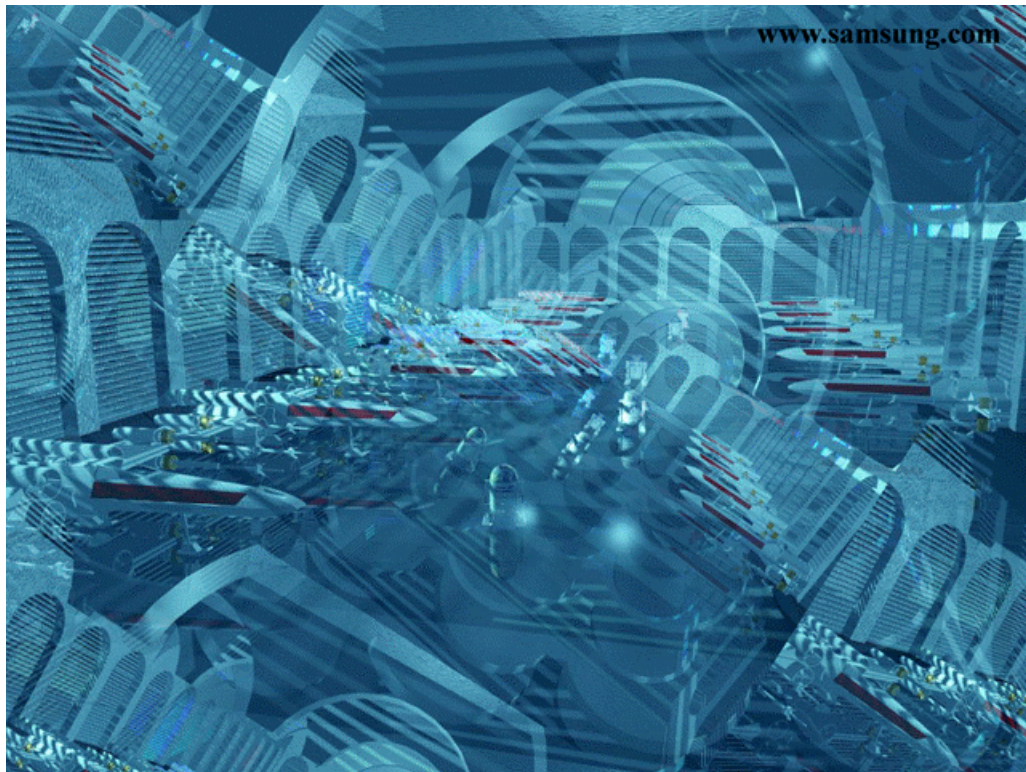# Embodiment in Cyberspace

How We Conceptualise
the Internet

A Cognitive Linguistic Approach

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'During my service in the United States Congress,
I took the initiative in creating the Internet.'

Acknowledgements

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1 INTRODUCTION

"Cyberspace", I had heard it called. It's a place, all right. What kind of place it is, is a big question. (Rheingold 1992:16).

Print and radio tell; stage and film show; cyberspace *embodies*. (Walser 1990; in Rheingold 1992:192, my emphasis)

The choice of topic studied in this thesis was inspired by personal experience with the Internet. Over the last five years I have been on the Net on a daily basis, using it for both academic purposes as well as pleasure. During that time I have noticed the way we talk about the Net as if it were a physical place and was intrigued by how there seemed to be little or no differentiation between the 'real' and the 'virtual' world in persons' (including my own) reference to their actual experience on the Net.

The two quotes above address the issues I want to investigate in this thesis, namely how we conceptualise the Internet and how this conceptualisation can be said to be **embodied**. The Internet is an unfamiliar domain of experience that is hard to make sense of. It is therefore quite natural to talk about it in more familiar terms. The 'cyberspace' metaphor has been quite pervasive in talking about the Internet, and *space* seems to be a natural way of referring to the Net. Studies of Internet metaphors also point in this direction, as I will come back to in sections 2.2.3.1 and 2.2.3.2. Therefore I will not be surprised to find metaphorical language about the Net where the source domain is *motion through space*. However, as a starting point for my investigation, I look for any kind of metaphorical language used in reference to the Internet.

