed any positing belief regarding the appearing object (the noema), the constituting processes that make the object appear (the noeses) and even the ego, in relation to which these processes unfold. Having thus lifted his phenomenological investigation above the causal functioning of the world Husserl is able to pursue his transcendental investigation. The so achieved level of purification via the transcendental reductions (see chapter 6) liberates Husserl from the mundane nature of any actuality as it appears in the *here and now*. It allows him to perform an eidetic variation (see section 6.2.5) and to thus separate the essential from the mere contingent in relation to the structure of these appearances. In this respect Husserl's phenomenology is supposed to remain immune to cultural influences. Taipale (2014: 141) explains Husserl's take:

[R]egardless of our cultural background, we are all sensing, bodily beings, we walk on the same earth and witness the same sky and stars, we all breathe the same air, eat and drink, organise our lives in relation to the shifts of day and night – and, in this sense we all belong to the one and only world – regardless of the vast differences in our intersubjective, cultural systems of normality and the correlative lifeworlds.

Taipale's account of Husserl thus implies existent, but – in the context of a truly phenomenological investigation – negligible cultural influences. Being *human* provides enough of a unifying bracket to allow phenomenological investigations regarding the constitution of a world for a subject.

Neurophenomenology proposes naturalising descriptive phenomenological accounts of the *flesh-and-blood* experience. In an attempt to develop a new science of consciousness Varela wants to utilise these phenomenological descriptions of the *flesh-and-bone* experiences and the unfolding noetic-noematic dynamics in relation to these. This however comes with the *positing* assumption regarding the existence of an ego that has these *flesh-and-bone* experiences. Hence, Varela wants to start his phenomenological investigation – which is, according to Husserl, supposed to be presumption-less (see section 5.2.1) – with the presumption of:

- a) an empirical ego, providing the *flesh-and-bone* component, and

- b) the phenomenologically purified ego (see sections 3.3.1 and 3.3.2) that I discussed in relation to Husserl's *LI*, the one experiencing the phenomenologically relevant – the *reelle* parts – of an empirical ego's stream of consciousness as it is supposed to unfold in the *here and now* of the world of which the ego is a part.

This is where the profound difference between Husserl and Varela manifests itself. While Husserl deliberately severed the mundane influences on the subject-object relation, Varela has to accept the *Daseinssetzung* or positing of the ego's actual existence. And as much as such a move may bear upon the question of whether any subsequent investigation may still be rightfully called a phenomenological one (see section 6.3.4) there is a more important difficulty for Varela to face.

When thus encountering the structural differences as they manifest themselves via (Western/Asian) culturally influenced noetic-noematic dynamics, neurophenomenology runs into problems. Presumably these differences in the relevant noetic constitution of the noema can be revealed by phenomenological methods, even by a mere phenomenological-descriptive reduction. But the so gained phenomenological description would always and inherently be tied back to the still posited empirical/experiential ego.

Varela did not follow Husserl's transcendental move and thus remains within the frame of reference provided either by the posited 'Western' or the 'Asian' form of object-awareness. So the question arises as to which aspects of these alternative constituent processes are to be deemed *essential* or *non-essential*, i.e., universal or merely contingent, and – even more so – according to which cultural frame? Varela cannot – with the resources of his own system-theoretical account – provide a solution to this problem. But this – for Varela – unsolvable difficulty restrains the possible reach of neurophenomenology to an always culturally dependent and situated account of human consciousness. That is certainly less than Husserl set out to achieve himself, Varela's project remaining within the limits of the "regional ontology of living things" (Meacham 2013: 20).

Of course, it could be suggested – despite Varela’s insistence on the descriptive-phenomenological reduction – to utilise the results of Husserl’s transcendental reductions to inform cognitive-scientific investigations. However, and as appealing as this may sound, such a suggestion would constitute an alteration to Varela’s actual proposal forming the basis for this thesis. Nevertheless, exactly this suggestion has been brought forward by Gallagher and Zahavi (2008) under the name of *front-loading phenomenology*, which is not the topic of this investigation.

With these cultural limitations in terms of the naturalisation project, but also in terms of the noetic-noematic correlation, neurophenomenology faces some restraints upon its explanatory reach. A fine-grained matching of conscious experiences to neuronal-conscious-correlates as envisaged by cognitive neuroscience is not possible (and was not really envisaged by Varela himself). The results of Varela’s application of Husserl’s methods must remain situated and thus cannot claim to be universal as Husserl himself envisaged his phenomenology to be.

