Preface

This thesis is the result of a year of research into the philosophical backgrounds of the design of our landscape. The main challenge was the integration of philosophical theories and ideas with concrete issues of environmental planning. My interest in both abstract theorising and concrete changes in the landscape led to a thesis that starts in the landscape, moves upwards to the high regions of philosophical abstraction, and descends back to earth in the end.

My computer science background certainly helped in creating a coherent model of the involved concepts and their relations to one another. When one is designing a software system, the recognition of these concepts and relations is one of the most important tasks, and it determines the whole architecture of the system. The same happens in philosophy, although the tool that is developed does not operate as a software system here, but as a means for people to describe what is happening in our lives.

I want to thank everyone that helped in some way making the writing of this thesis manageable, easier, or just fun. Family and friends have been a great support in times when I did not see how something concrete could emerge from all this thinking, and some have repeatedly reminded me of the worth of the intellectual task in itself. Special thanks to Iwan, who more than anyone seems to recognise the value of new ideas even if they are not so easy to keep standing for. Thanks also to Theo, whose enthusiasm made the hours I worked for the computer science department a pleasant change in the daily rhythm.

Of course, this thesis would not have been possible with the co-operation and assistance of my supervisors, who considerably improved the quality of the work with their extensive comments. Last but not least, therefore, I want to thank Peter-Paul, Petran and Anton for their ideas, criticism and support.

Enschede, August 2003

Wolter Pieters
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Chapter 1

Introduction

Why would anyone try to apply philosophy to environmental planning? The changes that become visible in the landscape are after all the results of merely instrumental decisions? Of course, we will need some aesthetic elements in the landscape, but we can design those after we covered all necessary instrumental functions, and we can set some areas apart for aesthetic enjoyment.

The design of our landscape is an issue that often raises debates. Especially the construction of new town districts, roads, airport runways and railways leads to extensive protests and disputes. Formal procedures may cause considerable delay to the projects. Recent examples in the Netherlands are the Betuwelijn (cargo railroad from Rotterdam to the German Ruhr area), the fifth runway at Schiphol airport, and the district Kernhem and A30 highway in the town of Ede.

Even though it is probably impossible to prevent disputes about such issues, the question may be asked whether the current procedures for the design of the landscape are adequate with respect to the effects involved. Can we provide tools for analysis which include aspects that are currently missed, or that currently receive less attention than they deserve?

In this thesis, we will try to show why a coherent philosophy of environmental planning is necessary. Therefore, we will have a look at both the history of landscape and the history of philosophy, and try to find clues for an analysis that makes the view outlined above – "merely instrumental decisions" – less obvious.

Landscape

In environmental planning, the landscape is usually designed by assigning functions to areas in the landscape: a division of space according to function. Criticism towards current practices of landscape design is often heard, but seldom with adequate argumentation. It rather takes the form of NIMBY (not-in-my-back-yard) arguments, aimed at preventing the assignment of unwanted functions to nearby areas, or a general anti-scientific attitude leading to rejection of all practices based on scientific analysis (return to the myths, return to Mother Earth). However, the presumptions of existing approaches, using the machine as a metaphor of the world by describing it in terms of mechanisms and functions, remain unchallenged. On the one hand, ad hoc arguments are not sufficient to present any real challenge, and on the other hand,
structural arguments against current approaches often implicitly use the same machine metaphor: the earth as spaceship earth¹.

The possibilities of criticism and the reconsideration of the presumptions of existing approaches will be shown by an analysis of the problem of fragmentation ("versnippering") within environmental planning. The issue at stake is the dissatisfaction with the tendency to divide the landscape into smaller and smaller pieces. We will argue that a new approach in the design of the landscape can provide better solutions to problems occurring within environmental planning. This is done by focusing on the relations of people with the landscape rather than on functions in the analysis of the landscape.

**Agents in virtual environments**

Next to my ideas about philosophy, my roots in computer science also have had a large influence on this thesis. Especially some knowledge about the technology of virtual environments and virtual characters that inhabit such environments is essential for understanding the approach advanced in this text. The main issues on this subject will be explained in chapter 5.

An important aspect of the research presented here is the paradigm of case-based reasoning in artificial intelligence. This paradigm relates to the philosophical concept of habits used in this thesis. Case-based reasoning as a paradigm was initiated by the article on its foundations by Aamodt and Plaza (1994). A standard work on artificial intelligence by Russell and Norvig (1995) therefore hardly even mentions it (the word case-based appears only once in the notes). I got acquainted with it during my internship in Trondheim, Norway (Pieters, 2001). After finishing the internship, I continued to work in case-based reasoning research for my master's thesis (Pieters, 2002). It was then that I realised that case-based reasoning is truly a different paradigm because of the different assumptions that guide the reasoning.

**Related work**

The main themes of this research are related to work done by others on similar subjects. Especially the relation between nature and culture and the principles of phenomenological analysis are important. An analysis of the relation between our culture and the landscape is found in Lemaire (2002). The relation between nature and technology is the subject of the book 'Natuur tussen mythe en techniek' by Achterhuis (1995). An attempt to apply phenomenological analysis to architecture has been initiated by Norberg-Schulz (2000). Verbeek (2000) developed a modern phenomenological approach based on the idea that technologies can influence the

¹ Achterhuis (1995) gives an example of how a seemingly holistic approach in fact reduces holism to modern system theory (pp. 58-59).
relation between humans and their environment (mediation). Meijberg (2002) analysed the material conditions of public space from this perspective.

**Structure of this thesis**

The structure of this thesis is based on the idea that philosophical reasoning should start from concrete problems. By analysing a chosen issue, we will introduce philosophical issues about environmental planning. The main theme chosen in the second chapter is the issue of fragmentation ("versnippering"). The current approach to designing the landscape – leading to this problem – is described, and it is critically analysed from a philosophical perspective. It is argued that we will need to focus on relations between humans and their environment instead of the landscape as an objectified structure, to avoid the premises that produce the problem. The means introduced for describing these relations is the philosophical movement of phenomenology, introduced in chapter 3.

The limitations of current phenomenological approaches justify an extension with concepts from a different philosophical movement: pragmatism or instrumentalism. Pragmatism is discussed in the fourth chapter. Thereafter, we will discuss in detail three different paradigms in artificial intelligence (chapter 5), serving as a heuristic tool for describing the different aspects of human-world relations. Combining the philosophical foundation with the AI paradigms yields a systematic approach to describing such relations, and how they are changed by interventions in the environment. This is done in discussion with the work of Christian Norberg-Schulz, who applied phenomenology to the art of architecture. The new approach and vocabulary will be presented in the sixth chapter. The last part of this thesis consists in applying the approach to concrete issues of environmental planning – the design of the landscape (chapter 7).
Chapter 2

Landscape

Ever since humans first settled down in fixed places instead of wandering around, the landscape around their settlements has been subject to human intervention. In nomadic life, the landscape has to be used "as is", because it is only utilised temporarily. When humans stayed in the same place for a prolonged period, things could be changed in order to yield results in the future. Changes could then accumulate to produce even better adapted environments. The practices of the group became interwoven with adaptations in the landscape. Whereas the planning effort was not formalised at first, explicit procedures were developed through the ages.

In our time, explicit planning has become an integral part of the use of the landscape. Especially in the Netherlands, space has become so scarce that authorities have to make well-founded decisions in order to avoid conflicts. Without planning, the country would soon be a jumble of initiatives and battles. To be able to use the landscape, we have to design it in a way that makes various ways of use possible. This is the task of environmental planning. In environmental planning, areas in the landscape are assigned certain functions. The landscape can then be designed according to the function of the area.

Although everyone without anarchistic tendencies is convinced that planning is necessary, not everyone seems to be satisfied with current practices. As a saying on immigration, the expression "the Netherlands are full" has been given a lot of attention, and as far as it has any racist connotations justly been condemned. But I do not believe that it applies only to questions of immigration. The sense of want of space is a more general issue signalling the incapability of people to cope with their fast-changing environment. This environment includes the landscape as well as the people. The goal of this project is to improve tools for analysing and evaluating environmental planning issues, such that the effects of interventions in the landscape can be better understood. First of all, we have to analyse the existing practice of thinking about the landscape and find out where things can be improved. To find alternatives to the current attitude, we have to look into the presuppositions that accompany this approach. This is where philosophy becomes relevant.

The goal of this chapter is to investigate the possibilities of an alternative analysis of the landscape. By looking into current practices and evaluating these, we can establish a direction in which a new approach could and should be developed. These possibilities will be further investigated in the following chapters.

A new approach of analysis makes it possible that aspects overlooked in current approaches can be taken into account in the design of the landscape, i.e. in environmental planning. In any design, the existing situation must be analysed to
A pragmatic phenomenological approach in environmental planning

assess the required or desired changes. By changing the methods of analysis, we can thus change practices of design. When we mention design issues, these should be read as indications of how aspects of analysis become visible in environmental planning.

Landscape and its problems

Environmental planning establishes the functions of areas in the landscape. In the Netherlands, the well-known word for a problem associated with the division of space according to function is "versnippering", which may be translated into "fragmentation". Because different functions are required in each region (e.g. housing, infrastructure, industry, recreation), areas with the same function tend to become smaller over time. The emphasis in the issue is on fragmentation of nature areas.

Especially in large open areas, such as "de Veluwe" (the largest forest area) and "het Groene Hart" (an agricultural area in the centre of the Randstad city agglomeration), fragmentation is seen as a serious problem. The initiative of nature organisations and local authorities to work on an "endless Veluwe" exemplifies the tendency to tackle the problem. The goal of this initiative is the removal of barriers that hinder the movement of the fauna around the forest area, and the experience of the area as a whole by humans. Especially the corridors between the forest area and the rivers and lakes around it are in the picture as migrating routes for animals. However, this is also the part that has been urbanised extensively, and contains the most infrastructure. Traditionally, assigning the function of nature to areas that had a different function before was unthinkable, but this is changing. The local authorities of Renkum even agreed to abolish the industrial area Beukenlaan in the valley of the "Renkumse beek" to provide the wildlife of the Veluwe access to the Rhine. Once separated areas are thus reconnected.

The changing attitude is also visible when building new highways. The work on the new A50 between Eindhoven and Oss started in 2000, and is due to be finished in 2005.

'For the construction of the A50 highway some forest has to be removed. Besides, the A50 has a disturbing effect on neighbouring forest, small-scale landscape, grassland and swamp. The A50 is also a barrier for mammals, amphibians, reptiles and butterflies living on both sides of the road. To compensate the damage to nature caused by the construction of the road, it has been agreed that Rijkswaterstaat [Dutch organisation responsible for highway construction and maintenance] is going to "build" nature. This job is very different from what Rijkswaterstaat has been used to! It implies that Rijkswaterstaat will buy 281 hectares of land, arrange it as "nature" and transfer it to terrain managers, where Rijkswaterstaat should guarantee the enduring preservation of the nature areas.'

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2 http://www.gelderland.nl/veluwecommissie
4 http://www.aanlegA50.nl, my translation
The planning of this new highway thus is accompanied by the planning of new nature areas for *compensating* the negative effects of the road. Whereas in the early 70's the A1 highway was built straight through the Veluwe without any considerations about relieving consequences for nature and wildlife, even creating separated lanes with a central reservation of up to 40 metres⁵, insights have changed substantially since. Next to compensation, the planning of ecoducts and fauna tunnels has found its way into standard procedures in road construction. Fragmentation seems to be taken seriously. But what exactly is fragmentation?

Fragmentation can be defined as the crumbling of spatial wholes over time (Ministerie voor de Vlaamse Gemeenschap, 1997). Fragmentation is considered a complex problem. It occurs in several systems and at several levels.

'The systems are:
- morphological: fragmentation shows in design, in what is visible, e.g. buildings in an area of open space;
- spatial-functional: fragmentation disturbs a whole, e.g. a farm consisting of separated parcels, leading to more relocations;
- ecological: fragmentation breaches ecological processes or coherence, e.g. no connection between two similar nature areas.

The levels are:
- the landscape, e.g. cutting of an open area by roads;
- between objects, e.g. scattered forests;
- within objects, e.g. one nature area managed by various owners in different ways.

[…]

Fragmentation is only an environmental problem if it breaches a system important for biodiversity and coherence of the landscape (e.g. nature areas, landscapes), or if it leads to negative effects on the environment, e.g. scattered buildings with increased need for cables and increased traffic.' (my translation)

Current solutions to fragmentation seem to focus on *reconnection* (defragmentation) of fragmented areas (Renkum valley), and *compensation* of the effects of fragmentation by interventions in nearby areas (A50 highway). A series of articles on the Veluwe in NRC Handelsblad also recognised these two principles⁶. Defragmentation may be implemented by an ecoduct, compensation for the broadening the A12 by providing an ecological corridor between the Veluwe and a neighbouring nature area. From a philosophical point of view, this raises the question what presuppositions such an approach contains.

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⁵ [http://oud.refdag.nl/weet/981027weet01.html](http://oud.refdag.nl/weet/981027weet01.html)
⁶ Hegener (1998)
Figure 2.1: The valley of the "Renkumse beek", on the left with industry, on the right without
Source: Gedeputeerde Staten van Gelderland (2000), p. 48

Figure 2.2: Schematic representation of reconnection

Figure 2.3: Schematic representation of compensation
The solutions in terms of reconnection and compensation presuppose an analysis of the landscape in terms of functions. Functions may include, for example, housing, industry, infrastructure, recreation, and nature. Different areas in the landscape are assigned different functions, and these functions are defined by models of economy, nature, and human behavior. These models are said to be based on scientific insights and therefore "objective": independent of subjective experience. By reconnection and compensation, functions may be re-assigned such that the division becomes more efficient. By the independence of the analysis from subjective experience, humans are placed outside of the landscape that is designed. For designers, this is of course a legitimate point of view. But designers easily forget other aspects of experiencing the landscape. "To exaggerate the importance of theoretical thought in society and history is a natural failing of theorizers." 7

The outside perspective on the landscape is illustrated by the ratio of maps and graphs versus views "from the inside" in documents about national environmental planning in the Netherlands. Developments are illustrated by representations from above, either cartographic or from a bird's eye view. The analysis is based on considerations about how to divide space according to function, not on questions of how the landscape is experienced and acted upon.

From this point of view, the solution in terms of reconnection and compensation is completely adequate. If some function of the landscape is hindered by fragmentation, we can either reconnect fragments such that the function can be recovered, or we can assign the function to different areas where fragmentation is less severe. If nature suffers from inaccessibility of the fertile river meadows to deer living on the sandy area of the Veluwe, we should provide connections. And if the quality of the landscape is negatively influenced by a new road, we should compensate for this elsewhere.

7 Berger & Luckmann (1966), p. 15
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Figure 2.4: Examples of objectification by cartographic representation

Figure 2.5: Example of inside perspective
Source: Ministerie van VROM (1997), p. 97
However, an important aspect of fragmentation is not covered in this solution. The failure to establish a coherent landscape is not only condemned because of the aspects previously quoted, but also because of aspects involving human experience. Although seldom explicitly stated in these terms, criticism of fragmentation includes the experiential aspects as well as the spatial aspects of fragmentation, even if only by the example of hikers that find their routes blocked by fences or highways\(^8\) (picture front page). An example of an explicit indication of this aspect is found in Hegener (1998):

'Relatively cheap, and […] urgent, is a set of measures to make the Veluwe into one area in the experience of the visitor.' (my translation, my italics)

What is missing in the quoted description is the kind of fragmentation that occurs within human experience. Humans seem to have a desire for integrated experience rather than just rationally performing the functions that are associated with the environment they find themselves in. Continuity is an important requirement for such experience. However, the division of space according to function seems to hinder this by introducing discontinuities in the landscape. Even when every function seems to be covered, the landscape may still have lost its coherence in human experience.

The problem of fragmentation in environmental planning seems to have two sides. First, the physical fragmentation in the landscape, and second, the fragmentation in human experience. Norberg-Schulz (2000) speaks in the latter context of 'the loss of place', a sense of discomfort with the environment. Although the term 'loss of place' suggests more than just a problem, and may have a too negative connotation, it makes clear that fragmentation is a problem of experience as well as a problem of the landscape. If we want to treat these problems separately, we will first have to analyse the "objective" fragmentation, and then the "subjective" fragmentation. But why are these two different? Is there an "objective" kind of fragmentation apart from human experience? What are the causes of fragmentation? And how can we improve planning to increase coherence in the landscape?

In order to answer these questions, we have to find out how fragmentation is currently analysed, if this analysis suffices, and if we can provide a better analysis.

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\(^9\) See e.g. Berger & Luckmann (1966) on habitualisation and institutionalisation, p. 50 and further
Current interpretations of fragmentation

Fragmentation can be seen as an indication that there is something wrong with current approaches of landscape design\textsuperscript{10}. Since fragmentation causes the problems quoted before (morphological, spatial-functional and ecological), current practices should be changed such that fragmentation can be prevented.

When fragmentation is seen as an issue that can be tackled within the boundaries of current policy, a possible solution to the problem is to initiate special committees that take the responsibility of resolving fragmentation and improving the quality of the landscape in a certain region. An example of such a committee is the "Veluwecommissie" of the province of Gelderland\textsuperscript{11}. The committee can advise local and provincial authorities and make plans for implementing measures to reduce fragmentation. One such measure was the abolition of the industrial area in Renkum mentioned before.

Another possible solution to the problem of fragmentation is to re-design the environmental planning policy such that areas with the same function are put near each other. This is for example the case in the perspective for the future of the Netherlands called "Stedenland" (City Land, see Ministerie van Vrom, 1997(b)), which tries to separate urban and rural areas. The exchange of functions between areas can lead to more diversity between urban and rural regions, and to better economic perspectives due to concentration of functions.

However, the presumptions that lie behind the existing ideas are not challenged by these initiatives. Both by initiating committees and by changing the national policy, fragmentation is not seen as a real challenge to the understanding of the landscape. Instead, it is said that the spatial separation of functions provides an additional quality with respect to existing views. The issue of fragmentation within human experience is not discussed, and this is not by accident. It is not possible to discuss this aspect of the problem within the current interpretation of the landscape, since it is not included in the objective characteristics of the landscape that can be analysed. Rather, it \emph{must} be considered a subjective problem that each human being has to solve for himself.

Philosophy can provide a new understanding of the issue at stake in such situations. Whether or not a new way of interpretation will be accepted by authorities shortly is a matter of willingness to change habits of thinking, and this does not in any way influence the necessity of analysing the issue from a philosophical perspective. The question is whether there is a way of analysing the landscape so that rehabilitation of the landscape as integrated environment of human activities is more than a cut-and-paste of elements in the landscape. By changing methods of analysis, the design process may be improved so that it can involve more than just rearranging elements.


\textsuperscript{11} http://www.gelderland.nl/veluwecommissie
In order to investigate the possibilities of a new way of analysis, we will have a look at current criticism on environmental policy practices. We will assess the value of current criticism on the existing practices and see what it yields for our project.

**Current criticism on environmental policy**

Humans only relatively recently realised that there are limits to the exploitation of their environment. When they did, protests against over-exploitation were set up and an environmental movement formed. In the last decades, after threats like phosphates in washing powder, emission of cars and the like had been more or less successfully attacked, the attention also turned towards the landscape and its qualities. Planned changes in the landscape now have to meet serious objections before they can be implemented. But how are these objections legitimated?

People concerned about environmental problems have been keen on blaming cultural developments. Nature or landscape as human environment is said to have been replaced by landscape as objectified space – or, to state it more dramatically, Mother Earth has been sacrificed to spaceship earth (Achterhuis, 1995) – and therefore we fail to take good care of the environment. It is easy to see that these problems may lead to a diagnosis of alienation, preferably including overly critical analyses of science and technology, which are blamed for the objectification of the environment. But, as Achterhuis notices, criticism on the development towards spaceship earth often tends to strengthen this development instead of offering substantial alternatives, because it uses the same "language game" and the same system theoretic approach, e.g. by redefining the "functions" of managing the earth. We can increase the importance of the function "nature" by referring to the intrinsic values of nature, but this does not change the general attitude towards the problem in terms of functions. Moreover, such criticism often lacks systematic argumentation, and rather seems to be based on prejudices of a religious kind (e.g. New Age), often with anti-scientific connotations. This leads us to the question what alternatives can be offered to such a point of departure.

The main reason that criticism on the current practices often fails, is that it lacks historical understanding. The scientific attitude – supposedly leading to objectification of the environment, or worse: the environment as stock of resources – is sketched as something radically opposed to earlier worldviews, and the critics try to re-establish such a worldview by suggesting a different emphasis. But the causes of objectification cannot directly be assigned to the evolution of modern science and technology. This is a typical case of assuming a causal relation between two developments that accompany each other. Such developments are not necessarily connected by a causal relation, since other factors may have a role in their development as well.

Typically, the two developments (the evolution of science and objectification) may have a common cause instead of being directly related. In the case of the objectification of space, cultural developments already pointed in the direction of objectification even before the emergence of modern science. It can be shown that both the objectifying attitude and the emergence of modern science are connected to
the development of the idea of the human being as a spectator of the world. Understanding the implications of the involved relations enables a critique of current approaches without an anti-scientific connotation. The aforementioned connections have been analysed by Ton Lemaire\textsuperscript{12}. 

\textbf{The cultural origins of the landscape}

Lemaire (2002) describes the role of the landscape in the art of painting. According to Lemaire, a painted landscape is 'the depicted connection between nature and culture, such that culture is subordinated to nature'\textsuperscript{13}. The characteristics of the depiction of the landscape in art correspond to the cultural dimension of the relation between humans and the landscape. When in a culture a landscape is shown in a certain way in art, this reflects the general attitude towards nature and landscape in such a culture.

The landscape does not appear within western culture before the Renaissance, when the inward direction of Christian contemplation transforms into an outward direction towards the landscape. The appearance of the landscape thereby initiates the disappearance of the Christian life-form. Lemaire distinguishes five phases of development of this depiction within western culture.

The first phase is the opening and exploration of the earthly space. This is achieved by a simultaneous appearance of both the autonomous subject and the autonomous space. The autonomous view of experience, illustrated by the application in art of a linear perspective with the human self in the centre, subjectifies the human as spectator and at the same time objectifies the world. This causes a drifting apart of man and environment, in the sense that their relationship becomes more distant. Technical developments may have played a main part as mediators in this cultural transformation (Kockelkoren, 2001).

In the second phase, settlement in the newly opened space takes place. Piety is now directed towards nature instead of God, and realism becomes dominant. Man is still dependent on nature. Nature has not yet been transformed into a resource for human use. There is not yet a distinction between physical nature and superior nature.

This, however, changes in the third phase, the Romantic period. The process of subjectifying the human self now finds its consequence in loneliness. Nature has been divided into the true nature of science, which can be used for human purposes, and the beautiful nature of aesthetics. Mysticism discovers nature as a source of mystical experience; the striving for a mystical unification of the individual and nature begins. In the landscape, nature and culture find each other at the smallest possible distance.

The theory of evolution as presented by Darwin diminishes the distinction of nature and culture that was so characteristic of the Romantic period. Culture is now proven subordinate to nature. Dignity is no longer sought in the superior and the special. Naturalism acknowledges the fact that the entire earthly space has become picturesque. This 'publication' of the world is strongly connected to the invention of photography. Photography completes the legitimisation of the linear perspective, and

\textsuperscript{12} Lemaire's analysis is based on the landscape. In psychology, the relation between science and objectification has been analysed by De Boer (1980).

\textsuperscript{13} p. 72, my translation
thereby the constitution of the autonomous subject of the Renaissance. Physical nature now dominates superior nature.

However, the relativity of points of view is clearly found in both photography and the intentionally subjective art of impressionism. The fifth phase tried to overcome this perspectivism by searching for the hidden dimension of things. Attention moved from the conscious to the subconscious in the search for a definitive standpoint that could conquer relativism.

What do we learn from all this? Firstly, that despite the fifth phase, physical nature still seems to be dominant in our culture. The focus is on the landscape as a system of objects and functions, clearly related to a spectator view. The division of space according to function in combination with the outside perspective taken in documents about environmental planning illustrates this point. Physical nature and aesthetic nature are still separated, and solutions to the problem of fragmentation refer to physical nature only (reconnection and compensation), since aesthetic characteristics are "subjective": they are part of the spectator, not of the landscape itself.

The aspect of human experience of the landscape is thus missing in the design process. We will call this attitude – taking a phrase from John Dewey, whom we will meet in a following chapter – the spectator conception of experience. The developments that tried to challenge that status quo have mainly been occupied with re-establishing a hidden dimension in the physical world, i.e. adding some "forgotten" things or functions to the world of objects as presented by the sciences, e.g. by referring to intrinsic values of nature. However, the spectator conception – the equivalent of spaceship earth, where the environment is objectified – is rather reinforced than challenged by these attempts.

Secondly, we learn that the separation of man and nature already started with the autonomisation of subjects and objects in the Renaissance, when the linear perspective placed the human as a spectator outside the landscape. It was not modern science that made the human being a spectator and "alienated" him from his environment. This process had already started centuries before modern science appeared on the scene. Subjectification and objectification are not the result of the scientific perspective, but rather one of the ingredients; an ingredient that has to be recognised if we aim to understand the relation between people and the landscape. If we search for alternatives to the current practices in environmental planning by avoiding objectification, the solution is not found in rejecting the scientific way of relating to the environment, only to find ourselves stuck in a different kind of objectification, a different kind of pigeon-holing14.

Lemaire explains the background of the objectifying attitude by referring to historical cultural developments. The emphasis on necessity that science and philosophy seem to advance is challenged; instead, the development of our worldview is considered related to contingent worldly conditions. It might as well have been different. The consequence of this analysis, which I agree with on this issue, is that criticism on the current attitude should first and foremost check its premises against the premises that built the existing views. If one uses the same assumptions, it is quite hard to reach

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14 The campaign 'Denk ruimer dan in hokjes' initiated by SIRE (a Dutch organisation for non-commercial advertising) tries to prevent people from pigeon-holing each other; we may as well argue for a campaign to avoid pigeon-holing the landscape.
different conclusions. If one wants to offer a real alternative, one has to look at the assumptions that lie behind current views and critically analyse those.

Since objectification is not the result of science, environmental problems are not solved by blaming the scientific attitude. Neither are they solved by suggesting different ways of analysing the objects by including "hidden" elements (e.g. intrinsic values) within the system theoretic approach of functions and objects. If we want to prevent objectification from being the sole source of understanding, the resulting division of space according to function, and its consequences in fragmentation, we have to avoid the premises that lead to objectification.

Subjectification and objectification are interrelated by a focus on the human being as a spectator of the world. If we want to find a truly new way of analysing issues of environmental planning, we have to challenge this assumption. The problem of fragmentation, both in the landscape and in human experience, cannot be adequately dealt with if we separate the "subjective" impressions from the "objective" landscape. In that case, we treat the landscape by cutting and pasting elements, and we treat experience by therapy or medication for the spectator. Both aspects are then completely separated, and the subjective aspect is not considered a problem of environmental planning.

We have to reconsider the spectator conception if we want to present an integrated perspective. We will therefore investigate the various developments that offered a challenge to this presumption.

The subject-object distinction

The spectator conception of experience is connected to the distinction between subjects and objects – or man and nature – in philosophy. Until the end of the 19th century, it was nearly impossible to think that man was continuous with nature, i.e. not a somehow super-natural being. The philosophy of Descartes exemplifies the extreme version of this distinction. In all philosophies, man was the observer of the world. Nearly all philosophical theories assumed that mind could exist apart from the world.

It is hard to overestimate the consequences that Darwin's theory of evolution and the ideas that built further on this basis must have had for the existing worldviews. Suddenly, it became likely that man was continuous with other existences after all. However, few thinkers have referred to Darwin as a turning point and built a truly new philosophy from the new insights. The implications of the Darwinian point of view are quite profound: the inquiring attitude that accompanies science is no longer explained by referring to the human as a spectator, but as an organism that interacts with its environment and tries to sustain and evolve life by securing utilisation of its environment.

This view has been adopted by various philosophers. Even though all these people argued for a different approach, things do not seem to have changed that much in practice. How come? It seems that in our culture, the questions that are asked in design still largely are based on approaches that explicitly or implicitly assume a
distinction between man and nature, related to a spectator conception of experience. Objective or physical aspects of the environment are thereby separated from subjective or aesthetic aspects. This premise is so interwoven with cultural practices that only a comprehensive alternative that is able to explain developments from a different perspective can lead to changes in practice.

There are some philosophical theories that use quite different presumptions. These approaches all challenge the subject-object distinction in some way. Some are worth mentioning here. Bruno Latour advanced a theory that eliminates the terms subject and object altogether: the actor-network theory. He rather speaks of "actants" instead of distinguishing humans and objects. Both humans and things have power to act, and they can do so by forming networks. The acting programmes that the connected actants have determine what action should take place.

A movement that takes a different starting point is phenomenology. Although originally founded as a movement for understanding knowledge by the directedness of consciousness towards logical content, phenomenology developed in the direction of a comprehensive method for analysing relations between humans and the world. Human beings are understood as directed towards their environment. At first, the directedness was described as the directedness of a pre-existing subject towards its world, but recent developments show that subject and object can be thought of as mutually constituted. Moreover, the emphasis is on the relation rather than on subjects and objects as separate entities. This partly avoids the implications of the subject-object distinction, but phenomenology does not eliminate the terms in its analysis.

Latour criticises phenomenology for re-creating the gap between subject and object. However, Latour does not offer the means to analyse relations by the directedness of existences towards the world, but rather presents an "overview" over the connected actants, from the outside perspective of an analyst. This implies the danger that instead of abolishing the subject-object distinction, everything is now explained in terms of objects, and thereby subjective characteristics may be eliminated altogether. Since phenomenology avoids this hazard by focusing on relations, it is a more suitable starting point for our analysis.

We aim to develop an approach that does not separate subjective and objective aspects of our relation to our environment. This enables a discussion of fragmentation that includes both "subjective" and "objective" aspects, instead of the current discussion in terms of the "objective" solutions of reconnection and compensation, which does not include issues of human experience. Such an approach should focus on the relations between existences from an inside perspective, instead of an outside perspective on the world as a system of objects and functions. The starting point is the phenomenological movement in philosophy. In the next chapter, the possibilities and limitations of applying phenomenological thought to environmental planning will be investigated.
Conclusions

In this chapter, we provided a reconstruction of the concept of fragmentation in environmental planning. Instead of considering fragmentation as an objective problem of the landscape only, it was argued that fragmentation is a problem within human experience as well. To make possible an approach that takes this aspect into account, we critically analysed the presuppositions of existing approaches.

Discussions about the design of the landscape until recently focused on the landscape as a system of functions, being the object of scientific analysis by a human spectator, rather than on interaction between humans and landscape. The most important presupposition of the division of space according to function is a spectator conception of experience, which is not so much based on common sense or rational deliberation, but on a cultural development – as we have seen in the analysis of Lemaire. From this point of view, the current tackling of the problem of fragmentation by reconnection and compensation is adequate. It deals with the objective fragmentation of the landscape by reconnection and compensation; the subjective fragmentation in human experience cannot be understood as a problem of environmental planning, and is therefore irrelevant.

The observation that fragmentation of the landscape and fragmentation in human experience are different issues stems from a subject-object distinction. But from the perspective that human beings should be understood in interaction with their environment – or, in phenomenological terms, that subject and object are mutually constituted – the world does not exist as a system of objects apart from human experience. We have to structure our experience ourselves; structures only emerge in our interaction with the world. The fragmentation in the landscape and the fragmentation in human experience are two aspects of the same phenomenon. An approach that wants to provide better tools for analysis and planning should focus on the interaction of man and landscape instead of the landscape as objectified environment.

Western philosophy has shown a great interest in providing foundations for science or knowledge in general, and this may explain the emphasis on the well-structured, rational observation of the world by a human subject. We would rather argue that intellectual thought stems from practical activity, from concrete urgencies in the relation between people and their environment. Already, more and more people argue for focusing on 'experiencing' or 'reading' the landscape in the analysis leading to design. This may provide an alternative to design based on functions. Some of their insights have actually been implemented (e.g. region-specific building, which tries to

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15 As in the philosophy of John Dewey.
take experience into account by a design that is continuous with existing experience of the region).

In this thesis, we aim to provide a systematic approach for describing the way in which the landscape is experienced and acted upon, without using the spectator conception of experience as a presupposition. Thereby the objectification of the landscape is avoided, enabling the discussion of different ways in which humans can relate to the landscape. We will show from a philosophical point of view that the scientific, subject-object, spectator way of relating to the world is not the only way, and argue that environmental planning should also pay attention to other ways in which people have relations with the environment. This approach can be used to analyse and direct new developments in environmental planning based on a comprehensive framework.

The approach developed in this thesis is based on the philosophical movement of phenomenology. Phenomenology rejects thinking in terms of subjects and objects as separate things, and focuses on their relation. We have already mentioned that phenomenology avoids the danger of eliminating all subjective characteristics, as present in other attempts to avoid the subject-object distinction (e.g. actor-network theory). We will give an overview over phenomenological thought in the next chapter.
Chapter 3
Phenomenology

An approach in philosophy that may be helpful in re-integrating humans and the objectified environment is phenomenology. Phenomenology started as a philosophical movement for analysing knowledge starting from the relation between consciousness and its contents. According to phenomenology, consciousness is always consciousness of something; it is directed. We will see how this leads to a modern approach that focuses on the relation between humans and their world.

Classical phenomenology

Husserl: intentionality and lifeworld

The core concept of phenomenology is the concept of intentionality as introduced by Brentano and adapted by Husserl to fit the phenomenological method. Brentano used the concept to distinguish between physical (non-psychical) and psychical phenomena. According to Brentano, psychical phenomena are characterised by the directedness towards an object. Phenomenology used this concept to provide an analysis of consciousness. The main characteristic of classical phenomenology is the understanding of consciousness as directed towards phenomena. An understanding of the analysis that classical phenomenology gives of consciousness is indispensable for grasping the relevance of modern phenomenological analysis.

Husserl moved away from a psychological description of meaning, and tried to describe the activity of consciousness as a logical or transcendental activity instead of a psychical process. The directedness of this activity is not towards physical objects or psychical representations of such objects, but towards phenomena in consciousness. These phenomena are actively constituted by consciousness in the process of apperception. Consciousness is not merely passive registration of external objects, but it is actively involved in creating its objects.

Husserl's phenomenological reduction serves as a tool for giving up knowledge that is connected to empirical facts, knowledge that is acquired by man's natural attitude. In this way, we focus on what is logically necessary instead of on the existence of an external natural world. We can only analyse how phenomena appear

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16 Van Peursen (1968), pp. 17 and further.
17 Van Peursen (1968), pp. 26 and further.
within the logical activity of consciousness, and we should therefore postpone judgements about the existence of such a world and its structure.

Later, Husserl realised that it is not the knowledge connected to empirical facts that we should give up, but the whole idea that there is a reality behind the phenomena. This is Husserl's turn towards idealism. This *transcendental reduction* is connected to the acknowledgement of a *lifeworld*, which is primary to the scientific models that are thrown over reality as a cloth of ideas. Hereby, the traditional notion of a real reality behind the appearances is discarded: the lifeworld and its qualities and practices are not just appearances derived from the real objects science describes, but they are themselves indispensable for any scientific knowledge whatsoever. Since science is built from the lifeworld, science does not describe a reality "behind" the phenomena. This is the point of the transcendental reduction.

This shift in Husserl's thinking may be compared to the transition of Wittgenstein's ideas between the Tractatus and the Philosophical Investigations. Here, the shift is from the foundation of language by logical structures towards the foundation of logical structures by language. Natural language may be seen as the linguistic component of the lifeworld, as well as formal logic may be seen as the linguistic component of science. Wittgenstein therefore acquired the same transition as Husserl for the science of language. However, Wittgenstein never acknowledged a transcendental subjectivity as Husserl did.

According to Van Peursen (1968), there are more common characteristics in phenomenology and analytic philosophy. Both approaches were dissatisfied with the results of speculative philosophy. Both emphasised the model-character of knowledge: the value of knowledge is related to its connections to other aspects of life from which the knowledge emerged in the first place. In the same sense, facts become related to the values that characterise the praxis of life instead of being necessarily given. Both approaches describe daily reality as inexhaustible; different models may be used to describe it depending on pragmatic considerations. These common characteristics partly establish a link between phenomenology and pragmatism. The connection will be described in more detail later.

Husserl's idealistic version of phenomenology does not result in a completely new position in philosophy. Although the focus is different from what other philosophers emphasised before, the human being is still placed outside of the world as an "ego". The inheritance of the spectator philosophies that formed the basis of the discussion from which Husserl took his materials is still visible in his own approach in the shape of the transcendental subject. This is not to say that the importance of Husserl's work should in any way be denied, but it illustrates that the development had not yet been completed.

Although the transcendental, idealistic version of phenomenology can be seen as the ultimate culmination of the spectator perspective, its similarities to pragmatism slowly induced a shift towards a more pragmatic version. In the later phases of his thinking, Husserl already decreased the prominence of the spectator position by introducing his lifeworld philosophy. Thereby, the concrete practices of human beings entered into phenomenology. However, Husserl never gave up the transcendental position.

The tendency towards a more pragmatic version made it possible to overcome the transcendental approach in phenomenology, and use the results of phenomenological
A pragmatic phenomenological approach in environmental planning

analysis as instruments of analysis in a context where the focus was on practices of inquiry and social behaviour rather than on the subject as a spectator. Attempts in this direction were initiated by Schütz (Kockelkoren, 1980) and Berger & Luckmann (1966). Both were inspired by phenomenology as a possibility of understanding the social aspects of human life in a new way. This means that they had to investigate the possibilities of intersubjectivity: the understanding of fellow humans and the sharing of meaning.

The question of intersubjectivity turned out to be one of the most important aspects in the pragmatisation of phenomenology. Husserl himself also addressed the issue. How, according to Husserl, can the meanings we attribute to phenomena be shared with other humans? It turns out to be quite difficult to describe intersubjectivity from a traditional phenomenological point of view, because in the combination of both phenomenological and transcendental reduction, the individual seems to become more and more isolated. There is no objective world to refer to, and since scientific structures are based on observations from the lifeworld, we have no a priori knowledge to share.

Husserl solved the issue with a problematic transcendental intersubjectivity, asserting that the subject 'appresents' the other as a different subject in a pre-given transcendental structure. In the end, it turns out to be necessary to assume an original intersubjectivity preceding the world, which definitely raises the question why, then, it seems to be impossible to share meanings when cultures are incommensurable. If intersubjectivity precedes worldly conditions, then why should different cultures develop this large range of seemingly incompatible cultural systems?\(^{18}\) Maybe intersubjectivity does originate from the world after all. But basing intersubjectivity instead on a universal ontology conflicts with the intention of the phenomenological method to put the world 'in brackets'. According to Kockelkoren (1980), the pragmatisation of phenomenology can offer a solution to this problem with the idea that intersubjectivity is actively constituted in interaction. Social reality, i.e. the reality that can be described by social science, consisting of people living together and sharing meaning, becomes a dynamic process instead of a pre-given structure\(^{19}\).

'Social reality cannot in any respect be conceived as the world. Social reality and its correlate social personality are continuously realised in daily life by routine.' (Kockelkoren, 1980, p.115, my translation)

This addition to and modification of traditional phenomenology is necessary when we want to apply phenomenology to issues that involve elements of such a social reality. Environmental planning is definitely such an issue, since the design of a landscape influences the environment of the social practices by altering environmental conditions. Thereby, the landscape is connected to the realisation of intersubjectivity. However, as we will see, modern developments in phenomenology sought a different kind of solution, where intersubjectivity is identified with the cultural models that objectify the world.

\(^{18}\) Kockelkoren (1980), pp. 90 and further.\(^{19}\) This corresponds to the view of ethnomethodology, which developed from both the philosophy of Schütz and the theories of language by John Austin. See Kockelkoren (1980), pp. 110 and further.
**Postphenomenology**

**Ihde: micro- and macroperception**

Don Ihde (1990) took one step further in the pragmatisation of phenomenology. He asked the question whether it is possible to integrate various aspects of phenomenological thought in order to understand the influence of technological development on our lives. Ihde, as opposed to Husserl, strongly focuses on 'the dynamics of perceptual-bodily activity in actional praxis' (p. 27). Whether this interpretation of phenomenology is justified is a question to be dealt with in more theoretical research. In any case, Ihde also recognises the emphasis of Husserl on scientific structures and how they emerge from the lifeworld. He sees the lifeworld as the concept capable of integrating the perceptual-bodily aspects and the structural aspects of phenomenological analysis, by showing the origin of scientific thought in practical activity. However, he finds that there now seem to be two kinds or levels of praxes: the material and practical on one side, and the ideal and theoretical on the other.

Ihde disagrees with the derivation of the theoretical from the practical. He rather distinguishes two senses of perception: microperception and macroperception. Microperception is the immediate and bodily sensory perception. Macroperception is the cultural and hermeneutic (interpretative) kind of perception, based on cultural interpretative frameworks. According to Ihde, there is no macroperception without microperception, but neither is there microperception without macroperception. Thus, all perception is both bodily focused and guided by macroperceptual interpretative contexts. Two such contexts may be distinguished: the cultural context of daily life and the scientific frameworks of interpretation (Verbeek, 2000, p. 153).

**Verbeek: hermeneutic and existential directions**

Peter-Paul Verbeek (2000) recognises that phenomenology has been extended from Husserl's philosophy of consciousness regarding the origins of knowledge to the analysis of relations between humans and their world in a broad sense. But he also discovers a second extension in the connection of phenomenology with the philosophy of existence as founded by Kierkegaard and Sartre. Not only experience is now relevant to phenomenology, but also the way in which people form their existence. Verbeek uses the words *praxis* and *acting* for this aspect of the extended phenomenology.

Verbeek now distinguishes two perspectives in phenomenology: the hermeneutic perspective, which starts from the side of the world in the intentional relation and analyses experience and meaning, and the existential perspective, which starts from the human side and analyses acting and existence. In philosophy of technology, the first perspective is found in Heidegger and the second in Jaspers.

According to Verbeek, classical phenomenology bridges the gap between subject and object by showing that they are actually always related by the intentional directedness of humans towards their world. In his own approach, which he calls *postphenomenology*, subject and object are not only related, but they also *constitute*
each other mutually. In their relation, they shape each other and thus arises a specific objectivity of the world and a specific subjectivity of humans. This approach avoids both postmodern relativism and Husserl's turn towards idealism. Reality is not reduced to a system consisting of behaviouralistic or operationalistic patterns, and neither does reality become only a product of consciousness.