7.4. Chapter Summary

Varela’s neurophenomenological proposal, aiming for a new science of consciousness is to be put to work via the application of a three-step method. Within this chapter I focused upon the third of these steps, i.e., the possibility of gaining descriptive structural invariants. These invariants are important for the protagonists of neurophenomenology, as the naturalising project (see chapter 6) depends upon these to find a solid basis for universal algorithms for constituting the intentional objects of experience.

By introducing aspects of Richir’s phenomenology I first (see sub-chapter 7.2) discussed the possibility of linguistic influences upon the generation of meaning. Richir criticises Husserl’s phenomenological investigation for remaining within the limits of that *which-could-be-said*. While not focusing on the possible implications of Richir’s critique for Husserl’s phenomenology, I rather concentrated upon the import of these linguistic influences upon Varela’s neurophenomenology. As it turned out, any suspension of judgement

always has to start at the level of logical signification. As I discussed, this poses a – recognised – hermeneutical problem, to which the supporters of neurophenomenology cannot provide a solution.

But Varela wants a structural investigation, and this structural focus may just alleviate some of the problems related to the hermeneutical problem. However, I argued that even a structural description of experience would have to manifest itself within the realm of that which *could-be-said*, and would thus not be able to elucidate the which *is-to-be-said*, i.e., the universal and culturally independent elements. To this avail, I revisited Richir's account in a second step (see sub-chapter 7.3). This time in relation to what he calls the *symbolic institution*. I assessed the implications of this concept in relation to the proposed investigation of experience with a structural focus. But as it turned out, an attempt to derive structure-relevant descriptive invariants for a naturalisation project must rest upon an underlying presumption of a more or less universal structure of otherwise individualised experiential events that allows the *having* of a world. But in relation to philosophical-anthropological investigations about the essential features of being human, I argued that the presumption of universal structures runs counter to what the essential feature of *human-ness* seems to be. This adaptability (or *organisational variance*) allowed Petitot to differentiate the phylogenetic and the ontogenic perspectives on consciousness, thus allowing an investigation of individual consciousness, sharing enough – general – communalities with other such systems' consciousnesses.

I discussed empirical evidence regarding the neuronal micro- and macro-structure to support the philosophical-anthropological claim that an adaptive radiation manifests itself as an environmentally/cultureally induced structural alteration. That allowed me to point towards the fact that experiences may be *multiply realised* upon neuronal micro-structures. I argued that this *multiple realisability* of experiences limits the possibility of aligning the experiential and the biological levels as the neurophenomenological project proposes.

The discussion of the neuronal macro-structures revealed the possibility of culture-dependent constitutive processes and structures. I argued that this implied a culturally-dependent variation in the noetic-noematic correlation for which Varela – as opposed to Husserl – cannot account, leaving Varela's account as situated.

Varela's plan to gain access – despite all the hermeneutical/excavation problems – to the deep, pre-linguistic layer of experiences only leads him to experiences that are already formed in a culture/environment-dependent fashion. Hence, this layer cannot provide a universal anchor-point.

At the end of this final chapter of this investigation, at the confluence of science and phenomenology it looks as if the result may be a rather bleak verdict regarding the potential explanatory reach of Varela's neurophenomenology. However, my discussion of Husserl's phenomenology should have – among other noteworthy aspects – made clear that everything always only appears to the subject from that subject's perspective and always as a subjective (perceptive) judgement. This seems to imply that this apparent verdict may not look so bleak at all when looking at it from another perspective and with a different judgemental attitude, and that is what I will do in providing my conclusion.

Having discussed Varela's 1996 proposal for a revolutionised science of consciousness so far, it is time to provide an overview of this investigation:

Within chapter 1 I argued that psychology's quest to align itself with the stringent and accepted physicalist-scientific method results in a reductive, ontologically motivated agenda, trying to locate mental events within a physical substrate, by providing a functionalist account of these events. I argued that the resulting experiential poverty of this scientific-psychological conduct is what provided Chalmers with his *hard problem* and the motivation for a form of property-dualism.

It is precisely Chalmers' suggested property-dualist solution that points to the core problem here. Scientific psychology, seeking explanatory accounts while remaining within the borders of physicalism, has no means available to account for the possibility of a subjective access to the world. Leaving the question of the appropriateness of Chalmers' additional property aside, his proposal nevertheless nurtures doubts that any exclusively physicalist explanatory account of the experiential dimension of human life can be sufficient. That however would seem to call for attempts to provide explanatory accounts that reach beyond the borders of physicalism, explanations that transcend mere physicalist interpretations of subjective human access to the world.