Verbeek describes the role of artefacts in the relation between humans and their world in terms of mediation, a term taken from Ihde. By actively participating in the forming of the intentional relation — and thereby in the constitution of subjectivity and objectivity — artefacts influence both the way in which people experience the world and the way in which people realise their existence. Mediation of experience is described in terms of amplification and reduction of aspects of experience; mediation of existence in terms of invitation and inhibition of aspects of acting. For example, a television may change the way in which we experience the world, and a microwave may change the way in which we have dinner with the family.

The concept of mediation will be indispensable for the approach developed in this thesis. The reader should keep in mind, therefore, that our relation to our environment can be changed by the influence of artefacts, and that we call this effect mediation.

The relevance of phenomenology for environmental planning

In phenomenology, especially postphenomenology, the focus of analysis is on relations between humans and their environment instead of on humans and the world as separate realms. When applied to environmental planning, relations between humans and the landscape can be analysed from a phenomenological perspective, such that the interaction between people and the landscape they live in can be described. This offers an alternative to the analysis of the landscape as a system of functions, produced by objectification of the landscape.

Postphenomenology creates a perspective “from the inside”. Instead of the outside perspective of an analyst, phenomenology describes developments starting from the directedness of humans towards their environment. Humans are related to their environment by interpretation and action, and changes in the environment may mediate this relation. Subject and object are constituted from their relation, and cannot be thought of in separation. In environmental planning, the “subjective” experience of the landscape and the “objective” structure of the landscape are constituted from the relation between people and the landscape. Thus, the two aspects of the problem of fragmentation — the objective fragmentation of the landscape and the subjective fragmentation within human experience — are two sides of the same relation, and they are constituted from this relation. In a phenomenological analysis in terms of human-world relations, the two aspects are not separated, and the analysis provides a starting point for integrated solutions.

In postphenomenology, microperception is focused within the individual human-world relation. Macoperceptual frameworks serve as an existing interpretative background — a culturally defined one — in which perception takes place. Although
postphenomenology can provide an analysis of the relations between people and their environment, in terms of intentionality and mediation, it focuses on individual perception and acting, and it does not include concepts for the description of social practices. We will define social practices as patterns of conduct that include the sharing of meaning between individuals by (imitative) learning in common activities. One may think of the student population at a university as an example. Within the social environment, practices are formed which enable the identification as a student by being involved in common activities based on shared meaning, such as attending lectures, playing sports or going out. These practices cannot be explained by the individual relation to the environment only.

The relation between people and the landscape cannot be adequately described without concepts referring to social practices, since the social conduct of humans is strongly connected to and influenced by the environment they find themselves in. The example of the design of the recreational structure for a national park exemplifies the issue: the use of marked routes, parking lots and restaurants refers to a body of social practices of using the landscape, based on shared meaning, and cannot be understood without it. Every intervention in the landscape may influence such social practices. For example, the appearance of marked hiking trails in a national park not only guides the practices of hiking there directly, but also influences the practice in how it is applied in different areas. If the practice is in this way directed towards the implicit shared meaning that "hiking requires marked trails", a profound change in behaviour may be invoked. The processes of interpretation involved here can neither be explained by individual microperception nor by cultural macroperceptual frameworks of interpretation, since this neglects the intersubjective character of the practices involved. And yet such changes do occur. A phenomenology of environmental planning should therefore include concepts to analyse these issues.

With respect to the possibility of shared meaning, Kockelkoren (1980) holds that from a phenomenological point of view, intersubjectivity should be considered as actively constituted in interaction. Following this insight, macroperception is not just a cultural context in which the individual microperception occurs, but the shared meaning that is involved is actively constituted within the relation between people and their environment. This explanation can account for the change in practice in the hiking example, where the active constitution of shared meaning leads to changes in the social practices.

To enable the application of postphenomenology to issues of environmental planning, we therefore need to extend postphenomenology with concepts that enable the analysis of the social aspects of the intentional relation, rather than only the individual microperceptual relation and its contextual macroperceptual background. This is the main problem that will be discussed in the following chapter.
Praxis

A concept that may explain social practices from a phenomenological point of view is the concept of praxis. However, the use of the term in phenomenology may be subject to considerable confusion. It can simply mean a way of handling situations including both hermeneutic and existential aspects (both interpretation and acting), independently of any distinction between science and lifeworld whatsoever (Ihde's use). It can also mean a pre-scientific way of relating to the world (the praxis for which Husserl invented the term lifeworld). And lastly it can mean a characteristic of the existential perspective as opposed to the hermeneutic one – acting as opposed to interpretation (Verbeek). We will use it in the second meaning, i.e. a pre-scientific way of relating to the world, including both interpretation and acting. This is not to say that the same way of relating to the world does not occur in science, but that it is a characteristic of science that it is not only based on such a way of relating. The reason for this use of the term will become clear when we investigate the different ways of relating to the world.

The term praxis is strongly connected to the discussion of intersubjectivity above. The pre-scientific way of relating to the world needs to include shared meaning to enable the co-operation of individuals and thereby the construction of societies. This shared meaning is interwoven with practices that operate on the environment that humans find themselves in. This points out the importance of the role of intersubjectivity in phenomenology of environmental planning. We concluded that we needed to describe the constitution of social reality as an active, dynamic process. Our use of the term praxis refers to exactly this process of constitution of a social reality. Berger & Luckmann (1966) provide a comprehensive analysis of such constitutive processes. A preliminary definition may be:

praxis is the continuous realisation of a social reality based on intersubjective assignment of meaning by processes of interpretation and acting

According to this definition, the praxis is based on the whole of social practices in a social environment. By processes of learning in a common environment, shared meaning is formed and a social reality is constituted. We already introduced the hiking example before. An example of how this works for birds is described by Bloom (2000). Bloom has a different opinion than Berger & Luckmann on the issue of the uniqueness of social behaviour to human beings. Whereas Berger & Luckmann conceive social behaviour as stemming from man's world-openness, Bloom argues that distributed intelligence in the form of complex adaptive systems, exhibiting interactive behaviour to co-ordinate efforts, is one of the primary forms of organisation of life. In creatures with memory, this leads to social behaviour and shared meaning:

'[…] birds rely for their perception of the world on those around them. Experimenters put a young, inexperienced blackbird and an older, wiser flier in cages side by side. The savvy elder was shown an owl, and attacked the potential killer furiously. The youngster witnessed the emergency response, but couldn't see the predator it was directed at. Sly researchers had placed a partition in his line of sight. On the younger's side of the opaque divider appeared a stuffed honeyeater, a congenial creature which does not feast on blackbird meat. The setup was designed to convey the expression that the elder's pugnacity had been roused by the harmless sweet-snacker. Later the young bird was put next to an unseasoned fledgling like
itself. Both were shown the honeyeater. The newcomer was indifferent. But the bird who'd seen his elder go into a rage flew at the beehive connoisseur, assailing it with might and main. Soon the novice picked up the message and joined in. Then it, too, was paired with a naïve bird who didn't have a clue. Like his teacher before him, the bird who'd learned his lesson demonstrated the importance of mobbing honeyeaters and passed the practice on. Wrongheaded as it was, the tradition was handed down through six blackbird generations before the experimenters called its quits.' (p. 40)

The example makes clear how processes of interpretation and acting are interrelated in the construction of shared meaning and the constitution of a social reality. Social practices make this possible. This is what the term *praxis* implies in this thesis. When one replaces the blackbirds with humans and the honeyeater with a presence in a landscape, one may get a clue of the importance for environmental planning. The relevance of the concept of praxis becomes clearer when we describe the nature of the processes of interpretation and acting that are involved. We will come back to this issue after we discussed the pragmatic approach in philosophy. It is important to remember that *praxis* does not only refer to acting, but to experience as well.

**Conclusions**

An analysis of the landscape avoiding a spectator conception of experience, enabling alternatives to the division of space according to function, may benefit from a postphenomenological approach. Since phenomenology focuses on relations, and since postphenomenology understands subject and object as mutually constituted in their relation, the spectator conception is avoided. However, the distinction between microperception as individual sensory-bodily relation with the world and macroperception as existing interpretative framework does not allow the analysis of social practices in postphenomenology. Although Kockelkoren holds that intersubjectivity should be considered as actively constituted in interaction, postphenomenology does not enable such an analysis yet. Because practices of social character and adaptations in the landscape are interwoven, the analysis of intersubjectivity is important when applying postphenomenology to issues of environmental planning. Therefore, we need to investigate how intersubjectivity can develop from the directedness of human beings towards their environment, instead of taking it for granted as a context of perception. In this way, we can describe the influence of the landscape on intersubjective processes in terms of mediation.

We will provide the basis for a more pragmatic approach that starts from the point of view that mind emerges from the world and from social conditions, and analyses the mutual constitution of subjects and objects in phenomenology from this point of departure. We have seen before that such an approach avoids subjectification and objectification, and thereby the spectator conception of experience. Moreover, it solves the problem of postphenomenology that social aspects cannot be analysed. The details of this approach will be discussed in the following chapters.
Chapter 4

Pragmatism

In this chapter, we investigate the philosophical concepts that can enable the discussion of social aspects within phenomenology. First, we will have a closer look at how intersubjectivity is formed. We will introduce two theories: one from the 1960's investigating the foundations of a sociology of knowledge, and one recent study into societies as complex adaptive systems. These theories serve as examples of how a more pragmatic description of intersubjectivity is possible. Thereafter, the pragmatic approach in philosophy is introduced, enabling a philosophical discussion of intersubjectivity without taking a transcendental viewpoint. We will assess the benefits of its concepts for the inclusion of intersubjectivity within postphenomenology.

Theories on intersubjectivity

To be able to discuss intersubjectivity within postphenomenology, we need some background information on how intersubjectivity is understood in recent research on social interaction. The transcendental view on the issue has been replaced by a more pragmatic approach. Theories from various origins shed some light on how our relation to other people can be analysed, reflecting the shift in thinking from transcendentalism to pragmatism. They provide examples of how a more pragmatic description of intersubjectivity is possible. The example theories we present here serve as a starting point for extracting the essential concepts of such a description.

The first theory we will present is one having its point of departure in philosophical anthropology, understanding the human being as a world-open animal. It was advanced by Berger & Luckmann (1966). The second one analyses societies as complex adaptive systems, another concept that rejects the transcendental view and focuses on worldly conditions. The latter theory has been vividly described by Bloom (1995 & 2000). Both theories show how we can describe intersubjectivity in a pragmatic way. After giving an overview of these theories, we will extract the elements of their respective conceptual frameworks that enable us to extend our phenomenological approach.

Berger & Luckmann: the social construction of reality

Berger & Luckmann (1966) try to establish the foundations of a sociology of knowledge from the point of view that reality is constructed socially. Their point of
departure lies in the philosophical anthropology of Plessner and Gehlen, who characterise the human being as a world-open animal.

'Man occupies a peculiar position in the animal kingdom. Unlike the other higher mammals, he has no species-specific environment, no environment firmly structured by his own instinctual organization. There is no man-world in the sense that one may speak of a dog-world or a horse-world. Despite an area of individual learning and accumulation, the individual dog or the individual horse has a largely fixed relationship to its environment, which it shares with all other members of its respective species. [...] In this sense, all non-human animals, as species and as individuals, live in closed worlds whose structures are predetermined by the biological equipment of the several animal species. By contrast, man's relationship to his environment is characterized by world-openness.' (p. 45, my italics)

Humans deal with the imperfect structuring of their environment by institutionalisation. In a social enterprise, the environment is given the necessary structuring by organising activity based on habitualisation. 'Institutionalization occurs whenever there is a reciprocal typification of habitualized actions by types of actors.' By means of institutionalisation, man produces his own reality, his own constructed objectivity. This happens in a relationship of three dialectical moments: externalisation, objectification and internalisation. The produced reality acts back in shaping man himself, including the understanding of his own identity and that of others.

Intersubjective sedimentation of experiences in a common stock of knowledge is enabled by a linguistic sign system, which makes the experiences objectively available. Moreover, the sign system enables the construction of symbol systems by using elements of the system as symbols referring to another world (science, religion, art). This may lead to a symbolic universe legitimating the institutions. This is especially useful in transmitting the institutional order to a new generation, the members of which have not been engaged in its construction. However, the symbolic universe itself needs to be maintained by conceptual machineries. Berger & Luckmann mention mythology, theology, philosophy and science as types of such machineries. Universe maintenance may be implemented by therapy, using a conceptual machinery to keep everyone within the universe, and nihilation, liquidating conceptually everything outside the universe.

Individuals internalise the objectified universe by processes of socialisation. Berger & Luckmann define socialisation as 'the comprehensive and consistent induction of an individual into the objective world of a society or a sector of it'20 and distinguish between primary and secondary socialisation. Primary socialisation occurs in childhood in the relation with significant others, with which the child identifies. Later in life, institutional "subworlds" are internalised by secondary socialisation, and role-specific knowledge is acquired. In this case, emotionally charged identification plays a far less important part. The individual now realises that the agents of socialisation are institutional representatives, and not mediators of the world, as which one understands one's parents in childhood.

Socialisation is successful when a high degree of symmetry has been established between objective and subjective reality. In this case, there is 'a continual internal

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dialectic between identity and its biological substratum\textsuperscript{21}, which has its external equivalent in a dialectic between the individual animal and the social world. Its manifests itself as 'the resistance of the biological substratum to its social molding'. Thus, man is an animal with a social-biological dialectic built in.

Our main point of critique on the theory of Berger & Luckmann is that they too greedily reduce all animal learning to mere individual processes (see the italics in the quotation on the previous page). The social aspects of humans are then explained in terms of their built-in social-biological dialectic. Other research, however, indicates the importance of groups in the individual's relation to the environment, even before the emergence of the human race. We will present such a theory here.

**Bloom: social behaviour as the result of complex adaptive systems**

Howard Bloom (2000) views the appearance of mind and intelligence as the result of the networking of information in groups.

'K.R.L. Hall has said that baboon groups provide "the essential setting for each and every act of learning by the individual … the group is the basic unit for … learning processes." […] Mammals not only network information across distance, they also spread the tendrils of what they've learned into the future, thus penetrating space and time.' (p. 54)

Bloom sees life as essentially social, as the operation of a mass mind consisting of individual contributors. Such 'collective learning machines' combine five elements:

- **conformity enforcers**, which make the group members act in similar manners, beneficial to the collective;
- **diversity generators**, which continually generate new approaches to coping with the environment;
- **inner judges**, which measure the individual's achievements and generate inner rewards or punishments in terms of the individual's well-being;
- **resource shifters**, which transfer the resources to successful members of the collective;
- **intergroup tournaments**, which determine the relative success of groups by confrontation, and force them to innovate to outrun the opponents.

Whereas bacteria communicate information directly from individual to individual by exchanging chemical signals and DNA fragments, higher animals lost this ability due to the complexity of their organisation. Instead, they developed memory to store and exchange data.

'When memory appeared, the effect was dramatic. A multicelled creature could quickly store experience in a nervous system's circuitry. This opened a way for a swift reprogrammer zoologist Richard Dawkins calls the meme - a habit, a technique, a twist of feeling, a sense of things, which easily flips from brain to brain.' (p. 30)

'Memes - habits, new ways of doing things, and other commanding intangibles which migrate from mind to mind - are key to the next jump up in networking. Memes come in two stripes:

\textsuperscript{21} p. 167
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implicit, those which belong to the animal brain; and explicit, those which depend on human neural addons, the cranial gizmos responsible for syntactic speech.' (p. 49)

One of the pioneers in developing something like science from the latter type of memes was Thales. He exchanged ideas between societies and made his own discoveries.

'Thales also helped initiate the concept of secular philosophy, reducing the perverse magic of a persnickety universe to elements graspable by reason. Among other things, he tossed aside the habit of explaining everything via mythology and generated a down-to-earth theory of how this cosmos had come to be. The world, he declared, had self-assembled from water and from "psyche". The macrogods of sky were banished in favor of microgods one could finger in a stone or chew in a leaf of grass… for, as Aristotle put it in one of his references to Thales' cosmogony, "all things are full of gods" - an early way of saying that each object has its own inherent properties.' (p. 128)

Science thereafter developed into a comprehensive methodology of understanding and adapting the world. However, even in science our behaviour is still largely based on what others see and do and on what has become accepted. Habits or memes are not eliminated by scientific method. Rather, science is one special combination of habits.

'Even the most highly trained observers end up mixing fiction with their "facts". Before chromosomes were discovered, scientists used their microscopes to examine cells in minute detail, then drew what they had "seen". Not a single chromosome showed up in their renderings. After chromosomes had become accepted truths, researchers suddenly peppered their cellular portraits with the things. Lacking the concept of the chromosome, observers would have sworn the chromosomes were not there.' (p. 65-66)

According to Bloom, reality is thus constructed by social agreement on what is there. Moreover, our self-image is constructed in the same process as our reality. 'The left brain's consciousness uses the material it's handed […] to construct two theories of "reality": one of the self and the other of an outside world.' (p. 69) Subjectivity and objectivity are mutually constituted, as in postphenomenology. But the process is not just an individual one; it includes aspects of a collective learning machine, in which reality is socially constructed.

The pragmatic turn in phenomenology

We presented two example theories that investigate intersubjectivity from a pragmatic instead of a transcendent point of view. The question is which concepts in these theories are relevant for an extension of the postphenomenological approach that enables discussion of intersubjectivity.

The problem of phenomenology is that it has too much been focused on relations of the individual human being with his environment, whereas the theories presented above show that 'mind can arise only within in a social condition': aspects of the social environment determine for a main part the experiences and actions of the individual. Both Berger & Luckmann and Bloom mention the importance of habits in the social condition. According to Berger & Luckmann, habitualisation and

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institutionalisation provide the necessary organisation of the imperfectly structured environment of man. For Bloom, habits are the communication means by which mammals network their intelligence. Both perspectives, a sociological and a biological one, respectively, point out the importance of sociality in understanding individuals. To provide a phenomenology that takes this aspect into account, the possible role of habits in phenomenological analysis needs to be investigated.

It may be argued that western philosophy has been more occupied with observation and knowledge than with behaviour, and that this characteristic accounts for the still-lacking possibility of integrated analysis of social aspects in phenomenology. In any case, philosophy has for a long time been focused on the individual position of a mind in this world (cogito ergo sum), but recent insights require a change in thought. Mind or consciousness emerges from social conditions, and should be so analysed. The new way of conceiving the philosophical task has already been elaborated in the first half of the 20th century by the pragmatist or instrumentalist philosopher John Dewey.

In the following parts of the chapter, we will introduce the instrumentalist or pragmatist approach to philosophy, as presented in the theories of Dewey. The theory of Dewey provides a philosophical rather than a sociological or biological basis for describing the relation between individuals and their environment, from a social perspective. The concept of habits, of which we saw the importance in recent scientific developments, can thereby be translated into a concept within a philosophical framework.

The pragmatic view on phenomenological issues should provide a more balanced theory of the individual and collective aspects within phenomenology, and thereby enable the analysis of intersubjectivity in postphenomenology. This is what we call the pragmatic turn in phenomenology. The theory of Dewey serves as a basis for this turn.

First, we will present a theory on the way in which our culture developed. This theory will prove useful as a means for relating pragmatism to other approaches, especially phenomenology, and for understanding its impact on philosophy in general. We will later use the theory to explain the advantage of a combined approach over pragmatism without a phenomenological framework.
Three phases in western cultural development

Van Peursen (1970) distinguishes three phases in the development of western culture. In all three phases, he discovers a positive and a negative tendency. The positive one enables the improvement of life by providing a means to cope with the environment. The negative one overemphasises the power that can be attained by the culture's strategy, fixes cultural patterns in order to maintain this power, and thereby decreases the possibility of alternatives and adaptation to new circumstances.

In the *mythical* phase, man is a participant in the world around him. There is no sharp division. Self-identification is hardly possible; values are strongly connected to kinship and the powers of life. The negative tendency is here magic, which tries to gain power by performing rituals not so much connected to religion, but to secret doctrine of control.

In the *ontological* phase, the distance between man and nature is increased. An ontological theory of being, which transcends transitory existence by referring to essence, provides a means for structuring the world, which can be known by correspondence between the objects and the products of reason within the subject. There is a striving for the perfect and the ideal. When this is overemphasised, and isolated substances are assumed for man, world, God, values, substantialism comes into being as the negative tendency. Meaningful connections are thereby broken. By means of isolating and limiting, power can be attained over the environment.

In the *functional* phase, the relation between different presences moves to the foreground. Absolutes are abolished in all parts of human existence. Both reality and knowledge get a more practical character. Meaning becomes associated with patterns of habits, instead of being a representation of the ontologically structured world. The ontological separation of truth, virtue and beauty disappears. Structures are considered historical rather than metaphysical. The negative tendency, operationalism, manifests itself in identifying the model with the thing itself, identifying the system with its application. This reflects the idea that things are only what we can do with them, by using the power we gain over them by knowing how they behave.

The functional view has been emphasised in philosophy by the movement of pragmatism or instrumentalism. According to Richard Rorty, John Dewey is one of the best representatives of pragmatism, which he understands from a radical anti-representationalist viewpoint. He describes anti-representationalism as 'the abandonment of a "spectator" account of knowledge and the consequent abandonment of the appearance / reality distinction'. From this point of view, the best and purest representatives of pragmatism – those least infected with reductionistic thinking – are Dewey and Davidson.\(^{23}\)

Pragmatism or instrumentalism focuses on what we can do rather than on what things are. Thus, pragmatism emphasises the functional aspects of philosophy rather than the ontological aspects. It is important to keep this in mind when reading about pragmatism. The philosophical approach of Dewey, providing a philosophical basis for our pragmatic conception of phenomenology, will be explained next.

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\(^{23}\) Murphy (1990), p. 5.
The pragmatic philosophy of John Dewey

The new task of philosophy

In *Reconstruction in Philosophy* (originally published in 1920), John Dewey (1859-1952) describes the new task that pragmatism assigns to philosophy. In order to explain the necessity of this task, Dewey gives a historic account of the emergence of philosophy. It is important to understand this analysis for the sake of being able to relate Dewey's pragmatism to other approaches. Dewey wanted to develop philosophy in a very specific direction, and the contents of his work cannot be understood without understanding this background.

According to Dewey, the first philosophies were rooted in desire and imagination rather than in attempts at scientific explanation of the world. Traditions emerge from the recollection of events for the sake of satisfying the capabilities of memory when not used for urgent purposes. This material first becomes textured and develops into rites. New group members are introduced into the body of acquired group memory by education. Political consolidation reinforces this process, because unified beliefs promote social unity. Next to this organisation of doctrine, matter-of-fact knowledge develops from experience with the actual behaviour of the world with respect to the requirements raised by practical issues, e.g. food, dangers, and especially arts and crafts.

When matter-of-fact knowledge increases, it may start to conflict with inherited doctrine stemming from desire and imagination. Dewey states that this conflict is exemplified by the sophists and Socrates in ancient Greece. The rigour with which their ideas and methods were discarded, accounts for a strong defence of the realm of tradition against the matter-of-fact approach. However, the increasing importance of the practical knowledge demanded a new way of looking at and justifying tradition. This may be the task that Plato implicitly assigned himself. Philosophy now had to be the means of re-investigation of the inherited body of beliefs, and developing a method that could claim to derive the most fundamental of these beliefs over again, but this time from necessity instead of inheritance.

Dewey regards most of western philosophy as emerging from this task set in the beginning. He distinguishes three traits of this philosophy:
1. It had the prejudiced task of extracting 'the essential moral kernel out of the threatened traditional beliefs of the past' (p. 18);
2. 'Since it aimed at a rational justification of things that had been previously accepted because of their emotional congeniality and social prestige, it had to make much of the apparatus of reason and proof' (p. 20);
3. Because the body of beliefs dictated by desire and imagination was comprehensive and universal in character, philosophical reflective thought 'should aim at a similar universality and comprehensiveness', and is therefore concerned with a 'superior reality' (p. 22).

The appearance of the autonomous subject in the Renaissance has been actively approached by the apologetic kind of philosophy, in order to derive the culturally and
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religiiously motivated tradition from necessity for the last time. This time, the necessity did not come from teleology, neither from Christianity, but from the autonomous subject that finds itself thinking. However, the motive of this claim for necessity still lies in maintaining traditional beliefs. Reason now is no longer guiding nature or the world directly, but through the operation of the autonomous subject. Nature can now be reduced to meaningless processes of change, as long as we justify and preserve the tradition of necessary human values by deriving them from the autonomous individual reason.

The distinction between human and non-human existences, or mind and matter, is the sole reminiscence left of the ancient categorisation of ideas. The realm of the superior has been shrunk into the individual, who finds himself in a world of matter from which the gods have withdrawn, and finds the last necessity in his own existence as a thinking spiritual being; a necessity that stems from the requirements of universality and proof in the search for re-foundation of tradition in apologetic philosophy. It is this development that accounts for the strict separation of subject and object in modern philosophy, and therefore is the father of the idealism-realism debate.

Dewey argues against this 'spectator conception of knowledge'. If a modern scientist wants to know something, he starts to do something:

'Modern science no longer tries to find some fixed form or essence behind each process of change. Rather, the experimental method tries to break down apparent fixities and to induce changes. [...] Consequently, the scientific man experiments with this and that agency applied to this and that condition until something begins to happen; until there is, as we say, something doing. He assumes that there is change going on all the time, that there is movement within each thing in seeming repose; and that since the process is veiled from perception the way to know it is to bring the thing into novel circumstances until change becomes evident. In short, the thing which is to be accepted and paid heed to is not what is originally given but that which emerges after the thing has been set under a great variety of circumstances in order to see how it behaves.' (Dewey, 1957, p. 113-114).

The simultaneous appearance of the autonomous subject and the autonomous space, as explained by Lemaire, is not as obvious as it may seem. The autonomous subject might as well have become an inquiring existence, entangled in an intimate relation of inquiry with the world, if only philosophy would not have been more occupied with ascertaining existing values than with constructing a philosophy of inquiry for the newly created human attitude. This approach in philosophy made it necessary to fix the old certainties within the new attitude, and therefore separate the subject and its values from the world it investigates. Fixed tradition should not be the matter of investigation, and therefore the human spectator should be set apart from the things he is observing.

Seen in the light of this analysis, it is no wonder that a 'scientific' conception of philosophy, stemming from the idea that philosophical theories are but hypotheses, still meets with the same kind of defence that the sophists were confronted with. However, this is exactly what Dewey wants to initiate. The idea of knowledge by inquiry, as proposed by Francis Bacon, has more or less completely been incorporated in the practices of natural science, but still seems to be absent in philosophy. It is time for a new approach.
Habits and praxis

By focusing on inquiry, Dewey provides the basis of his pragmatic approach to human problem solving and learning. The theory of inquiry forms an important part of Dewey's instrumentalist philosophy. The main theme is that 'logical distinctions and methods of inquiry develop out of the process of problem solving activities. The logic of inquiry is not a set of norms existing independently of and prior to our cognitive efforts.' The object of knowledge is thus the outcome of a process.

This is also the case for moral principles in practical as opposed to theoretical inquiry. Moral principles are constructed from human problem solving activities in the interaction with other human beings. The construction of good is therefore a social process. There are no fundamental principles apart from the concrete norms and values that emerge from interaction. Our social behaviour is not based on necessary principles, and neither on purely individual considerations or optimisations (as in utilitarianism). Everything that enables us to behave socially stems from interaction.

According to Dewey, the interpersonal characteristic of our behaviour provides the possibility to construct public meanings by shared activity with shared features of the environment. We learn how to solve problems from our parents, teachers and friends. Therefore, our problem-solving capabilities can only arise within a social condition. But how can we solve problems within our social situation itself? Dewey argues that the same methods of inquiry are applicable (and should be applied) in both theoretical and practical research. The actions that lead to effective transformations of the social environment have to be learned by inquiry.

How then, is it possible to obtain the possibility of social behaviour from interaction? Since Dewey focuses on inquiry instead of on the relation between an observer and the world, he does not need to introduce something like a "mind" or a "subject". Dewey sees the self not as a separate entity, but as a dynamic complex of habits. Ideas refer to habits of action, which are based on active participation with objects and language use in shared activity. It is not surprising that Dewey was very much interested in education.

Habits have, as far as I know, never been discussed in phenomenology. Although it may be said that the concept belongs to a completely different language game, it can be very valuable for understanding intersubjectivity in modern (pragmatic) phenomenology, without taking a transcendental viewpoint. We have seen before the problems that Husserl met in his transcendental explanation, and the pragmatic tendency that phenomenology went through. Moreover, it is an explanation of social behaviour that avoids retracing all human decisions to rationality. In that way, we would again suppose some universal kind of reason operating through the individual human brain, and return to the apologetic task of philosophy, defending our tradition against matter-of-fact knowledge.

Instead, social behaviour is acquired by developing habits by learning from group members. This explains the praxis, i.e. the continuous realisation of a social reality. Intersubjectivity is acquired by sharing habits, and thereby sharing meaning. Habits of inquiry then may lead to the formation of explicit scientific models and moral

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principles, which include principles of rational reasoning as opposed to habitual decisions.

By a description of social behaviour in terms of habits, the praxis is distinguished both from individual sensory-bodily aspects of our relation with the world and from scientific/rational contemplation. Whereas the sensory-bodily aspects realise the individual relation between the human being and its environment, and the scientific-rational aspects realise the objectification\(^{25}\) of the world through (scientific) models, the aspects of the praxis realise an intersubjective social reality. All these forms of realisation of reality originate from interaction, not from a pre-existing subject.

Thus, as the sensory-bodily aspects can be defined as the continuous realisation of the individual bodily reality, and the scientific-rational aspects can be defined as the continuous realisation of the objective-rational reality, the praxis may accurately be defined as the continuous realisation of an intersubjective social reality, which is the preliminary definition presented before.

Our proposition here is that the latter is done by the forming of habits, which requires both interpretation and action. The nature of this interpretation and action in forming habits will be discussed later.

**Functional philosophy**

We have seen how pragmatism introduced the concept of habits into systematic philosophical thinking, by denying the distinction between man and nature or subjects and objects that had been the characteristic of what Dewey called apologetic philosophy. The advancement of habits as a philosophical concept enables us to discuss issues of intersubjectivity and social aspects of our relation to our environment from a pragmatic instead of a transcendental viewpoint.

For a better understanding of the relation of Dewey's pragmatic approach to traditional philosophical methods, we may refer to the model of cultural development advanced by Van Peursen (1970), which we discussed before. The concepts introduced by Van Peursen serve to make clearer what Dewey wanted to see as the new task of philosophy. Whereas traditional philosophy had a strong relationship to ontology, Dewey argued for an instrumentalist approach. In terms of the model of Van Peursen, philosophy had not yet been able to move from an ontological phase in culture to a functional one. Pragmatism wanted to make this transition by declaring philosophy pragmatic instead of apologetic (substantialistic or essentialistic).

This enables us to provide an approach in environmental planning that challenges existing attitudes, without referring to some forgotten hidden dimension or other spurious ontological claims. By taking a pragmatic attitude, the spectator conception of experience is left behind with the apologetic philosophy pragmatism criticises. However, we have to take care that we do not end up with an approach supporting the negative operationalistic tendency. Pragmatism has often been interpreted as

\(^{25}\) Objectification should not be seen as connected to alienation here, but as a form of understanding that is essentially scientific.
operationalistic, reducing everything to meaningless behaviour. Although careful reading of Dewey's work objects to such an interpretation, it is not easy to extract the kernel out of the hints that are given for a different understanding.

By focusing on relations, phenomenology has taken a large step in the path towards avoiding an operationalistic worldview. When one carefully reads both phenomenological and pragmatist texts, it seems that phenomenology can offer exactly the concepts necessary for a functional, pragmatic philosophy that however does not produce a seemingly operationalistic attitude. Still, we have to make clear how such a philosophy is possible, since pragmatism denies the subject-object distinction that characterises the intentional relation in phenomenology.

The concept of selectivity

To enable the combination of phenomenological and pragmatic concepts, we need to either introduce the subject-object distinction into pragmatism, or re-formulate the concept of intentionality within phenomenology such that it does not depend on this distinction. Since a conceptual distinction between subjects and objects may easily be interpreted as re-introducing the spectator perspective into pragmatism, we rather choose the latter option. We thus need a way of explaining the directedness of human beings towards their environment without referring to subjects and objects.

Dewey's concept of 'selectivity in action', which, according to Dewey, all existences possess, forms the basis of the pragmatic re-formulation of phenomenology. The concept needs some explanation. First of all, Dewey does not intend to use philosophy to find something fixed in a world of change. Because everything is change and process, he rather intends to formulate models of how processes and changes relate to each other, like in natural science. Existence should therefore not be regarded as something like a fixed entity, but as a process.

According to Dewey, the division of the world in human and non-human beings, or subjects and objects, is artificial and inspired by religious considerations rather than empirical inquiry. However, empirical data suggest that evolution does take place and humans do make choices, even though there is no reason to suppose something super-natural in either nature or humans. Dewey finds an explanation for these observations in the principle that every existence demonstrates behaviour based on 'bias' or 'preferences', whether it be an atom or a human being. This is what he calls 'selectivity'. Selectivity thus characterises the processes of existence.

'Preferential action in the sense of selective behavior is a universal trait of all things, atoms and molecules as well as plants, animals and man. Existences, universally as far as we can tell, are cold and indifferent in the presence of some things and react energetically in either a positive or a negative way to other things. These "preferences" or differential responses of behavior, are due to their own constitution; they "express" the nature of the things in question. They mark a distinctive contribution to what takes place. In other words, while changes in one thing may be described on the basis of changes that take place in other things, the existence of things which make certain changes having a certain quality and direction occur cannot be so explained. Selective behavior is the evidence of at least a rudimentary individuality or uniqueness in things. Such preferential action is not exactly what makes choice in the case of human beings. But unless there is involved in choice at least something continuous with the action of other things in nature, we could impute genuine reality to it only by isolating man from nature and thus treating him as in some sense a supra-natural
being in the literal sense. Choice is more than just selectivity in behavior, but it is at least that.' (Dewey, 1960, p. 265)

Thus, the concept of selectivity enables us to describe an existence's relation to its environment without referring to a subject-object distinction. Dewey recognises that human selectivity in action is something different from selective behaviour of atoms. So, there must be various ways in which an existence can exhibit selective behaviour. This motivates the need to consider which modes of selectivity we have to include in our model to adequately describe the processes of mediation. A selection of modes of selectivity is required, for which we will present heuristics in the next chapter.

By characterising choice in terms of selectivity, Dewey rejects an explanation from the separation of man and nature. This is a valuable tool in our philosophy of environmental planning, since we wanted to have an alternative to the spectator perspective that places man outside his environment in the first place. As we have seen, the spectator conception may lead to neglecting the relations and the mutual influence of humans and their environment upon each other, e.g. by dealing with fragmentation only in terms of objective characteristics of the landscape. Whereas pragmatism avoids the separation of man and nature by the concept of selectivity, postphenomenology recognised that subject and object are mutually constituted. This means that also from the point of view of phenomenology, the separation starts to disappear. The main question is how we can use the concept of selectivity to integrate phenomenological and pragmatist analysis.
Conclusions

Current postphenomenology does not provide the means to analyse social aspects of the intentional relation. We have seen that recent scientific theories – explaining intersubjectivity from a pragmatic instead of a transcendental point of view – refer to the concept of habits to describe social behaviour. In philosophy, this perspective has been advanced by the pragmatist or instrumentalist movement, of which John Dewey is one of the best known and purest representatives. We have presented pragmatism as a means to include aspects of intersubjectivity and social behaviour in postphenomenology.

In pragmatism, there is no distinction between subject and object. What, then, is the use of trying to integrate phenomenology and pragmatism? Firstly, phenomenology may prevent pragmatism from being interpreted as operationalistic, by focusing on relations. By presenting a perspective "from the inside", phenomenology makes it impossible to derive behaviour from mere functionality within a system. Secondly, the postphenomenology of Verbeek offers useful concepts for analysing the role of selectivity in a pragmatist worldview, as we will see. Thirdly, pragmatism prevents phenomenology from making transcendental claims about the existence of and the relation between subject and object, and the role of the intentional relation. This means that whereas phenomenology needs subjects and objects as the basis of the intentional relation, we do not claim a division of the world in subjects and objects at all. We focused on the pragmatist concept of selectivity as a means to describe human-world relations without assuming a subject-object distinction.

Dewey has been extensively occupied with practices, both in science and in moral life. He vividly describes the practices that result in scientific knowledge. Unlike Husserl, he does not focus on the objects of knowledge as such. And unlike Ihde, he does not focus on perceptual-bodily relations. We conclude that within our phenomenological analysis, Dewey offers the means for both a pragmatic attitude towards philosophy and for a description of the praxis – which we defined as the realisation of an intersubjective social reality by processes of interpretation and acting. This is made possible by the introduction of habits as a philosophical concept by pragmatism. We need to combine phenomenology and pragmatism in order to build a framework for such an approach. The combined approach will be based on the description of different modes of selectivity.
Chapter 5

The three paradigms

In the previous chapter, we discussed the possibility of describing relations between humans and their world from the perspective of selectivity, as a means to extend the postphenomenological approach. We argued that we have to describe various modes of selectivity to account for the complexity of human behaviour. If we can find a conceptual scheme in which many aspects of human-world relations are covered, we can integrate phenomenological and pragmatic analysis based on the concept of selectivity.

A heuristic tool for composing a conceptual scheme in which phenomenological and pragmatic elements are combined is found in artificial intelligence. In artificial intelligence, intelligent systems are built that relate to their environment in some way in order to be able to perform some intelligent task (pattern recognition, natural language translation, game playing). Different paradigms have emerged based on different views on how human intelligence operates, and on how rational behaviour in general is possible. By investigating the constituents of each of the paradigms involved in modelling the relation of an intelligent system to its environment, we can conceptually distinguish different ways in which humans can relate to their environment. This is relevant for our discussion about selectivity. This analysis will be evaluated in terms of its contribution to a combined approach including phenomenological and pragmatic elements.

Artificial intelligence

As stated before, artificial intelligence models the way in which a system can relate to its environment intelligently. According to Russell & Norvig (1995), there are four possible goals of AI research:
1. systems that think like humans;
2. systems that act like humans;
3. systems that think rationally;
4. systems that act rationally.

From a pragmatic point of view, the emphasis is of course on how systems act. And since we want to shed some light on how humans relate to their environment, we focus on the second approach here. Thus, the question that we consider from the point of view of artificial intelligence is how we can build systems that act humanly. This serves as a heuristic tool for describing the relation of an intelligent existence (such as
a human being) to its environment. There are various approaches in artificial intelligence that each provide a different answer to this question.

History

The name *artificial intelligence* was given to a new field of research in 1956. The research aimed at making machines perform "intelligent" tasks like proving mathematical theorems or playing chess. Applications were both constructed for *symbolic* or *logicist* systems, using symbols to represent the knowledge content, and systems simulating the neurones in the human brain (*subsymbolic* or *connectionist* systems). After the publication of a critical book\(^\text{26}\) in 1969, research efforts in neural networks rapidly decreased. Symbolic approaches, using explicit models of environment, knowledge and reasoning, then became the main movement in AI. However, in 1986 new research\(^\text{27}\) showed promising possibilities for connectionist approaches as well. Since then, symbolic and subsymbolic approaches have existed side by side, with the different backgrounds and presuppositions more or less taken for granted.

Now what are the differences between the two approaches from a philosophical point of view? Neural networks and related technology simulate the processing of signals in the human brain. Symbolic systems simulate the reasoning capabilities on symbols that humans possess. Symbols are in this case part of a model, in which the symbols are related to each other such that reasoning is possible. In connectionist approaches, there is no explicit model that is used in the reasoning. Of course, the implementation of neural networks is itself based on a model of the human brain, but the reasoning itself involves only signals, and no explicit model.

Meanwhile, attempts were made to perform some sub-tasks in the symbolic approach based on statistical techniques, for example part of speech tagging in texts. And, more interesting, instead of only storing statistical information about past occurrences, it is also possible to store previous experiences explicitly, as *cases*. 'What is case-based reasoning? Basically: To solve a new problem by remembering a previous similar situation and by reusing information and knowledge of that situation.' (Aamodt & Plaza, 1994).

Agents in virtual environments

In computer science, recent developments show an increasing interest in modelling virtual environments. These may include a virtual landscape, or other types of virtual surroundings, and interaction with other (either human or non-human) characters. Things get more interesting when we are able to place virtual characters in such an environment. For example, the research group TKI (Language, Knowledge and Interaction group) at the University of Twente created a virtual music centre with an information desk, modelled after the real one in Enschede. Here, a virtual person can inform you about the concerts that are taking place.

\(^{26}\) [*Perceptrons* by Minsky and Papert]  
\(^{27}\) [*Parallel Distributed Processing* by Rumelhart and McClelland]
The virtual characters as described here are called *agents*. Agents can handle different types of input and perform different kinds of actions depending on their capabilities. Agents may respond to speech, gestures, text input etc., and the surroundings may of course play a role. And agents may themselves perform actions based on how they are configured. So, the combination of different types of input may result in behaviour consisting of different kinds of output. These different possibilities of interacting with the environment (e.g. speech, gestures, text) are called *modalities*.

![Example of an agent](http://parlevink.cs.utwente.nl)

**Figure 5.1: Example of an agent**

*Source: Parlevink website, http://parlevink.cs.utwente.nl*

The interesting characteristic of this research is that it involves modelling human-like behaviour, and therefore has a strong link with aspects of human intelligence and behaviour. The different approaches in artificial intelligence can all be applied to the construction of the agents, and the results may show further insights in how different aspects of intelligence can co-operate in humans. We will analyse the relation between the positions of the different approaches after a more elaborate description of each of them. First, we will further introduce the possible approaches by describing their application within the research topic of agents in virtual environments.
Intelligence paradigms

How can we design such virtual characters? There are two important things to investigate: how to determine relevant actions in a situation, and how to adapt to new situations, i.e. learning. For example, if you ask the music centre agent for a certain concert, the agent should reply with the date and time of this particular concert. And if you ask for the price, the agent should not repeat the date and time information. Now the most easy way to achieve such behaviour seems to be modelling the relation between input and output for any possible input. So, if the agent receives a question from you, it interprets the question by using a language model, reasons about the contents of the question using a reasoning model, and uses a language model again to produce the output.