My discussion throughout chapter 2 developed aspects of Varela's attempt to account for consciousness and the first person perspective without invoking such a property-dualism. His biologically founded, system-theoretical account renders autopoietic systems as irreducible to their physical constituents. However, these systems display an internal dynamic, providing for purposive self-maintenance and a basis for an experiential, individual perspective. Varela accounts for mind and consciousness by means of increasing system-complexity. This different approach to consciousness is able to preserve the

unity of the functional/intentional and the experiential/phenomenal aspects of conscious occurrences.

However, the system-theoretical *inside-outside* differentiation results in the methodological problem of having to get hold of sufficient descriptions of experiences. To secure the needed system-internal access, Varela develops his neurophenomenological proposal. Here Varela calls for a revolution of current psychological theory to turn it into a biologically founded psychology to be conducted from the first person perspective. Varela wishes to map the results from the first person perspective onto autopoietic, biological systems. Hence Varela still retains the ability to provide a naturalistic account.

In chapter 3 I started to describe Varela's account in relation to Husserl's phenomenology, which he wishes to use. I also began the discussion of whether there were in principle objections to phenomenology being used in this way. Husserl's psychologism-critique threatened Varela's biologically founded project with the danger of not being compatible with phenomenology. I argued that Varela is able to evade this threat with his notion of a continuous ontogenetic evolution of biological systems and that it is thus not harmed by Husserl's critique. I showed that Husserl's overall framework appears to provide Varela with the conceptual and systematic underpinnings to envisage a neurophenomenological investigation. This is especially so as – in Husserl's earlier texts – he was concerned with the phenomenologically relevant (*reelle*) parts of an equally empirical (*real parts*) stream of consciousness. However, any attempt to share Husserl's theoretical approach to the experiences has to engage with his claimed investigative priority of phenomenology over the sciences. In regard to this apparent problem for Varela, I suggested that he does not need to commit himself to Husserl's priority claim. He adopts a biological-scientific foundation when envisaging neurophenomenology as providing for a *new science of consciousness*. Varela wants to utilise Husserl's *idealities* to provide a first-person investigative perspective, but he also wants a natural-scientific pursuit, for he wants to anchor the results gained from a first-person perspective in neurological structures accessed from a third-person one.

I used chapter 4 to explore further issues around the general compatibility of phenomenology and Varela's proposal. The main focus of this chapter was the exploration of what concept of the ego both writers require. I suggest that their concepts are compatible with each other.

In this chapter I also discussed Husserl's investigations regarding subjective time, the temporal field and the *widened now*, and linked them to aspects of Varela's autopoietic systems. Varela's biologically founded, system-theoretical account must be able to accommodate exactly this dynamic genesis of a *widened now* as a necessary structure for this experiential feature, and this must thus be able to be realised within a biological system. I suggest that Varela's systems are potentially able to do this.

This chapter also clarified an account which articulates the sense-bestowing constitutive processes of an ego taking its experiences to be able to provide intentional content. Although Varela's ontogenetic system-evolution provides the means to build up a sense-providing capacity formed from previous deformations, not unlike Husserl's habitualisation, Varela nevertheless says little about emerging sense. It thus appears as if the emergence of sense is left to the autopoietic system-processes via a continuous unfolding of the internal system-dynamics. I utilise the writings of Luhmann to explore the way in which Varela's framework could accommodate the constituting of sense.

Having thus established a *prima facie* possibility for Varela's project chapters 5, 6 and 7 focused upon the practicalities of his neurophenomenological project.

In chapter 5 I discussed the *epochē*. Husserl's aim of tracing the constitutive requirements of positings as they happen within the natural attitude required a suspension of judgement, the *epochē*. Varela wants to utilise such a suspension of judgement as well and therefore I discussed the possibility of performing such a suspension of judgement. I argued that the *epochē* is a practical possibility. Although the *epochē* is possible, to make it work within

Varela's framework it depends upon the possibility of the – in naturalist terms – yet unaccounted for *widened now*. To make this self-observational method work within Varela's systems, one would need to accept an explanatory account that transcends a narrow physicalism. Importantly, at this point I have been discussing a first step of Husserl's methods, one that is not yet transcendental.

In relation to Varela's envisaged methodological step, i.e. the redirection of the investigative gaze, I focused upon Husserl's reductions throughout chapter 6. I discussed the descriptive phenomenological method, Husserl's transcendental turn and the transcendental reductions in detail. I argued that there is no clear division between Husserl's investigative methods but that the transcendental reductions are further developments of the descriptive phenomenological reduction which in itself was not sufficient to reach his transcendental goals. It is Varela's selective utilisation of Husserl's descriptive reduction only that – from a Husserlian perspective – limits the reach of his project.