A language model may contain a dictionary, a grammar, and a list of expressions with deviating meaning ("it's raining cats and dogs", which would produce a nonsense interpretation using just dictionary and grammar). A hard problem in language interpretation is resolving references to previously occurring words. E.g., what is the correct interpretation of "The book is on the table. It is red."? Either the book or the table is red, but the context of this piece of language should reveal which one is meant. Thus, modelling language (and behaviour in general; gestures are not quite easier) still is a challenging task and requires ongoing research. We call this approach of behaviour generation model-based reasoning.

It would be interesting to have the agent learn new behaviour during operation, but it is difficult to adapt a pre-defined model during operation. For example, how can an agent add a correct interpretation of "it's raining cats and dogs" to its model? First, how do we implement the model such that adaptation is possible? Second, how do we specify the correct interpretation, apart from the context in which the sentence is used? We can only know how we should react to such a sentence, but that does not specify a formal interpretation apart from how to use it.

There is, however, an alternative to explicit modelling of the input-output relations. We can instead base the generated behaviour on previously encountered situations, called cases. We therefore store the situation, the performed action and the result of performing that action. When we encounter a new situation, we compare it to stored situations, compare the desired result with the result achieved in previous situations, and generate an action based on the best matching known situations. This method of behaviour generation is called case-based reasoning, i.e. reasoning by habit.

A simple example (Pieters, 2002): the agent knows that a good reply to the question "where is the blue cube?" is: "the blue cube is on the red table". Now, the situation is specified by the question "where is the green cube?". Furthermore, the agent knows the fact "the green cube is on the yellow table". It can therefore, based on the known similar situation and the known fact, generate the reply "the green cube is on the yellow table". This reflects the idea that meaning is use, i.e. the meaning of a sentence is defined by how it can be used.

However, it may be difficult to find a way to represent the cases. Since the agent does not use an explicit model, it has to learn to structure the cases based on the situations it encounters. The method of structuring, therefore, must be explicitly defined. When we cannot or do not want to do so, we may use a different method instead.
By using neural networks, we insert signals into a simulation of the functioning of neurones in our brain. The signals are processed throughout the network, and by a feedback mechanism, parameters of the network are adapted such that learning becomes possible. The method of structuring is now implicit in the way in which the parameters of the network are adjusted. The network itself therefore determines how the incoming information becomes structured. New signals applied to the input of the network are reflected in the signals at the output. The signals at the output can then be further interpreted. We will call this approach signal-based reasoning.

We will describe each of the approaches in more detail to provide the reader some knowledge of the technological background. Readers not interested in the technological aspects may want to skip these details.

**Model-based reasoning**

When an explicit model is used for reasoning, every situation is explained in terms of the parameters of a model, and by applying rules within the model, the appropriate action is determined. This action is then implemented in the agent's environment.

First, the input information needs to be formalised such that it can be recognised by the system as an instance within its model. For example, when playing a game of tic-tac-toe, the system needs a formalised representation of the board, and of each move a player makes. For each move of the opponent, the system analyses the situation. The system can then, by reasoning about what happens if it makes a certain move, determine its best move and perform it.

Learning is difficult within this paradigm. Imagine that we change the rules of tic-tac-toe somehow, and that the system has to adapt to the new situation. In order for learning to occur, the model has to be adapted. This means that new features of the model have to be determined based on relations between occurrences in the environment. This means that induction is necessary to enable learning. The implementation of induction is far more difficult than the implementation of the deductive reasoning that leads from problem to solution, because there is no strict logic guiding the process. This is why in practice, model-based reasoning systems often lack the ability of learning.

**Case-based reasoning**

If we were to implement tic-tac-toe by case-based reasoning, adapting to the new rules would simply involve storing cases about the new situation and "forgetting" the old ones that do not yield the desired result anymore.

Case-based reasoning (see also Pieters, 2001) is an approach to building intelligent systems which is based on research indicating the importance of the reminding of previous situations in problem solving and learning. Analogical reasoning is thus important to guide the problem solving. But the roots of this movement in AI go as far back as Wittgenstein, who 'observed that "natural concepts", i.e. concepts that are part
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of the natural world – such as bird, orange, chair, car, etc. – are polymorphic. That is, their instances may be categorized in a variety of ways, and it is not possible to come up with a useful classical definition, in terms of a set of necessary and sufficient features, for such concepts. An answer to this problem is to represent a concept extensionally, defined by its set of instances – or cases.’ (Aamodt & Plaza, 1994).

When Dreyfus (1986) criticised artificial intelligence because of the formalisation of reality, he saw as one of the assumptions of symbolic AI that reasoning is viewed as rule-based symbol manipulation (the psychological assumption). The paradigm of case-based reasoning drops this assumption. Instead of rules, reasoning is based on a memory of stored cases. In CBR, reasoning is based on remembering. In solving a problem, the most relevant cases are retrieved and adapted to the new situation. CBR introduces two new assumptions (Leake, 1996):

- the world is regular: similar problems have similar solutions;
- the types of problems an agent encounters tend to recur.

CBR needs both a regular world and knowledge that can be represented in a form that shows regularity. In this way, it is guaranteed that cases have relevance for future problem solving.

To allow using the regularity assumption, we need to be able to determine the similarity of the representations. Similarity is a relation between knowledge representations expressing the regularity by indicating the degree in which the representations have the same characteristics. A similarity measure is therefore an important aspect of a CBR system.

By assuming regularity instead of formalisability, case-based reasoning unties itself from the rationalistic tradition in philosophy. Instead, a connection may be observed between CBR and the empiricistic tradition. Thus, in artificial intelligence, an empiricistic view on design of intelligence has been adopted by the case-based reasoning paradigm. Weiss (1999) writes:

'Case-based reasoning is based on the observation that humans often solve a problem on the basis of solutions that worked well for similar problems in the past.' (p. 283)

Case-based reasoning can be used in application domains that are open and have a weak theory. An open domain is a domain which cannot be realistically modelled unless the problem solver's relationships with the external, changing world are anticipated by the model; a weak theory domain is a domain in which relationships between important concepts are uncertain, in contrast to e.g. mathematical domains (Aamodt, 1994). Because of the uncertainties in the domain, the truth of statements cannot be guaranteed. This means that truth-preserving inference and deduction are not the suitable means for reasoning.

In CBR, both problem solving and learning are considered essential tasks. In fact, they are seen as complementary issues: ‘Complementary with the principle of reasoning by remembering is the principle that reasoning is remembered’ (Leake,
1996), ‘Learning in CBR occurs as a natural by-product of problem solving.’ (Aamodt & Plaza, 1994). According to Leake (1996), case-based problem-solving can be seen as ‘exploiting the relationship between two different types of similarity’. When there is a similarity between the input problem and some cases, a complementary similarity is assumed between the target solution and the case solutions.

The main steps in the CBR problem-solving process are defined by Aamodt & Plaza (1994):

1. RETRIEVE the most similar case or cases
2. REUSE the information and knowledge in that case to solve the problem
3. REVISE the proposed solution
4. RETAIN the parts of this experience likely to be useful for future problem solving

In the RETRIEVE phase, the current situation is interpreted in terms of previous cases. In the REUSE phase, a solution is chosen based on the retrieved case or cases and the solution is adapted to the current situation. In the REVISE phase, this solution is applied to the environment and feedback is collected concerning the successfulness of the solution. In the RETAIN phase, the case is remembered for future problem solving.

Case-based reasoning does not explicitly generalise from the experiences stored. Only when a case is reused, its general characteristics are transferred to the new situation by adapting it. Generalisation is thus implicitly present in the adaptation process. This is called lazy generalisation. Because of this, no information about the cases is lost in the generalisation process; all information from the individual experiences is available for future use.

For a more critical analysis of the CBR paradigm, see Pieters (2001).

**Signal-based reasoning**

In the beginning of the last century, the understanding of the human brain was speeding up because of pioneering work done by Ramón y Cajal. He introduced the idea that the brain is built up of neurones, or nerve cells. The neurones are connected by synapses, in which electrical signals are transferred from one neurone to the other. One neurone can thereby invoke excitation or inhibition upon other neurones, which determine the signal they send themselves upon the incoming signals.

In signal-based reasoning, a signal processing system is built that somehow manages to show reasoning capabilities. In most cases, this is a signal processing system that mimics the human brain. Since the human brain is built of neurones, these structures are called neural networks. They can either be implemented by connecting small physical units, or by simulation on a computer.

Like the neurones in the human brain, the neurones in neural networks establish a signal on their outputs based on the values of the signals on their inputs. The signals on the input are summed using the weights that are associated with each input. In case of excitation, the weight is positive, in case of inhibition it is negative. An activation
function is applied to the summed input, and the result appears at the output of the neurone.

\[ w_1 \] \hspace{1cm} \text{input 1} \hspace{1cm} \text{input 2} \hspace{1cm} \text{input 3} \]

\[ w_2 \]

\[ w_3 \]

\[ \text{activation function} \]

\[ \text{output} \]

**Figure 5.2: Schematic representation of a neurone**

If multiple layers of neurones are connected in a network, we can have the network perform some intelligent task like classification of input patterns. We connect the input signals to the input of the network. The output then represents the class to which the input is assigned. The network is also capable of learning, by providing the correct response and adapting the weights in the network based on the difference between the correct response and the actual response.

The weights are the representation of the knowledge contained in the network. By adjusting the weights, the outcome of the reasoning for specified input signals may become different. There is no explicit representation of the knowledge, and decisions made by the network can therefore not be explained by reference to something else than the signals themselves. Even though some neurones seem to take responsibility for a specific feature of the input after training, this relation between knowledge and weights can only be made explicit from the outside; not by the system itself.

**Justification of the paradigms**

The analysis of the three paradigms starts from the distinction between symbolic/logicist and subsymbolic/connectionist systems, as for example described by Russell & Norvig (1995). The distinction between symbolic and subsymbolic systems is well known in artificial intelligence. That the paradigm of case-based reasoning presents a third item in this series is less widely accepted. Usually, it is seen as a sub-field of symbolic AI. What are the arguments for adding this paradigm as a separate one?

Case-based reasoning is a problem solving paradigm that in many respects is fundamentally different from other major AI approaches. Instead of relying solely on general knowledge of a problem domain, or making associations along generalized relationships between problem descriptors and conclusions, CBR is able to utilize the specific knowledge of previously experienced, concrete problem situations (cases). A new problem is solved by finding a similar past case, and reusing it in the new problem situation. A second important difference is that CBR also is an approach to incremental, sustained learning, since a new experience is

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28 Assuming the structure of the network itself does not change, which is also possible.
Although case-based reasoning has been regarded as belonging to the symbolic approach, we will argue with Aamodt & Plaza that its basis is indeed fundamentally different, for the following reasons. Firstly, reasoning without a model is quite dissimilar to reasoning within a model. The methods that are applied have very little to do with each other, as can be seen in the description above. Secondly, although structuring a situation in case-based reasoning may be based on features of some model, the structuring of the cases can be implemented in a way that does not depend on a model in terms of features of the environment at all (Pieters, 2002). In summary, rational reasoning is replaced by habitual reasoning, and since this is a different aspect of intelligence with different assumptions (regularity as opposed to formalisability), case-based reasoning should be considered a third paradigm.

We have argued that case-based reasoning should be added as a separate paradigm to the common distinction between logicist and connectionist systems. To prove that these three paradigms cover the whole field of artificial intelligence would not only be a task requiring much more thorough research into the foundations of artificial intelligence, but it would also be a very bold attempt. The research field is quite young, and new approaches may be expected to emerge within the near future. Moreover, from an instrumentalist point of view, the paradigms are instruments to do something, and we use them to do something in a quite different field, without pretending to have found the one truth. Thus, we use the analysis presented above as a heuristic tool, without claiming that it is exhaustive.

Relevance for the pragmatic phenomenological approach

The description of the different paradigms in artificial intelligence makes clear what it means for an intelligent system to relate to its environment. This relation can be modelled in three ways: by signal-based reasoning, case-based reasoning or model-based reasoning.

How does all this relate to a thesis about philosophy of environmental planning? We used examples based on language to make clear the different approaches of the paradigms. But not only language plays a role in how agents react to their environment. Other modalities influence the behaviour as well, and the surroundings may partly determine the way in which agents react. In this way, the (virtual) landscape can be included in behaviour generation. Landscape can be responsible for signals, for characteristics of situations, and for elements that occur within an explicit model.

What explains the relevance of virtual environments and virtual characters for philosophy of environmental planning? Firstly, the way in which agents relate to their virtual environment and the way in which humans relate to their "real" environment must somehow be comparable. Artificial intelligence is not trying to generate behaviour of virtual characters completely apart from considerations of how humans
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achieve relevant behaviour. The methods that are used in artificial intelligence therefore reflect ideas about how humans respond to their environment. They represent theories on how intelligence functions in human beings. I do not think that one of the paradigms will turn out to be the "right" one, since they cover completely distinct aspects of intelligence, which are not incompatible, but rather define co-operating mechanisms that account for the complexity of human intelligence and behaviour.

Secondly, the fact that in artificial intelligence we model the capabilities of such agents to relate to their environment enables a new way of discussing the mutual influence of humans and their environment. The topic of relations between humans and their environment has been extensively discussed in the philosophical movement of phenomenology. Both artificial intelligence and phenomenology, thus, have been researching relations between intelligent beings and their surroundings. The concept of selectivity, discussed in the previous chapter, forms the basis of the integration of these points of view, in order to provide a useful and comprehensive method of analysing human-world relations. The details of this integration will be discussed in the next chapter.

To be sure, I do not claim that artificial intelligence is capable of building systems that are directed to their environment in the same way as humans. However, the different approaches in artificial intelligence do indicate different aspects of the relation to one's environment, and I think this insight is quite useful in a pragmatic version of phenomenology. Insofar as the difference between various ways of relating to the environment cannot be made clear from existing philosophy, heuristics for these conceptual distinctions can be found in the artificial intelligence paradigms.

This is not to say that the aspects of the three paradigms cover the whole of human intelligence. But all of these play a role in the complex way in which humans respond to their environment. I may react to a signal recognised by my body (touching something hot), a situation recognised by my habits (consoling my friend in a way that worked for others in the past), or an instance of a model recognised by scientific interpretation (applying a known theory in physics to solve a new kind of problem). Since all of these aspects are co-operating, the influence of changes in the environment on human experience and existence can only be adequately understood if we take these aspects into account.

We can include these aspects in our approach by using the concept of selectivity. As we stated before, Dewey argues that human selectivity in action is something different from selective behaviour of atoms. We said that a selection of modes of selectivity is required. We already mentioned that the paradigms in artificial intelligence are based on theories on human intelligence, and therefore relevant to human-world relations. In the application to building intelligent systems, these theories have shown their relevance, especially for enabling agents to relate to their virtual environment.

According to the theories behind the paradigms, humans relate to their real environment in the same kind of way. Therefore, we may accept the ways of relating to the environment as advanced in the three paradigms as three different modes of human selectivity. We distinguish between signal-based selectivity, case-based selectivity and model-based selectivity. Again, we emphasise that this set of modes may not be exhaustive, but at least we cover a large range of possible aspects of the relation between humans and their environment.
Thus, we found three different modes of human selectivity that may be relevant to our approach, corresponding to the paradigms of signal-based reasoning, case-based reasoning and model-based reasoning. The question is how it is possible to integrate this insight into our philosophical approach. The philosophical foundations of the different modes of selectivity will be investigated in the following chapter.
Chapter 6

Pragmatic phenomenology

By introducing the philosophical movement of pragmatism, we aimed to find a way to include social aspects within postphenomenology. We advanced the concept of selectivity to be able to integrate phenomenological and pragmatic approaches without assuming a subject-object distinction. In the previous chapter, we discovered three modes of selectivity based on paradigms in artificial intelligence. In this chapter, the question is asked how we can combine phenomenological and pragmatist ideas based on the concept of selectivity, including the three modes we distinguished. The investigation should lead to a single framework for discussing environmental planning issues.

First, we need to assess the possibilities of integrating phenomenological and pragmatist ideas within a common framework. The necessary concepts within the combined approach are then derived from a discussion of the phenomenology of architecture by Christian Norberg-Schulz. The chapter ends with the construction of a pragmatic phenomenological framework and vocabulary.

**Intentionality and selectivity**

When we want to combine phenomenology and pragmatism in a single framework, we need to integrate the main concepts of both approaches. From the point of view of phenomenology, we need to be able to describe intentionality and mediation. From the point of view of pragmatism, we need to avoid a subject-object distinction by the concept of selectivity. First, we will discuss the relation of these various concepts within what we call pragmatic phenomenology. Then, the issue of intersubjectivity and social aspects within the pragmatic phenomenological approach is investigated.

**The integration of intentionality and selectivity**

Because there is no subject-object distinction according to pragmatism, intentionality needs to be redefined when we use it from a pragmatist point of view. It can no longer be described as the directedness of a pre-existing subject towards an object, whether the object be a logically objectified phenomenon or the content of perception. However, when we use a pragmatist approach including the concept of selectivity, we can describe intentionality as the directedness of an existence exhibiting behaviour towards its environment, including both perception and action. The behaviour can be
explained in terms of selectivity. In the process characterised by selectivity, hermeneutic and existential aspects of the relation between the existence and its environment become visible. Hermeneutic aspects emerge in the selection of the contents of experience, and existential aspects emerge in the selection of the contents of action.

By using the concept of intentionality, we enable an approach that avoids reducing all behaviour to functions or operations. Instead, an existence is always directed towards its environment by this intentionality, without which behaviour would not even be possible. Behaviour is thus not derivative of the functions an existence needs to perform, but directedness towards the environment is necessary for being able to exhibit behaviour and perform functions in the first place. Here, we also see how phenomenology can prevent pragmatism from being interpreted as operationalistic. Selectivity is not something that can be understood in terms of functions or behaviour within a system; we can instead understand it as necessarily connected to the directedness of an existence towards its environment.

Selectivity integrates the hermeneutic and existential aspects of our relation to our environment in a single concept, where hermeneutic aspects are described as selectivity of the contents of experience, and existential aspects as selectivity of the contents of action. Intentionality must be assumed to be able to describe any kind of behaviour where the environment is relevant, but how the behaviour actually functions is described as selectivity. In this sense, intentionality is the transcendental explanation of the relation, and selectivity the pragmatic one.

The selection of the different modes of selectivity makes possible a conceptual distinction between relating to the environment in terms of signals, situations and models respectively. Thus, we end up with different modes of selectivity instead of a subject-object relation as the basis of pragmatic phenomenology, guided by the three paradigms in artificial intelligence.

The hermeneutic and existential aspects of the relation between people and their environment can be analysed for each of the different modes of selectivity. These aspects can be made clear by referring to the selection of the input (contents of experience) and the output (contents of action). In all intelligent behaviour, on the one hand selectivity determines what is seen, and on the other hand it determines what is done. In this analysis we can refer to the description of the paradigms to provide a guidance for the conceptual description.

In this way, we can explain different aspects of intentionality by acknowledging that these aspects are related to different modes of selectivity. I can be directed to my environment in various ways, depending on the mode of selectivity that guides my behaviour.

In pragmatic phenomenology, the intentional relation from phenomenology is generalised. In the intentional relation between existences, the existences themselves are constituted from their relation, as subjects and objects are constituted from the intentional relation in postphenomenology. The mutual constitution of existences is based on the selectivity they exhibit towards each other. This makes possible the translation of the concept of mediation to the pragmatic phenomenological approach.

An existence\textsuperscript{29} may mediate in the relation between two other existences by influencing their selectivity, and thereby their mutual constitution. The concept of

\textsuperscript{29} Here, the pragmatist concept of existence is meant, not only including humans
mediation functions in the same way as in postphenomenology, but there are two advantages. Firstly, the concept is generalised by basing it on selectivity rather than a subject-object relation. Mediation influences selectivity, and thereby changes the relation between us and our environment. We do not need to separate subjects from objects to conceptually understand this. Secondly, the pragmatic phenomenological concept of mediation enables the description of mediation within different modes of selectivity.

The relation that constitutes existences based on their selectivity thus forms the basis of pragmatic phenomenology. In this 'intentional relation', if I am given permission to use the term in such a generalised way, the existences are related by hermeneutic and existential aspects – that is, selectivity of input (contents of experience) and selectivity of output (contents of action) – and the relation may be mediated by other existences. Mediation is not described as mediation of a subject-object relation, but as the mediation of different modes of selectivity found in conduct, both from hermeneutic and existential perspective.

The Missing Link

In classical phenomenology, intentionality was described as the directedness of consciousness towards logically objectified phenomena. In postphenomenology, a distinction is made between microperception and macroperception. The field of macroperception is described as an interpretative context, which cannot be analysed in terms of directedness. Microperception describes the perceptual-bodily relation of humans to their environment. Thus, both perceptual relations and interpretative frameworks are included, although the constitution of these frameworks from individual human-world relations is not explained.

However, we can now, with the heuristic tool of the artificial intelligence paradigms, understand macroperception in a completely different way. It is not just a context, it is a different mode of selectivity. It is a mode of selectivity that is based on relating to the environment in terms of models: model-based reasoning. Next to the microperceptual sensory-bodily relation (signal-based), we thus find macroperception as a different aspect of our relation to the environment, not as merely a context. This means that we provide a different explanation of macroperception than Ihde. Our macroperception is active; it involves the construction and application of models.

But what about the praxis, i.e. the continuous realisation of an intersubjective social reality? Individual perceptual relations can never account for intersubjective assignment of meaning. And, if we do not want to assume a priori intersubjective knowledge referring to a universal ontology, which does not exist according to pragmatism, we can neither base an intersubjective social reality on a universal understanding of the world.

We have described directedness towards the environment both in terms of signals (perceptual-sensory content) and in terms of explicit cultural or scientific models. These two aspects can be related to the paradigms of signal-based and model-based reasoning, respectively. What we need for adequately describing the praxis, is directedness towards situations, or cases. The hermeneutic selectivity in the praxis consists of structuring the situation from the received perceptual signals by interpreting it in terms of previously encountered cases, and the existential selectivity
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consists of determining the required action based on actions performed in similar previous situations, i.e. by habit. The intersubjective aspect stems from the observation that people tend to take over habits of others, i.e. re-using cases where other people are the performing actors. This may well be explained by the principle of learning by imitation. In this way, people share ideas by sharing habits, and thereby share meaning.

In behaviour based on cases, people form a social reality by interacting. Thus, habits are formed which, according to Dewey, are the foundations of ideas: every idea is a habit of action. Habits thus constitute the social aspect of our relation to the environment, and explain intersubjectivity from a pragmatic phenomenological perspective. In order to better understand this aspect, from a phenomenological point of view, we will discuss a phenomenological theory that focuses on these issues.

**Phenomenology of the praxis**

The idea of a habitual structure underlying scientific abstraction is not quite new to phenomenology. Husserl claimed that theoretical frameworks arose from a concrete world of material and practical practices, the *lifeworld*. With a strong focus on this aspect, Christian Norberg-Schulz (2000) has applied phenomenology to the foundations of architecture. The book gives a good introduction into the concepts necessary for a phenomenological account of the case-based mode of selectivity.

By focusing on the lifeworld as a phenomenological concept, Norberg-Schulz enables a discussion of how we relate to our environment in a pre-scientific way. This pre-scientific way of relating can from our theory be described in terms of the paradigm of case-based reasoning, and its associated mode of selectivity. This means that Norberg-Schulz offers a phenomenological description of what we called the praxis. The parallel is useful in the development of a pragmatic phenomenological vocabulary.

Both because he discusses buildings and the landscape, and because there is a strong parallel between the concepts Norberg-Schulz introduces and the mode of selectivity applied in the praxis, we give an extensive overview of his theory. We will derive some essential concepts in the pragmatic phenomenological approach from his work. The reader should keep in mind, however, that the strong focus on the lifeworld as something opposed to science results in a seemingly anti-scientific connotation of the arguments. This is something that the pragmatic phenomenological approach seeks to overcome.

**Presence, language and place**

Christian Norberg-Schulz (1926-2000) was a Norwegian theoretician and philosopher of architecture. He tried to develop a phenomenological approach that could provide an existential foundation for architecture.
'Modern architecture was thought of as ART, and its goal was to heal the "fracture between thought and feeling" that sinks its roots as far back as Descartes, with his statement, "I think, therefore I am." This fracture implies limiting thought to the field of mathematics or the quantifiable, while reducing the scope of emotion to the areas of taste or subjective enjoyment. This rigid stance replaced earlier attitudes, in which explanation and meaning were unified in the totality of comprehension. It is the prerogative of art to register and express logically inexplicable relationships, links and bonds that cannot be quantified. Modernism, then, was an artistic movement, inasmuch as the expressive tool of art is the image.' (p. 7)

According to Norberg-Schulz's book *Architecture: presence, language, place* (2000), the fundamental principles of modernism consisted in the unification of the practical and the expressive. Sigfried Giedion, with whose ideas Norberg-Schulz starts his book, initiated a new conception of time and space in architecture by emphasising the concepts of constancy and change. This leads to an increased interest in both monumentality (constancy in time) and regionality (constancy in space). These aspects root humanity in time and space, respectively. Constancy does not refer to unchangeable forms, but to an enduring relation between man and environment, which must be constantly reinterpreted. Constancy and change are not opposites.

The ideas of modernism have never come to full flourishing. The pioneers had an inadequate understanding of everyday life and ended up supporting either thought or feeling. The focus on visual perception of forms oversimplified human existence. Norberg-Schulz sees phenomenology as a philosophical movement capable of overcoming these problems, by focusing on "being-in-the-world" or presence instead of autonomisation of subjects and objects. The ego becomes participant again instead of observer / spectator. Functions become derivative of use or behaviour. Constancy and change now become visible in the relationship between man and his environment.

According to Norberg-Schulz, an image is neither a sign (indicative) or a symbol (representative), but it may contain both. The architectural image (the building) instead is a corporeal expression of presence, a structure that "opens" a world. In modernism, the relation between aspects of tradition (signs) and aspects of style (symbols) is made explicit in their interaction. Thus, the architectural image may contain both aspects of tradition and of style, but it is determined by neither of them. In the philosophies that made possible this focus on the concrete and on the contact with reality, Norberg-Schulz remarkably mentions Husserl and Dewey in one sentence.

Norberg-Schulz tries to clear up the foundations of modernism by a phenomenological approach, using ideas from both Husserl and Heidegger. He refers to the term *lifeworld* for clarifying the spatial and temporal stability that we experience. Under normal circumstances, we are not completely aware of every aspect of our environment, but rather habitually react to known situations. We will not mention all details of Norberg-Schulz's analysis here, but instead focus on what is relevant for a better understanding of the approach advanced in this thesis.

Norberg-Schulz finds that Heidegger, by defining thinking being as *Dasein*, 'freed [phenomenology] from the intentionality of consciousness' (p. 70). The lifeworld was

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30 In postphenomenological terms: mediates the relation with the world.
31 Actually, the English translation of Norberg-Schulz's book writes 'world of life', but for reasons of consistency, 'lifeworld' is used here.
reunified finally, and the Cartesian dualism resolved. The inherently dynamic aspect of Heidegger's approach, featured in the understanding of the lifeworld as a "taking place" or Ereignis, further contributes to a new and accurate understanding of comprehension. Norberg-Schulz considers the time ripe to apply such an analysis to landscape and architecture.

'Over the last few years, numerous works have appeared treating subjects that concerned the world of life and the environment of everyday existence. It does not seem necessary that I analyse them, not because they are in any way lacking in philosophical interest, but because only in passing do they treat questions having to do with the concrete environment of things and places. Even in cases where the question of place arises, this happens in a very generic fashion, without any in-depth exploration of the landscape, which, as far as I am aware, has never been made the subject of adequate phenomenological analysis. This is truly deplorable, since the inhabited landscape is precisely the field of operation of architecture, and therefore there is an increasingly impelling need for a phenomenology of the landscape as a foundation for the practice of architecture.' (p. 74)

'Phenomenology attempts to understand the interaction of ways of being on the interior of the totality and represents, therefore, the point of departure for most cultural positions, and especially as far as the art of place is concerned. The purpose of this art is to point out points of reference in the vagueness of this totality without abrogating it.' (p. 88)

Norberg-Schulz refers to the present condition as a 'loss of place'. Scientific thinking has deprived us of our familiarity with our environment, both by changing our way of relating to the world and by changing the world itself, partly by ill-informed movements in architecture. To enable the use of place, which means being able to act without leaving the familiarity of the lifeworld, three things must be available: memory, identification and orientation. Our memory enables us to identify the surroundings and thereby to orient ourselves in the environment. But also the surroundings itself have a role in enabling such identification and orientation. When the continuity in time and space is disturbed, coherence lacks and identification and orientation are hindered.

The combination of these aspects makes comprehension of the environment possible, and thereby the use of place. This use also involves an implementation, which adapts the place to its utilisation. Architecture, as the art of place, is part of such an implementation. 'Architecture is not a result of the actions of man, but rather it renders concrete the world that makes those actions possible.' Three aspects of the environment are important in architecture: space, form and figure. Space is the topological or geometrical spatial organisation of a place. Form refers to the appearance of structures rising into space, figure to the concrete things that build such forms. Space, form and figure together condition the genius loci, the 'spirit' of the place.

According to Norberg-Schulz, the aspects of comprehension (memory, identification and orientation) must be a priori, and therefore rooted in precognition. They cannot emerge from empirical knowledge. He refers to Heidegger's concept of Gestalt, which he interprets as the understanding of a whole apart from its elements. 'Memory, orientation and identification of the aspects of use are fundamental to the comprehension of place. Recognition of the Gestalten qualities of the environmental unities is based on them and constitutes the presupposition for the rooting of a community.' (p. 87)
In summary, **comprehension** should be implemented in architecture in order to make possible the use of place. This is done by referring to an architectural language, with Gestalt, form and space as the components of this language, and by using these components rendering concrete figures. Architecture therefore includes typology, morphology and topology. A building consists of horizontal extension (rhythm) and vertical elevation (tension), which correspond to space and form, and is implemented as a concrete figure, but manifested as something durable, a Gestalt.

The "Gestalten laws" define three governing principles, which should guide the configuration of the figure: proximity, closure and continuity. These are implemented by delimitation, extension and centralisation. The form, representing the elevation, includes both aspects of stability and aspects of change, and incarnates 'a place in which a space opens to "admit" the life that will take place there'. Horizontal organisation is composed of dominion, path and destination, which establish interior-exterior relationships. There is no natural interior-exterior distinction, but it is only manifested in the use of place. The relevant aspects in horizontal organisation are those of separation and connection.

"[...] the within-without relation constitutes a "field" of complex interactions and therefore entails movement. It is proper to the nature of a place that it belongs to a context to be concretised into a roadway structure. This structure is not only a presupposition of the use of place, but it reflects the "image" of the environmental identity. Taking the arrival as the point of departure, I have attempted in fact to free myself from the overarching consideration of place as a separate entity to be "planned", without taking into account the context to which it belongs. Unfortunately, nowadays planning of the sort, rather restrictive, is quite common, inasmuch as it does not take into account the relationship with the landscape. The phenomenology of arrival teaches us, on the other hand, that place must be understood as "entity", according to the basic expectation of precomprehension and in response to the given landscape." (p. 193-194).

Norberg-Schulz declares **similarity** the superior and unifying type of organisation, explaining the principles of proximity, closure and continuity. This basic quality is lost when everything is "geometrised", as opposed to a topological organisation in which life takes place. Geometry and topology should therefore be unified. A synthesis between topology and geometry should be attained.

'The most frequent unification is based on the "predominance" of the two structures. If the spatial organisation is purely topological, the respective buildings of the settlement will become banal. If it is only geometric, it will become abstract. These extremes are in practice unattainable, since every geometry must be implemented, and every topology implies a geometric tendency. As we have seen, the geometric structures are a specification of their topological counterparts. The expression predominance indicates the pre-eminence of one of these and consequently the weakening of the totality. And this happens so often that spatial organization has become an imposition from the exterior without any reference to moments of use.' (p. 214)

Concluding, 'the art of place means unification of rhythm and tension so as to make possible the implementation of the comprehension of the world of life' (p. 217). In the history of architecture, both traditions of building and styles developed. The difference between those two developments lies in the ability of style to interpret the moments of use in constantly new ways:
'It is precisely this innate dynamic that distinguishes style from custom. While the manifestations of custom [...] can be compared to a pretty and easy popular melody, style is instead a compositional element that offers manifold possibilities.' (p. 302)

Norberg-Schulz finds the crisis of architecture due to the separation of customs and style by the reduction of comprehension to reasoning in the Enlightenment. Architecture then became pure style. This is precisely what original modernism tried to overcome. But how to achieve this?

'[...] presence is inevitably the same even when it is not identical. Custom and style were its temporal manifestations, and now that in the present-day global situation they have lost their function, one may well wonder what will ever take their place. The answer in this case seems obvious to me: interaction per se. Presence may in fact manifest itself in and endlessly new fashion if it is not forced to remain within any given hypothesis of constancy, such as custom and style, and it is instead allowed to make itself present as event (Ereignis). [...] the comprehension of the world as interaction of ways of being is the necessary prerequisite to a healing of the fracture between thought and feeling.' (p. 312)

Norberg-Schulz concludes that there are three characteristics of such an approach in architecture:
1. **imprint**: respecting the location, the genius loci, and connected customs;
2. **composition**: respecting the history, subjected to various interpretations of the genius loci; contributing to the self-realisation of the place by fitting the part into the whole;
3. **intervention**: contributing to the identity of the place by making it present in the landscape, making use of delimitation.

In this way, unity precedes the parts and thus the art of place is made possible on a phenomenological basis.

'The term "self-realisation" implies that the process of interaction, which reveals the life of place, is unstoppable. But the term also means that place must preserve its identity through change, which is to say that it remains the same even if it is never identical. This is an intrinsic quality of the original and at the same time new art of being, always in the process of becoming. Already we can see its plan, elevation and outline, but what is still lacking is that phenomenological understanding that can fill its vague projections with a qualitative content. When this happens, the art of place will become the art of experience of living.' (p. 356)

**Critical discussion of Norberg-Schulz's approach**

Apart from considerations about the quality of the English translation and the structure of the work as a whole, there are some other interesting points of discussion that appear from the book by Norberg-Schulz.

Firstly, the phenomenological background and Norberg-Schulz's conception of the lifeworld. I think the idea of the world as interaction of ways of being is very valuable. However, one cannot just take this as a point of departure and then fill it in with Husserl's concept of the lifeworld, especially because Norberg-Schulz uses it as

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32 I kind of regret that I did not purchase the original Norwegian text instead. I encourage everyone capable of understanding either Norwegian or Italian to buy the book in one of these languages; both versions were written by the author himself.
opposed to scientification, whereas for Husserl the lifeworld forms the basis of just this scientific knowledge. Norberg-Schulz argues against the quantification and egocentricity that characterise the scientific approach. However, the problem is not one that requires substitution of the lifeworld for science, but one that requires acknowledgement of the lifeworld as the foundation of science. Husserl saw this, whereas Norberg-Schulz at least implicitly suggests an anti-scientific tendency.

A pragmatic view on scientific knowledge establishes the methods of science as one "way of being" instead of an attempt to fix the world in quantities. The substantialistic tendency of science in the ontological phase of our culture can no longer be an argument for rehabilitation of the lifeworld, since in a functional worldview such a critique is obsolete. The threat is no longer a substantialistic one, but an operationalistic one. Phenomenology cannot prevent substantialism; if it tries anyway, it will substitute scientific substantialism with lifeworld substantialism, as Norberg-Schulz seems to do. It can however prevent the negative tendency of operationalism of the functional phase, by providing a worldview in terms of interactions of ways of being instead of merely mechanical interactions of systems.

Secondly, the role of precognition. Norberg-Schulz considers precognition, which enables the recognition of the Gestalten, as something a priori, but it does not become quite clear what that means. The language through which the precognition occurs is obviously a priori with regard to a single act of identification of a place. But seen in the whole of experience, this precognition is rather rooted in habit than in something fundamental to human experience. Of course, the bodily capabilities should enable such a precognition, but the actual distinction of the Gestalten depends largely on previous experiences. Our coverage of Norberg-Schulz's theory should therefore not be interpreted as a return to the transcendental approach.

The concept of similarity in Norberg-Schulz's approach to architecture, serving as the root of the Gestalten principles, apparently is the same similarity as in case-based reasoning. Therefore, the Gestalten principles in implementation make possible the comprehension of the place by allowing the precognition to be relevant for the present situation, since something is similar and therefore can be identified by precognition. Precognition is therefore actually a priori to scientific perception, but as to lifeworld perception, it is rather something referring to similarity of the present situation to previous experiences, as in case-based reasoning. This similarity is established by habits that consist of identification on the one side, and orientation on the other. The Gestalten principles therefore guide the implementation as to make comprehension possible, by forcing the similarity upon the environment, instead of geometric organisation, which apparently lacks such criteria.

Thirdly, the role of customs and style. I agree with Norberg-Schulz that the fracture of thought and feeling manifests itself in a separation between customs and style in design. However, this problem is not simply solved by conceiving the world as interaction of ways of being and thereby seemingly forgetting about customs and style altogether, even though these two aspects formed the whole of human culture up till now. It will be more fruitful if customs and style can be understood as interactions of ways of being themselves. This corresponds to what a pragmatic phenomenological approach makes possible, by distinguishing different ways of relating to the environment. Customs thereby correspond to the praxis, made possible by habits, and style corresponds to the practices of abstract knowledge, made possible by modelling.
The pragmatic phenomenological approach thus does not substitute interaction for customs and style, but conceives interaction as the basis which enables both these ways of relating to the world.

Fourthly, Norberg-Schulz does not distinguish between hermeneutic and existential aspects of the relation between humans and their environment. Because of this, the relation between various important concepts does not become clear. The relation between memory, identification and orientation, for example, can be explained better if we notice that identification represents the hermeneutic aspect of the use of place, and orientation the existential aspect. The same goes for the concepts of comprehension and implementation, which refer to intellectual rather than habitual interpretation and action. If we understand these concepts as representing hermeneutic and existential aspects, the concepts are very valuable to a pragmatic phenomenology of environmental planning, as we will see in the next part of the chapter.

What Norberg-Schulz actually does is take the phenomenological concept of the lifeworld and use it to describe what we call the praxis. Whereas Ihde focuses on micropereception (sensory bodily relation) and macroperception (explicit cultural or scientific models), Norberg-Schulz strongly defends the praxis against the over-emphasis on these aspects. This may explain the anti-scientific connotations that appear from his work. The value of his theory lies not in the rejection of science, but in the recognition of the praxis as something worth discussing for its own sake. Including this aspect in the pragmatic phenomenological approach yields a more balanced view, and the extensive coverage of Norberg-Schulz's theory should suffice to make this point.

The pragmatic phenomenological model: three aspects of intentionality

In the preceding text, we described the phenomenology of architecture as advanced by Christian Norberg-Schulz. Although the way in which he tries to use phenomenological thought is very different from ours, he manages to give a valuable phenomenological analysis of our habitual relation to the world. The main points of discussion have been covered above. We conclude that Norberg-Schulz, by focusing on the lifeworld within his phenomenological approach, offers the concepts for a phenomenological description of the praxis, i.e. the continuous realisation of a social reality.

We have seen how a phenomenological description of the praxis is possible by an overview and critical discussion of Norberg-Schulz's theory. The final goal of the theoretical part of this project is to provide a framework and vocabulary for pragmatic phenomenological analysis. We will do this by first developing descriptions of three aspects of intentionality, including the associated vocabulary and the possibilities of mediation, and then integrating the three aspects into a single framework. The main idea of our approach is to view the three aspects of directedness as associated with modes of selectivity. The descriptions of the three aspects are based on the three
modes of selectivity we distinguished (in terms of models, situations, and perceptual-sensory contents), guided by the analysis of the artificial intelligence paradigms.

Within the signal-based mode of selectivity we can refer to intentionality as directedness towards signals. The processing of these signals forms the relation between the processes of experience and acting. When we look at humans we find reflexes and instincts as relations with the environment that solely rely on this aspect of intentionality. This aspect, however, contains all directedness towards signals, and thereby includes vision as such. Mediation may for example occur by a telescope that transforms the signals the body receives.

When we look at the case-based mode of selectivity, we find ourselves at the level that we usually are referring to when we speak of "experience". A situation is interpreted in terms of previously encountered similar cases, and based on solutions applied in the past, a solution for the new situation is constructed. In the comparison of situations and solutions to those situations, experience and acting are connected. This enables the realisation of a social reality, in which meaning is shared by sharing habits. We introduced the term praxis for this. As we have seen, Norberg-Schulz describes the praxis from a phenomenological point of view. According to Norberg-Schulz, relating to the environment in the praxis requires memory, identification of the situation, and orientation in the situation. Identification refers to the hermeneutic aspect of the relation (interpretation), and orientation to the existential aspect (acting). Directedness towards situations is the characteristic of this aspect of intentionality. This mode represents the level of the lifeworld, which phenomenology introduced as a world of experience prior to and underlying scientific experience. The analysis is enriched, however, by also including the other modes of selectivity.

When explicit models of the world in terms of abstract concepts are involved, another mode of selectivity applies. The associated directedness is towards the environment as described by models, which are at the same time applied and adapted to the new experience. Within computer science this is modelled by applying rules to new information (deduction), and discovering rules from examples (induction). The connection between interpretation in terms of the models and application of the rules of the model forms the link between hermeneutic and existential aspects here. Norberg-Schulz uses the terms comprehension and implementation for these aspects of understanding and design. Whereas identification and orientation serve as the hermeneutic and existential components of the praxis, comprehension and implementation apply when we understand and design something based on models. Comprehension refers to the interpretation of the environment in terms of models; implementation to the application of a solution provided by a model to the environment. To be able to use models, the environment must be seen as instantiation of the models that are used. Directedness towards model instances is the characteristic here.

The concepts from the work of Norberg-Schulz that are especially relevant here are identification and orientation, being the hermeneutic and the existential components of our relation to the environment within the praxis. We will also use the concepts of comprehension and implementation for describing an intellectual way of relating to the environment. Again, these refer to the hermeneutic and existential aspect of the relation, respectively. By the description given of Norberg-Schulz's approach, we
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have provided these concepts with their necessary phenomenological context. Although Norberg-Schulz uses phenomenology in a different way than we do, his concepts serve to make clear the difference between the social and intellectual aspects of our relation to our environment, from a phenomenological point of view.