Varela's refusal to make use of the transcendental reductions derives from his different investigative goal, which is scientific, aiming for experience-based *a posteriori* accounts of the structures of consciousness and its anchorage in sufficiently organised biological matter. Husserl's account strives for a clarification of the *a priori* conditions of the possibility for a subject to be conscious of something. So while Varela wants to support his account by utilising facets of Husserl's phenomenology, he does so with a different agenda.

Varela's agenda is the naturalisation-debate, i.e., an attempt to make phenomenological investigative results work within natural-scientific accounts. In the rest of chapter 6 and chapter 7 I explore details of this proposal.

Starting out with a biological foundation for his autopoietic systems, Varela has chosen a basis for his account that transcends mere physicalism. However, the question of the relation between biology and physics is not the concern of this thesis. But to investigate consciousness within these systems

Varela equips himself with concepts from phenomenology, such as the phenomenological justification for the first-person investigation, the direct evidence of experiences, the self-observing ability of the ego within a temporal field and the focus of attention on the *reelle* part of the stream of consciousness. Varela has thus aligned key-concepts of phenomenology with his neurophenomenological proposal. The naturalisation agenda proposes nothing less than the (albeit non-reductive) alignment of phenomenological accounts and neuroscientific ones, in various forms. Husserl had recognised that the biological sciences were in closer proximity to phenomenology than the sciences of physics and mathematics, but that they remain nevertheless constrained in their explanatory reach. For that reason Husserl envisaged a transcendental investigation, but Varela does not want to follow here.

The usefulness of Varela's project depends upon one's ability to self-report upon one's experiences. This is the starting-point of chapter 7. Starting from Husserl's concept of the logical signification, I argue that any kind of self-observational report will always be constrained by what a functioning language permits one to say in relation to an experience that always outruns linguistic expressive options. Neurophenomenology acknowledges this problem and hopes to evade it with access to the structure of a deep, pre-linguistic layer of experience.

I argued that neurophenomenology would need to presuppose universal structures of experiences manifest in the phenomenological reduction. But by utilising phenomenological, anthropological and empirical evidence I argued that even this deep, pre-linguistic layer, if it could be assessed, will always be culturally influenced, hence: that it will not provide universal structures at all. This has limiting effects on the neurophenomenological naturalisation agenda. Even more so, whereas the transcendental investigations of Husserl yield universal *a priori* results, Varela, not following Husserl's transcendental turn, remains caught in the contingencies of a situated investigation. This results in a peculiar situation. Varela is able to guide his investigations of conscious experiences by these experiences, but he does not have the means to

establish the universality of the structures he uncovers, which makes the project of anchoring them in biological systems problematic.

At the end of this investigation it therefore turns out that Varela proposes an investigative programme utilising science and phenomenology in such a way that neuroscientific data can provide an explanatory basis for experiential, phenomenological data. But – as I discussed – Varela’s biological, system-theoretical founded neurophenomenology comes with inherent limitations. Nevertheless, the neuroscientific alignment of experiential events within anatomically distinct or selected functional structures of the brain is possible on a larger scale and worthwhile, especially if this makes intelligible the ways in which biological systems can have experiences with these features. But – as I argued – the more neurophenomenology focuses upon the finer structures of experience, the more these results become subject to cultural influences and therefore lack universality. This is recognised by Varela’s framework with the continuous ontogenetic system-evolution.

I have, more than once, mentioned the historic fact that psychological investigations fashioned themselves very much on a natural-scientific methodological paradigm. I mentioned the discussions in late nineteenth- and early twentieth-century Germany about the scientific pursuit of psychology, leading eventually to a psychological method that was supposed to equal the methods of the hard (natural) sciences. These scientific methods had proven to be ever so successful in explaining, predicting and manipulating matter, but turned out to be of little use when trying to account for life. Nevertheless, the effects of this choice for the (natural-) scientific method are still prevalent, in so much as psychological science is still – as Quante (1988) explained – a mainly ontologically motivated endeavour. If one thus accepts the influences of

- a) the historic German discussions concerning the status of the academic discipline of psychology,
- b) the resulting pursuit of a natural-scientific method for psychology (Lange’s *Psychologie ohne Seele*), and

c) the state of current psychology with its inherent difficulty of accommodating experience, as highlighted by Chalmers' *hard problem* then the general appropriateness of the natural-scientific methodological toolkit as currently employed by scientific psychology must be questioned.