We introduced three modes of selectivity and the associated aspects of intentionality here. Below, all these will described in detail. I will use the term presence here instead of the pragmatist concept of existence (something that exists in the world), to prevent confusion with the phenomenological concept of existence, referring to the existential aspects of our relation to the world.

**Bodily intentionality**

*Bodily intentionality* is the directedness of a presence towards the signals it receives from its environment. The signals activate the system (e.g. the neurones) and as a result, the output signal leads to some change in the environment. In artificial intelligence, the associated mode of selectivity is modelled by the paradigm of signal-based reasoning.

An example is touching something hot. The feeling immediately and unconsciously results in pulling back one's hand. This behaviour is evoked by being bodily directed towards the signals in the environment. The selectivity with respect to these signals indicates a bodily intentionality, which enables signal-based behaviour by signal-based reasoning. The hermeneutic aspect of intentionality is the way in which the signal leads to stimulation of the body, and the existential aspect is the way in which this evokes a response of the body. The same kind of intentionality may be ascribed to a plant growing towards the light, although the signal processing is not based on neurones in that case.

Bodily intentionality is relevant when behaviour can be explained by reference to the signal processing only. This is the case with reflexes and instincts, but it fails when we want to explain social behaviour. We cannot explain the emergence of habits with reference to the neural structure of the organism only. We can of course simulate social behaviour of signal-based systems, but for the formation of habits to occur, the representation in the neural networks needs to refer to situations and the associated actions. In the same sense, humans need to be able to process situations when acquiring habits.

Bodily mediation occurs when something in the environment changes the relation between signal and receiver, leading to a different stimulation and possibly a different response.

**Habitual intentionality**

When the directedness of the presence to its environment is not only towards signals, but towards complex structures representing a situation, we speak of *habitual intentionality*. The signals are no longer treated individually, but as a case. The
associated mode of selectivity is modelled by the paradigm of case-based reasoning in artificial intelligence.

Combinations of signals that are relevant to the representation of the case are called signs. Signs influence the reasoning by indicating aspects of previously encountered situations. We use the terminology from Norberg-Schulz to describe the hermeneutic and existential aspects of habitual intentionality. The hermeneutic aspect is the identification of the situation in terms of previous experiences, the existential aspect is the orientation in the situation based on the actions performed in previously encountered situations.

As an illustration of the relation between signs and signals, we may again use an insight from computer science. Nake (1994) distinguishes in the context of user interfaces of computers between a sign process and a signal process. The sign process is the meaningful dialogue between the machine and the user, the signal process the reduction of this interaction to symbol manipulation within the device. Signs are thus part of a process of social practices, whereas signals operate on the electronic or biological configurations on which the sign processes "run".

Habitual mediation occurs when something in the environment changes the relation between the situation and the involved presence, leading to a different identification of the situation and possibly a different orientation.

Habitual intentionality is relevant when behaviour can be explained by reference to the processing of situations as such. This is the case with all kinds of habits and common social conduct. When the situation is not experienced as such, but as an instantiation of an abstract model of the environment, we need a different kind of explanation.

**Intellectual intentionality**

When models are involved in the relation to the environment, we speak of intellectual intentionality. The models enable rational reasoning about the environment and behaving accordingly. The associated mode of selectivity is modelled by the paradigm of model-based reasoning in artificial intelligence.

When referring to a model, the present situation is not seen as a case as such, but as an exemplar of the involved model. The situation must therefore be explained in terms of the model; be interpreted as an instance of the model. The signs constituting the case are represented by symbols in the model: abstract terms referring to a feature of the concrete exemplars.

Intellectual intentionality consists of comprehension as the hermeneutic aspect and implementation as the existential aspect. The presence is directed to aspects of its environment indicating exemplars of abstract models. By comprehending the exemplar in terms of a model, interpretation is possible, and models may be adjusted to fit this particular exemplar. The model may then indicate a solution to the posed problem, and by implementation this solution can be applied to the environment.
Intellectual mediation occurs when something in the environment changes the way in which the environment is comprehended, or the way in which a solution is implemented in the environment. Intellectual mediation may in this way change the models that are used to describe the environment.

**A pragmatic phenomenological vocabulary**

The pragmatic phenomenological vocabulary, which we will summarise here, is based on three main concepts. We started with a discussion of phenomenology as a means to focus on relations instead of on an objectified environment from a spectator position. Phenomenology provided the concepts of intentionality (directedness towards the environment) and mediation (influencing of the relation by things in the environment). Pragmatism made it possible to discuss social aspects in terms of habits, and it provided the concept of selectivity (bias / preferences in behaviour).

The richness of both approaches should be clear from the discussion in the concerning chapters, and it is exactly this richness that makes the concepts function as something more than just another description of things we already knew. Phenomenology, especially postphenomenology, allows us to recognise that our experience is neither subjective nor objective, and that it arises in our relation to our environment. Pragmatism explains how the things we do emerge from how we interact with our environment, instead of from rational decisions of a spectator.

The discussion of the work of Norberg-Schulz made it possible to focus on the praxis (in which social practices are based on habits), while maintaining a phenomenological vocabulary. The directedness towards the environment is covered in the terms identification and orientation, more than in the concept of habits itself. These terms also allow us to discuss hermeneutic and existential aspects of habitual intentionality.

We have described three aspects of intentionality based on the three different modes of selectivity we derived from the artificial intelligence paradigms. In bodily intentionality, the selective behaviour of an existence is based on signals, in habitual intentionality it is based on cases, and in intellectual intentionality it is based on models. By relating the different aspects of intentionality to the corresponding modes of selectivity, we do not need to have three intentional relations instead of one, but we acknowledge that the intentional relation includes different aspects, based on different modes of selectivity.

<table>
<thead>
<tr>
<th>mode of selectivity</th>
<th>bodily</th>
<th>habitual</th>
<th>intellectual</th>
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<tbody>
<tr>
<td>directedness to</td>
<td>signal-based</td>
<td>case-based</td>
<td>model-based</td>
</tr>
<tr>
<td>hermeneutic aspect</td>
<td>signals</td>
<td>cases</td>
<td>model-instances</td>
</tr>
<tr>
<td>existential aspect</td>
<td>stimulation</td>
<td>identification</td>
<td>comprehension</td>
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<td></td>
<td>response</td>
<td>orientation</td>
<td>implementation</td>
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<tr>
<td>unit of interpretation</td>
<td>signal</td>
<td>sign</td>
<td>symbol</td>
</tr>
<tr>
<td>interpreted structure</td>
<td>case</td>
<td>case</td>
<td>exemplar</td>
</tr>
<tr>
<td>reference of interpretation</td>
<td></td>
<td></td>
<td>model</td>
</tr>
</tbody>
</table>

**Table 6.1: Pragmatic phenomenological vocabulary: aspects of intentionality**
The different aspects of intentionality, corresponding to the modes of selectivity, have been explained above. The difference between signals, signs and symbols is something that has been analysed very differently by various authors. Here, the concepts refer to the units of interpretation in the different modes of selectivity. A sign is an indication of something previously experienced, whereas a symbol is a representation of a characteristic within a model. This means that when a situation is experienced as an exemplar of a model, the symbols in the model are used to represent the signs in the situation. For example, the presence of water may be a sign indicating aspects of previous experiences, whereas in scientific analysis, the symbol $\text{H}_2\text{O}$ is used to represent the presence of water. Or in a landscape, the presence of a footpath may refer to previous experiences of hiking, but it may also be represented by a symbol in a model if one is drawing a map of the area.

The concepts of amplification / reduction of aspects of experience and invitation / inhibition of aspects of action as defined in postphenomenology can be applied in pragmatic phenomenology as well. They can now be applied for each of the three aspects of intentionality, corresponding to the three modes of selectivity. For example – in habitual intentionality – the presence of marked hiking trails may amplify the interpretation of the situation in terms of following a fixed route, and it may invite following marked trails in different areas. It may reduce the interpretation of the situation in terms of different possible routes and inhibit exploration behaviour.

With respect to the current postphenomenological concepts of micro- and macroperception, we explicitly added a means to discuss social aspects in terms of habitual intentionality and habitual mediation. The distinction between micro- and macroperception has taken a very different form in our approach. We now speak of different aspects of intentionality, associated with different modes of selectivity. All aspects involve an active relation with the environment, as opposed to the contextual understanding of macroperception in current postphenomenology. This makes it possible to distinguish between three different kinds of mediation.

Conclusions

We propose a philosophical approach in environmental planning that focuses on interaction in terms of selective behaviour instead of on subjects and objects. The relation of an existence with its environment is characterised by intentionality (directedness towards the environment) and selectivity (bias / preferences in both experience and action). The hermeneutic perspective describes selectivity of experience, and the existential perspective describes selectivity of action. Because the concept of selectivity makes it unnecessary to separate man from nature, this approach avoids having its roots in the autonomisation process of the Renaissance. Therefore, the interaction of man and nature – or man and landscape – is more fundamentally conceptualised here than in approaches that assume a subject-object distinction, and the spectator conception of experience is avoided.
We could also have tried to re-integrate man and landscape – i.e. challenge the dominance of objectified physical nature – by trying to find some forgotten hidden dimension in the world of things, instead of focusing on interaction. But from a pragmatic perspective on philosophy, this is taking a step back towards an apologetic, ontological phase of philosophy. This may explain why such attempts often resulted in failure (e.g. all kinds of anti-scientific developments). The new task of philosophy is a different one. We should provide means for directing, guiding, processes of change. This is exactly what the pragmatic phenomenological approach wants to achieve, without claiming necessity of any kind.

The pragmatic phenomenological approach distinguishes between three aspects of intentionality: directedness towards sensory content in bodily perception, directedness towards situations or cases in the praxis, and directedness towards logically objectified phenomena (exemplars of models) in scientific inquiry, both natural science and social science including morals. The theory of the three aspects of directedness should not be seen as a metaphysical claim, but as a pragmatic tool for directing environmental developments. By investigating the associated different kinds of mediation, decision making in environmental planning can be more sensitive to the actual relations between people and the landscape.

The main difference between the last two kinds of directedness – towards cases and towards explicit models – is that in selective behaviour based on cases, there is no role for an explicit model of the changes that are invoked. The model is implicit in the use of previous experiences. This distinction reflects the critique on postphenomenology mentioned before, and the model can hereby provide a better way of explaining intersubjectivity than current postphenomenology, by reference to habits and learning by imitation.

By focusing on modes of selectivity within intentionality, pragmatic phenomenology provides a different access to human-world relations than postphenomenology. In postphenomenology, relations are understood from the mutual constitution of subject and object. In pragmatic phenomenology, relations are understood from the mutual constitution of selectivity between existences.

The advantages of the combined approach over pragmatic or phenomenological approaches have already been mentioned. Phenomenology prevents pragmatism from an operationalistic connotation by the concept of intentionality, which means a perspective "from the inside" by describing the directedness of an existence towards its environment. Also, phenomenology elucidates processes of mediation, and hermeneutic and existential aspects of selectivity. These concepts now function in selectivity-based directedness, instead of in a subject-object relation. On the other side, pragmatism prevents phenomenology from transcendental claims and it elucidates the praxis as something different from both perceptual human-world relations and directedness towards logically objectified phenomena.
Chapter 7

Application of the pragmatic phenomenological approach

In this chapter, some cases of concrete developments in environmental planning are analysed using the pragmatic phenomenological approach and vocabulary developed in the previous chapters. We start with some example cases that illustrate the benefits of the pragmatic phenomenological approach. Then, we will look back upon the issue of fragmentation that we discussed in chapter 2. We will evaluate the contribution this thesis can make to the discussion about the issue. In the end, we will give some suggestions about how to integrate pragmatic phenomenological ideas in the practices and politics of landscape design.

Cases

The Case of the Longest Tunnel

New infrastructure, both in the mountains and in the lowlands of the Netherlands, often contains tunnels. Tunnel security has recently been given attention in the media due to multiple accidents in the long road tunnels in the Alps. In Norway, the world's longest road tunnel was opened in 2000.

"[...] the King of Norway cut the ribbon for the opening of the world's longest road tunnel between Lærdal and Aurland on November 27, 2000. [...] The Lærdal Tunnel was built during a five-year period from 1995-2000 at a cost of approximately 125 million U.S. dollars. It is an important link in the ferry-free road connection between the Bergen area and Eastern Norway, including Oslo, and is especially significant for winter traffic, when the high mountain passes are closed, or subject to closing, because of snow. [...] This tunnel is not only the world's longest, 24.5 km (15.2 miles), but also the world's most uniquely constructed tunnel with exceptional security features. [...]"

The following are some of the exceptional security measures taken in case of accidents and/or fire:

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- Emergency phones marked SOS have been placed every 250 meters (820 feet)
- Fire extinguishers have been placed every 125 meters (410 feet), which is closer than in other tunnels
- Stop lights and signs reading: snu og køyr ut, "turn and drive out", go on when one of the emergency phones is used
- 15 turning areas have been constructed for buses and semi-trailers
- [...] emergency niches have been built every 500 meters (1640 feet)
- Emergency phone channels for police, fire departments and hospitals
- Data connections to night-watch and security centers in Lærdal and Bergen
- Special wiring for the use of radio and mobile phones
- Photo inspection and counting of all vehicles entering and exiting the tunnel'

Next to these security measures, attention has also been paid to the behaviour of drivers in the tunnel.

'In order to break the monotony of a 20-minute drive, the tunnel has been divided up into four sections by creating three large caverns, or mountain halls, 6 km (3.7 miles) from each end and one in the middle. Special attention has been paid to the lighting. Whereas white light is used in the tunnel itself, the mountain halls are equipped with blue and yellow light. This gives one the illusion of driving into daylight every 6 km (3.7 miles), and the golden light along the floor gives the illusion of sunrise! To keep the drivers from being inattentive or falling asleep, and thus causing head-on collisions, each lane is supplied with a loud rumble strip toward the center!'

At Sintef, a Norwegian institute for applications of science and technology, research has been done into means for comforting people in tunnels34.34 Åse Dragland, Comfort in the tunnel, http://www.ntnu.no/gemini/1998-01E/20.html

'Green plants cover the rock walls. The emergency telephone flashes a red signal of warmth towards you. You have passed the yellow section in the tunnel and you know that only 200 metres remains. Relaxing music plays on the pre-set channel on the car radio.

This is not the scenario that we usually connect with tunnels, which instead often promotes a feeling of tension, fear and unpleasantness. [...] The Sogn and Fjordane county office of 'Statens Vegvesen', the national highway authority, has taken the fear of tunnels seriously. It will lead the way with 'psychologically correct tunnels' when the 25 kilometre long Lærdal Tunnel opens in 2001. Researchers at SINTEF Civil and Environmental Engineering have been given the task of evaluating efforts to suppress the feeling of unpleasantness.'

Thus, the design of the tunnel can influence the way in which people experience the environment. From a phenomenological point of view, this effect can be described in terms of mediation. How can this insight be used in actual tunnel construction?

'Last August, the institute [SINTEF] invited leading drama advisers, architects and theatre lightning technicians to a seminar in Trondheim to suggest solutions for increasing the comfort in tunnels. The idea of widening tunnels was high on the list. Modelling tunnels in a shape of a trumpet that would increase the width at the entrance, exit and other strategic points within the tunnel, would create a useful tool for breaking up longer tunnels. The Lærdal Tunnel, for instance, could be divided into four sections, each six kilometres in
length. In addition to being an "architectural breathing space", it would provide police with possibilities for speed control and video surveillance. Providing they are located on straight stretches with good visibility, the spaces could also serve as turning bays. Light, space and air are basic necessities. "If you drive in a tunnel with poor ventilation, it reduces your feeling of safety and you could put all the best art in the world on the tunnel walls, but it wouldn't make any difference", says traffic researcher Gunnar D. Jenssen of SINTEF Civil and Environmental Engineering.

Here, we observe the postphenomenological concept of reduction of aspects of experience. Mediation may take place by amplifying or reducing aspects of experience, and inviting or inhibiting aspects of action. In our pragmatic phenomenological approach, these effects may be described for the three aspects of mediation, based on the three different modes of selectivity. Which are the most important mediators in tunnels, and how can these be understood from our perspective?

'Good lighting is seen by the experts as an extremely important tool. For example, creating illusionary room effects and perceptual illusions, such as illuminated lines of columns, to make the tunnel feel larger. According to Jensen, "The lighter and more spacious a tunnel is, the safer the driver feels."

Tools which can create a sense of safety, are second highest on the list of tunnel 'musts', followed by a consideration of cognitive factors such as; "Where am I?" and "How much further do I have to go?" Aesthetics, neatness and artistic decoration were lowest on the list of factors. One suggestion given consideration was putting plants into the tunnel. "The logic is if they are able to live in a tunnel, then I must be able to as well."

"Using the nature as decoration on tunnel walls is one tool. Colour coding in the tunnel is another," says Jenssen. "Psychologists can advise which colours are best and in which order they should be used. Green, for example, is a colour that has agreeable and pleasant effects on people, creating a feeling of safety and showing that everything is all right. Experiments have been carried out at the Gudvangen Tunnel using green lights near the tunnel entrance. The results suggest that this signal tended to increase the feeling of safety for drivers."

Jenssen sees the possibility using different colour codes in different parts of the tunnel to help motorists to determine where they are in the tunnel and the number of kilometres remaining before they are once again back in the open air. Statements like "we are now in the yellow section" could be useful information too when it is necessary to make emergency calls from inside the tunnel.'

In safety issues for tunnels, mediation can be used as a way to change the relation between people and their environment. Different types of mediation may apply. Bodily mediation occurs when the bodily aspects of the drivers' intentionality are changed by the environment (signal-based selectivity). Habitual mediation occurs when the environment influences the drivers' identification and orientation (case-based selectivity). Intellectual mediation occurs when the environment changes the way in which the driver comprehends the abstract concept of a tunnel (model-based selectivity).

In the above texts, we can clearly distinguish between a signalling aspect of mediating technologies and a sign aspect. Signals include change of light and the sound of the rumble strip in the middle of the road. The signalling aspect is used to keep drivers alert. Signs include colours that mediate the relation between the drivers and their environment by association with previous experiences. When green has always been
experienced in situations of safety, it may serve as a sign for safety. The sign aspect is used to give drivers the feeling of safety.

As explained in the pragmatic phenomenological model in the previous chapter, the signalling aspect leads to bodily mediation and the sign aspect to habitual mediation. When a rumble strip or a change of light reinforces the driver's attention, this is a kind of bodily mediation. When the use of colours, plants or illusionary room effects reminds the driver of previous experiences of safety – and at the same time creates a new experience for future reference – this is a kind of habitual mediation. The former realises mediation by changing the aspects of stimulation and response, the latter by changing the aspects of identification and orientation.

It may be argued that colours mediate by signals rather than by signs, i.e. bodily rather than habitually. If a colour is biologically connected to an instinctual reaction of the body, this is indeed true. Colours can therefore be seen as mediating both the bodily and the habitual intentionality, depending on the context. In any case, the distinction between the two types is still valid in the tunnel example, since a green light is connected to previous experiences anyway, which is different from the bodily reaction of being alert at light changes or the rumble sound.

But what about the intellectual mediation, and the associated symbolic aspect? The innovative design of the Lærdal tunnel may become an exemplar of an abstract model of a tunnel. In that way, the comprehension of the concept of a tunnel is changed, which may influence the implementation of future projects. This aspect will be discussed more extensively in the case on ecoducts later in this chapter.
A pragmatic phenomenological approach in environmental planning

Figure 7.1: Keeping the drivers awake in the world's longest road tunnel
Source: http://home.no.net/lotsberg/data/norway/laerdal/tunnel.html

Figure 7.2: The ecoduct at Terlet near Arnhem, the Netherlands
(case text on p. 79 and further)
The Case of the Reconstruction of Roombeek

Meijberg (2002) investigated the material conditions of public space from the perspective of mediation. Public space, as opposed to private space, should be ‘a place where one can meet strangers and people with different opinions, a place where one establishes social commitment’\(^{35}\) The example she uses is the reconstruction of the district of Roombeek in the Dutch city of Enschede, which was destroyed in the fireworks factory disaster of May 2000. The question she asks in this example is if the reconstruction plans offer the material conditions for the emergence of a lively urban public space in the newly built district.

Meijberg analyses the spatial organisation of the district as a way to achieve an integrated living environment for different social classes. She does this using mediation as a central concept. Unfortunately, the richness of the postphenomenological vocabulary does not become visible in the presented analysis. The question is why the postphenomenological approach seems to fail here and how we can provide a better presentation of the example.

As we discussed before, the postphenomenological approach did not yet provide tools for analysing the social aspects of the intentional relation. Since a discussion of public space inherently involves these aspects, a postphenomenological analysis of the material conditions of public space is hardly possible without additional conceptual distinctions. With the pragmatic phenomenological concepts introduced in this thesis, we can attempt a new description of the material conditions that enable the emergence of a public space in the district of Roombeek. These conditions include the urban environment, and are therefore important to environmental planning.

The essential feature in our new analysis of the example is the introduction of the concepts of habits and habitual mediation. Habitual intentionality describes the social aspects of the relation between people and their environment in terms of habits. When it comes to the material conditions of public space, the relation between the design of the environment and the lives of people can be described from this social perspective in pragmatic phenomenology. The design influences the social behaviour of people by mediating their identification and orientation. Thereby, new habits may be formed which change the social structure.

When, for example, designers try to increase integration between different social groups – by building different types of housing within the same district, or by concentrating different functions within the same central building (education, day care, club life, sports, working places) – this influences the identification of the situation and the orientation in the situation by people who live in the district. When one goes to one's own club, and it is situated in a building with all kinds of different clubs, the identification of the situation involves these other clubs. Thereby, the orientation of people also involves these other societies, which may lead to social integration. In the case-based mode of selectivity habits have changed, and public space is strengthened.

\(^{35}\) p. 71, my translation
Meijberg mentions several other aspects that may stimulate the appearance of a public space: intermixing of living and working, concentration of people in central areas, availability of fast Internet connections and (public) transport facilities. All these can be described by habitual mediation. Certain aspects of identification are amplified or reduced, and certain aspects of orientation are invited or inhibited. In identification, the presence of other people may be amplified, and in orientation, the involvement in new social contacts may be invited. Habitual mediation leads to changed habits. Thus, the way in which the district is designed may change the social behaviour of people, and therefore contribute to the emergence of a lively public space.

We see here how hermeneutic aspects (identification) and existential aspects (orientation) co-operate in the mediation of the social aspects of the relation between people and their environment. The concept of habitual intentionality – including the associated concepts of habitual mediation, identification and orientation – makes it possible to describe the material conditions of public space in (pragmatic) phenomenological terms. Whereas current postphenomenology cannot apply mediation as something that involves social aspects, our approach explicitly mentions these aspects, and thereby enriches the analysis. The material conditions mediate the social aspects of intentionality, and thereby change the way in which the environment is present for people (identification), and the way in which people exist in their environment (orientation). The concept of habits makes it possible to understand this effect: people experience situations differently, and act differently in these situations (case-based selectivity).

**The Case of the Disappearing Trees**

The last couple of decades, newly gained interest in "nature" has lead to increased knowledge and consciousness on how humanity has been treating nature. In the Netherlands, we know that the whole of the Veluwe (our largest forest area) was once covered with a virgin forest of oaks and birches. When the forests were cut down for human use, heath developed on which sheep roamed around. But even this vegetation disappeared due to too intensive use, and the sand started to drift and even covered villages. The threat was eliminated by reforesting the area, especially with conifers, which grow faster and which were of great importance to the mining industry (for supporting the mine galleries). Meanwhile, the last virgin forest in the Netherlands had been cut down near Beekbergen in 1870.

When new interest in nature arose in the last decades, people became dissatisfied with the "pine fields", and argued for a more natural forest management. This included stimulating natural regeneration instead of clear-cut foresting, combining natural, economic and recreational values, and striving towards indigenous tree species. All large organisations involved in forest management have to some extent implemented these new insights. The actual implementation depends on the overall goals of the organisation and the specific goals set for each area. The new "model" of a forest is one of variation instead of homogeneity.

One of the issues involved in this implementation is how to stimulate the development of a more natural forest. One solution is to gradually remove exotic trees when they have enough economic value. The empty spaces can then fill up with indigenous species (although exotic ones will reappear as well). A more rigid solution is to get rid
of all exotic trees at once. There have been a few reports in the media about plans in the latter direction. It will not be a surprise that these efforts evoked lots of protests among locals. A case which I have not seen in the media, but experienced myself is "het Deelerwoud" near Arnhem (figure 7.3).

The area, property of Natuurmonumenten, a Dutch organisation for nature preservation, is largely covered with pine trees and heath. Natuurmonumenten announced to strive for "an indigenous forest as natural as possible" in the area. The model was quite clear. However, people do not experience the area as "a forest in process of becoming more natural" when they take a walk there. Identification and orientation are based on comparison of the situation with previous experiences. Especially near the parking lot were huge Douglas spruces, and these served as a major factor in the identification of the area. In the winter of 2001-2002, these all disappeared at once. Apparently, the tendency towards a more natural forest had to be forced. Of course people could understand what the idea was when they read the signs that were placed around the area. Nonetheless, identification and orientation may have failed because of the radically changed situation.

Figure 7.3: The removal of spruces to make room for a more natural forest (on the left, forestry of Ugchelen-Hoenderloo) and the result after one and a half year (on the right, Deelerwoud)

We can see here that an intellectual explanation (in terms of a model) does not always suffice when explaining environmental developments. The conflict between comprehension-implementation and identification-orientation is very well visible in this case. The explanation for the interventions is quite clear, but the case-based mediation makes identification and orientation impossible without understanding of such a rational explanation.
But habitual mediation of course may take more subtle forms. Every change in a landscape is capable of altering the relation between people and situations such that behaviour changes. In the above case, people may find a different parking lot for a picnic in the shade, or adapt to the new situation by exploration behaviour: intentionally storing new cases in memory that represent the changed situation.

We already discussed the issue of hiking trails in the third chapter. There, we concluded that the appearance of marked hiking trails in a national park influences the social practices of hiking, both by changing the situation and by offering a different situation to refer to in future experience. We can now refer to this kind of mediation as habitual mediation. From our phenomenological perspective, it is not just a change of observable habits, but also a change in the relation between people and their environment in terms of identification and orientation. The landscape becomes present for the involved people in a different way.

The Case of the Emergence of Network Nature

When the A50 highway between Arnhem and Apeldoorn was planned in the eighties, nature preservation organisations were furious. If the highway was necessary at all, it should be built around the forest area of the Veluwe, not straight through it. But decisions were made anyway. For compensation, nature was given two "ecoducts", fauna passages, over the new highway. These ecoducts connect the south-eastern part of the Veluwe, including Veluwezoom national park, with the nature reserve Deelerwoud in the west and the forestry of Ughelen-Hoenderloo in the north-west (figure 7.2, p. 75). These ecoducts, built during the construction of the highway in the late eighties, were the first major fauna passages in the Netherlands. Since then, two additional ecoducts have been realised over the A1 highway (near Oldenzaal and Kootwijk).

Meanwhile, plans were made for nature management in the Netherlands in general. In 1990, the nature policy plan formulated the concept of the Ecologische Hoofdstructuur (ecological main structure) for the Netherlands.36 The concept involves the creation of a continuous structure of nature areas in the Netherlands, consisting of core areas and corridors to connect them. These corridors may involve fauna passages over roads and railways. The resemblance between the small-scale issue of the A50 and the large-scale issue of the nature policy plan is remarkable. It seems that the solutions to the concrete problems of the A50 may have influenced abstract thinking about nature, and the construction of a model-based framework of interpretation. How can we explain this connection from our theory?

When actual fauna passages are built between various essential nature areas, the concept of nature as a structure of core areas and connections between them can be reinforced. This can be explained by the phenomenological concept of mediation: due to actual (technological) changes in the environment, the relation between people and their environment is changed. In the case described above, the change involves the model of nature that people have. When people experience the actual presence of connections between nature areas, comprehension of nature in terms of core areas and

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connections is amplified, and action in terms of the implementation of such a structure is invited. The mediation here takes place on the level of intellectual intentionality. The comprehension of nature and the implementation of nature policy are mediated by the actual construction of the ecoducts. How strong this connection is in the case mentioned above should be investigated in further empirical research, but at least our theory offers the concepts to explain such a connection.

When making decisions about the way in which the landscape is arranged, mediation may take a more direct form. In the above case, we saw how mediation may change our relation to our environment in terms of models. But also habitual mediation can occur in cases where we have to make decisions. When a new highway is built, the area on both sides of the road is more likely to be interpreted in terms of cases (situations) that accompany other highways. When other highways often have industrial areas next to them, the new highway may mediate the relation to the landscape around it by amplifying interpretation in terms of possibilities for establishing industry. When the relation between designers and the landscape is mediated in this way, plans in such a direction may actually be developed.

This effect accounts for part of the resistance against new highways. It is not only the "objective" presence of the highway that changes the quality of the landscape, it is also the mediation of the relation to the surrounding landscape that is invoked by its construction. When this kind of effect is better understood, the discussion on new infrastructure may be more to the point than calculations of changes that do not involve the concept of mediation.

**Fragmentation**

As the last case in this chapter, we will return to the problem of fragmentation as discussed in chapter 2. The critique on the existing approach to fragmentation was that fragmentation of the landscape is seen as an objective condition, which makes it impossible to consider the problem of fragmentation in human experience as a problem of environmental planning.

We can now, with the distinctions we made between three aspects of intentionality, re-evaluate the analysis. What is actually seen as "objective" fragmentation, is fragmentation as a problem of the intellectual aspect of the relation between people and their environment. We model our environment such that fragmentation becomes a problem we can solve within the model. When nature suffers from the fragmentation we find in our model of the landscape, we can find solutions within the model in terms of reconnection and compensation, and this is what is currently happening. Thus, model-based reasoning seems to be the paradigm assumed as the only relevant aspect of human behaviour.

Traditionally, human behaviour was understood as the operation of a rational mind within a non-rational body. The rational mind then operates according to the principles of model-based reasoning. From that point of view, the "loss of place" would mean that the actual situation does not match some universal need of humans
as rational beings. The loss of place then corresponds to alienation from some kind of
superior condition. This explanation has rightly been rejected because of its failure to
understand that the human condition is always changing, and never has prevented
humans from finding ways to express their thinking nature.

However, by including the habitual aspect of intentionality, we can explain the loss
of place as a problem within the associated mode of selectivity itself. It is not
alienation from a superior condition; it is a failure in case-based reasoning, in the
selectivity of habitual intentionality. People prefer integrated experience because this
is the way in which habits, in the aspects of identification and orientation, work. The
loss of place does not refer to some kind of alienation; it points out the problem that
occurs when people cannot adequately relate to their environment habitually.

What we discussed as fragmentation within human experience is fragmentation as
a problem of the habitual aspect of the intentional relation. When the case-based
(situation-based) aspects of the relation between people and their environment are
recognised, model-based reasoning does no longer have a monopoly on human
behaviour. Instead, attention can be paid to the effects of changes in the environment
in terms of habitual mediation.

The distinction between "objective" and "subjective" fragmentation thus is exposed as
a distinction only valid from the spectator conception of experience. From a
pragmatic phenomenological perspective, which abolishes the spectator conception,
the adequate distinction is between intellectual and habitual aspects of fragmentation.
Hermeneutic and existential aspects of the relation between people and their
environment are present at both levels. Our distinction in terms of intellectual and
habitual aspects replaces a separation in terms of subjective and objective problems.
There is nothing purely subjective about a habitual relation to the environment. If
anything, it is intersubjective. Neither is an intellectual relation to the environment
purely objective. Model-based reasoning involves the construction of models as well
as their application, such that different models may lead to a different "objectivity".
The clue lies in relation, not in separation.

According to Husserl, the lifeworld is always present as the source of experience prior
to scientific analysis. The lifeworld is not less important than scientific claims
because it is not "objective"; it is actually more important because it creates the
conditions necessary for scientific modelling. And when the social practices of the
lifeworld are involved, mediation of this aspect can be the most important of all.

Fragmentation cannot be completely resolved if we only see the "objective" kind of
fragmentation. We presented an integrated way of thinking about the problem from
our pragmatic phenomenological perspective. To provide means to take these insights
into account in the design of the landscape, we will present some considerations for
environmental planners.


**Integration in design practices**

When a part of a landscape is designed, the relevant question to ask from a pragmatic phenomenological point of view is how the change will mediate the relations between the people who will use the landscape and their environment. Thus, designers should anticipate on the mediation that is involved when designing the landscape.

The pragmatic phenomenological approach distinguishes between three types of mediation: bodily mediation, habitual mediation and intellectual mediation. We have seen examples of these kinds of mediation in the cases discussed above. The design of a tunnel may mediate the bodily relation between drivers and their environment by changing the signals the drivers receive. The design of a housing district may mediate the habitual relation between the inhabitants and their environment by changing their identification and orientation. The construction of an ecoduct may mediate the intellectual relation between people and their environment by changing their comprehension of nature. The types of mediation can be anticipated in design by asking the following questions:

- How does the design mediate the perceptual-bodily relation between people in the landscape and their environment?
- How does the design mediate the habitual relation between people in the landscape and their environment?
- How does the design mediate the intellectual relation between people in the landscape and their environment?

When these questions are asked in design, aspects of mediation as discussed in the cases can to a certain extend be predicted and thereby the influence of the changes in the landscape in the lives of people can be analysed. We can analyse how signals from the design influence bodily reactions, how the situations created by the design influence habits, and how the exemplar created by the design influences our models of our world.
Chapter 8

Conclusions and recommendations

In this thesis, we have attempted to explore the foundations of a new approach in philosophy of environmental planning, called the pragmatic phenomenological approach. This means that we have constructed a way of thinking about the relations between developments in the landscape and developments in our lives and our culture, which is based both on phenomenology and pragmatic philosophy.

In this final chapter, we assess the results of this research and recommendations for further investigation and application. First, we will mention some important issues involved in the construction of the pragmatic phenomenological approach.

Background

The observation of different paradigms in artificial intelligence has been a starting point for me for a new way of looking towards philosophical issues. As much as case-based reasoning in computer science has often been regarded as just some other way of symbolic reasoning in artificial intelligence (as opposed to connectionist approaches (neural networks), which do not use symbols but signals), the dynamics of habits seem to have largely been ignored in philosophy. I reckon this to be an over-emphasis on the rational aspects of human behaviour. Although signal-based reasoning already offered an alternative to rational reasoning, this has often been reduced to a distinction between material conditions (neurones) and spiritual conditions (reasoning). However, we do not live in a Cartesian era anymore. Philosophical developments ask for a different view on such distinctions.

Case-based reasoning presumes a certain way of describing the relation between intelligent existences and their environment. In philosophy, the same way of thinking about relations between humans and their environment can be found in the concept of habits. However, many approaches seem to overlook the specific benefit of this analysis, and stick to the Cartesian dualism unconsciously. This master's thesis is therefore partly meant to introduce the specific issue of case-based reasoning – behaviour generation by habit – into systematic phenomenological thinking, without pretending to have discovered a new monism in habits.
Results

The results of this research have mainly been described in the chapters 6 and 7, where we constructed the pragmatic phenomenological approach and described its application to environmental planning. The results are based on two conclusions, which we already drew in the preceding chapters. The first is that we cannot build a phenomenological analysis of our relation to the landscape without taking into account the social aspects of this relation. We experience the landscape together with other people, and this aspect is essential for understanding the relation (e.g. in the Roombeek case). The second is that current postphenomenological approaches do not take this aspect into account. Therefore, we extended the postphenomenological approach with concepts from pragmatic philosophy, which introduces analysis of social aspects in terms of habits.

By reformulating intentionality in terms of selectivity instead of a subject-object relation, we were able to incorporate the concept of habits into phenomenological analysis. The approach was labelled pragmatic phenomenology. Since human selectivity is more complex than selectivity of atoms, we needed different modes of selectivity to provide an analysis of human directedness to the world. The selection of the different modes of selectivity was based on an overview of paradigms of intelligent behaviour in artificial intelligence. Three modes of selectivity were distinguished: selectivity based on signals, on cases (habits) and on models.

The correspondence of the different modes of selectivity to aspects of human intentionality provided a basis for analysing mediation from a pragmatic phenomenological perspective. The concepts of microperception and macroperception were re-evaluated, and the correspondence to bodily intentionality (signals) and intellectual intentionality (models) was described. The mode of selectivity that was missing in postphenomenology – habitual intentionality (cases) – could now be incorporated in the analysis. By describing mediation from a pragmatic phenomenological perspective, we could distinguish between bodily mediation, habitual mediation and intellectual mediation.

The application to cases in environmental planning has shown that it is possible to use the pragmatic phenomenological approach to analyse concrete developments in landscape design. The advantages with respect to existing approaches are found in the possibility of including the social aspects of the relation between people and their environment. Moreover, the concept of selectivity enables a coherent framework in which all aspects of the intentional relation can be included. For each development in the landscape, we can now analyse three different kinds of mediation.

The analysis in terms of mediation makes it possible for designers and policy makers to anticipate on the mediating effects of their decisions. In this way, the design of the landscape can become more sensitive to the effect that changes have on the way in which people experience the landscape and the way in which they act in the landscape.
A pragmatic phenomenological approach in environmental planning

Recommendations

The foundations of the pragmatic phenomenological approach have been examined by giving an overview of the development of phenomenology and the instrumentalist approach of John Dewey. Integration of both movements was based on an analysis of the relation between the concepts of intentionality, mediation, selectivity and habits. Further research may indicate the possibilities of contributions by other pragmatist philosophers. In the end, the further developed foundations of the pragmatic phenomenological approach should provide a comprehensive alternative to both subject-object thinking and operationalistic views.

To further explore the possibilities and limitations of the pragmatic phenomenological approach in environmental planning, some interesting research may be performed in the future. Firstly, an extensive case study can indicate possibilities and limitations based on the analysis of one main example. The case study should include different types of mediation, and should indicate the differences and the coherence between them. Secondly, it is possible to further investigate the mediation occurring within the relation between designers and the landscape, as opposed to the relation between the users and the landscape. As we have seen, certain aspects of the landscape may mediate the design of the surrounding area, e.g. the amplification of the interpretation as industrial area of the terrain next to highways.

Another aspect that may be further investigated is the consequence of this research for artificial intelligence in general and especially virtual environments. In virtual environments, agents need to communicate with their virtual environment. The way in which humans relate to the landscape can be relevant for modelling these agents. If humans relate to the world in different ways, should artificial characters exhibit all these ways of relating to the world as well? If so, how can we model agents such that all these aspects are taken into account? Thus, the research field that provided heuristics for this thesis may itself benefit from the analysis presented here.

I think the contents of this thesis can offer some challenging tasks for further work. I encourage anyone to accept these challenges, and build the way to integration in design practices, and finally in the landscape itself.
Summary

This report describes a philosophical approach to issues of environmental planning. Although interventions in the landscape are often subject to extensive protests, a systematic critique of the presumptions involved in the design is missing. A thorough analysis of the issue requires a philosophical point of view.

The limitations of current criticism can be overcome if we can provide an overview of the origins of the understanding of the landscape in western culture, and mention where a new approach should differ. This overview is derived from Ton Lemaire (2002), who sees the western attitude to the landscape as a spectator position. It is argued that the influence of the landscape on the lives of people can be better understood if we focus on the relation between people and the landscape, instead of the landscape as objective structure independent of human experience.

The philosophical foundation for such an approach is found in the movement of postphenomenology. Postphenomenology describes the relation between humans and their environment in terms of intentionality (directedness towards the environment) and mediation (influencing of the relation by other existences, especially technologies). However, the postphenomenological approach does not include concepts to discuss the social aspects of the relation between people and their environment. Since people use the landscape together, and since human experience and acting is influenced by the behaviour of others, we have to include social aspects in postphenomenological analysis in order to apply it to issues of environmental planning.

The main question of this thesis is: How can the postphenomenological method of analysis be extended such that it is applicable to evaluation of developments in environmental planning, by describing processes of mediation by presences in the landscape?

Scientific developments in the twentieth century show the possibility to discuss social aspects in terms of habits. A philosophical theory including habits is offered by the movement of instrumentalism or pragmatism, of which John Dewey is one of the best known and purest representatives. Habits allow an explanation of experience and existence including social aspects. Dewey rejects the distinction between subjects and objects in philosophy. Instead, he argues that each existence exhibits behaviour based on selectivity: bias or preferences in behaviour. Because human selectivity is something different from selectivity of atoms, we have to describe different modes of selectivity in human behaviour.

The different modes of selectivity are distinguished by an analysis of the paradigms in artificial intelligence that model intelligent behaviour. There are three such paradigms: signal-based reasoning, case-based reasoning, and model-based reasoning. The first explains intelligent behaviour by signal processing, the second by remembering situations and applying solutions to new situations, the third by interpreting the experience in terms of a model and inferring the required action from
the model properties. Signal-based reasoning and model-based reasoning can be
linked to concepts in postphenomenology. The missing aspect in current
postphenomenology is case-based reasoning: intelligent behaviour by habit. When we
introduce this aspect into postphenomenology, we are able to discuss social aspects of
intentionality and mediation.

To introduce the concept of habits into phenomenological analysis, we have to adapt
the explanation of the intentional relation in terms of subjects and objects, since
pragmatism does not allow such a distinction. Instead, we explain the intentional
relation in terms of the directedness of an existence exhibiting selectivity in behaviour
towards its environment. Different modes of selectivity indicate different aspects of
intentionality. We distinguish between bodily intentionality (signals), habitual
intentionality (cases), and intellectual intentionality (models). Each of these aspects
enables a different type of mediation: bodily mediation, habitual mediation, and
intellectual mediation. The new approach is called pragmatic phenomenology.

In the application of our approach to various cases in environmental planning, we
show the value of the concepts we introduced. In the cases, the conceptual framework
with the different aspects of mediation is used to describe the effect of changes in the
landscape on human experience and existence. The discussion of the examples serves
as an illustration for the results and the possibilities for further research.

The influence of changes in the landscape of human experience and existence can
now adequately be described in terms of the different types of mediation. These can
be anticipated in planning and policy making, such that landscape design becomes
more sensitive to the actual relations between people and their environment. We
recommend further research by an extensive case study and an investigation of the
way in which changes in the landscape mediate the relation between the designers
themselves and the landscape.
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