Husserl, in relation with this historic discussion about the psychological pursuit, raised the awareness that consciousness, despite the fact that it may necessitate an ontic basis (which was of no concern to him), is a relation between the one who is conscious and that which he/she is conscious of. But the relation between science and Husserl's phenomenology remained antagonistic.

Nevertheless, if one does not agree with the uncritical application of the physical/chemical/mathematical-scientific methods within consciousness-research, then the question arises as to what else could provide a scientific frame for thinking about consciousness. Varela points to a possible solution in the form of his neurophenomenology, aiming to unite scientific and phenomenological investigations and thereby enriching methodological access to consciousness.

He unfolds his proposal against the background of a system-theoretical, biological framework, one that does not depend upon separating phenomenal from functional content, but explicitly assigns an intentional-constituting role to the experiences. In that respect Varela offers a naturalist account that makes intelligible how living, biological systems can have and utilise experiences. This – in itself – is already an achievement that can hardly be overestimated.

However, Varela's account necessitates the acceptance of self-observational experiential reports. This is where Varela seeks support from Husserl's phenomenology as a disciplined approach to gain the needed scientific rigour when investigating experiences as the constituents of individual *meaning* or *sense*. Varela does not buy into all aspects of Husserl's phenomenology, but even the envisaged, partial utilisation is hoped to provide a sufficient justification to attempt the re-introduction of self-observational accounts into

scientific psychology, so that a new science of consciousness seems possible. And this is where Varela's neurophenomenological proposal reveals two important implications.

In relation to psychological science a debate is necessary about the assumed and exclusive appropriateness of the natural-scientific method, developed to investigate matter and only subsequently applied to study (conscious) life. This methodological choice results – according to Chalmers – in the necessity for an ontological addition in the form of an – as yet unaccounted-for – new property of *phenomenality*. Varela, on the other hand, can account for this *phenomenality* as an inherent feature of biological systems without having to introduce new properties, while requiring methodological amendments only. When it thus comes to a decision between

- a) the proposed need for an ontological addition (i.e., *phenomenality*) or
- b) a methodological refinement to account for individual experiences

Varela's proposed solution displays more elegance. Hence, neurophenomenology provides a simpler solution to the problem of accounting for consciousness. The beauty of a simplistic elegance in any proposed solution to a problem is a widely acknowledged indicator of the logical coherence of scientific theories. Psychological science thus appears to be well advised to enter an open debate about its methods.²⁹⁵

However, even accepting phenomenology as a justification for scientifically applied self-observation leaves the need for another debate. This concerns the question of whether Varela's selective use of phenomenology still qualifies to be called phenomenology. But this debate is a primarily phenomenological one and – from a phenomenological point of view – this may be a justified discussion. However, when considering that Varela's project is an essentially scientific one, the question becomes less important. Of course Varela's project cannot be a smooth continuation of Husserl's phenomenology. Varela suggests the appropriation of phenomenology, to utilise Husserl's concepts and investigative method for something other than they were developed for.

²⁹⁵ See for example Glynn's 2010 *Elegance in Science: The Beauty of Simplicity*.

Varela thus hopes to gain theoretical support for his challenge to the current methodological status quo by re-introducing self-observational methods, informed by Husserl's phenomenology, in a scientific context where these self-observations went out of favour a long time ago. Of course the originally envisaged, selective application of Husserl's phenomenology does not free Varela's followers to do what they want, but a wider utilisation of Husserl's reductions, including the transcendental ones, or a blending with the phenomenological front-loading approach appears possible. But whatever form neurophenomenology actually takes in its future, the mere fact that the kudos of Husserl's phenomenology can lend gravity to neurophenomenological attempts to develop a better scientific understanding of consciousness – even without actually making use of phenomenology in its purest form – only lends testimony to the importance of Husserl's phenomenology.

In relation to my initial question it thus turns out that:

1. The explanatory reach of neurophenomenological accounts is – due to cultural influences not wholly generalisable and is in constant need of a critical reflection upon these limitations. However, it offers an exciting opportunity to rethink the means of current psychology when it comes to the experiential dimension of human life. The project therefore appears to be a worthwhile addition to the investigation of consciousness.
2. Moreover, Varela's neurophenomenological proposal appears to function as a catalyst, a catalyst demanding further critical engagement with its explanatory reach and the methodological tool-kit for explaining consciousness and its relation to a biological science of life.

On both accounts more exciting work needs to be done.

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