My purpose is first and foremost to do a qualitative study of our conceptualisation of the Internet, as expressed in articles about the subject in *Newsweek* magazine. I intend to investigate what metaphors are used, what kind of image schematic structure underlies these metaphors, as well as the methodological issue of the syntactic realisation of metaphor. Finally, I have chosen two different times, 1994 and 2000, in order to see whether there seem to be any development in

metaphors used over time.

Provided my findings support the 'cyberspace' metaphor, the next question would naturally be: what kind of place is it? As already mentioned by Rheingold (cf. quote above), that is a big question. In the following I will give my contribution to an understanding of how we conceptualise this 'place' called 'cyberspace', or more specifically, the Internet.

Cognitive linguistic theory provides a useful framework for dealing with these issues, since it focuses on the important role of the cognitive apparatus of the language user, grounded in physical and cultural experience. One of the assumptions of cognitive linguistics is that metaphor is an important conceptualising device, that is, metaphor is not just a way of words, but a mode of thinking. In fact, it is the way we reason and make sense of the world and our experience. In this process, image schematic structure plays a crucial role, in providing us with recurring, dynamic patterns of our perceptual interactions and motor programs that gives coherence and structure to our experience as well as influence our reasoning (Johnson 1987:18). These image schemas can be metaphorically extended to more abstract domains. Metaphors about the Internet can thus tell us something not only about how we talk about the Internet, but also something about how we **conceptualise** it. Given the basic role of our physical experience in forming concepts, metaphor will tell us something about how our conceptualisation of the Internet is grounded in the **embodied** experience of the physical world:

> there are important links between people's recurring bodily experiences, their metaphorical projections of these image schemas to better structure many abstract concepts, and the language used to talk about these concepts. (Gibbs 1999:46).

Although my investigation is first and foremost a qualitative study of metaphorical language collected from *Newsweek* magazine, and what it tells us about how we conceptualise the Internet, I also include some quantitative presentations of my findings in order to provide a basis for discussion of tendencies found, and in order to do a comparison between the two different years chosen. In summary, my objectives are to investigate the conceptualisation of the Internet, by focusing on three main questions:

- what image schemas are used

- what metaphors are used

- how the metaphors are realised syntactically

- whether this has changed over time

The first part of chapter 2 gives a brief description of what the Internet is and places it in a historical context. The second part introduces the theoretical basis on which my empirical investigation is carried out. In chapter 3 I give some comments on the material used as well as discuss some methodological issues. Chapter 4 presents the findings of my analysis and discusses them in light of the theoretical framework outlined in chapter 2. Finally, in chapter 5 I give some concluding remarks on what can be learned about how we conceptualise the Internet.

According to cognitive linguistic convention, I put metaphoric and image schematic structure in small CAPS. In chapter 4, where I discuss examples, the parts that will be discussed from a metaphoric point of view are put in italics.

2 BACKGROUND AND THEORY

Since later on I will look into metaphors used about the Internet, and since these do not necessary fit reality, it can be useful to have some factual knowledge about what the Internet really *is*. Therefore, I will in the first part of this chapter give a brief introduction to what the Internet is, as well as place it in a historical context. I will also comment on the terms 'World Wide Web' and 'cyberspace', which are often used synonymously with 'the Internet'. Part two will contain an introduction to cognitive linguistic theory as well as reference to two studies where the theory is applied using data on metaphorical language referring to the Internet.

2.1 The Internet and its history

The Internet is a physical network of computers. As explained by Krol and Hoffman (1993), the Internet consists of:

> a global network of computers that are linked together by "wires" – telecommunications technologies (cables of copper, coaxial, glass, as well as radio and microwaves). Each linked computer resides within a nested hierarchy of networks, from its local area, to its service provider, to regional, national and international telecommunications networks. The various links have different speeds/capacities, and some links are permanent, while other are transient, dial-up connections. Although some networks are relatively autonomous – that is, they are self-contained spaces – almost all allow connections to other networks by employing common communication protocols (ways of exchanging information) to form a global system. Indeed, one key definition of the Internet means computers that are connected by the protocol TCP/IP (Transmission Control Protocol/Internet Protocol) (In Dodge and Kitchin 2001:2)

Dodge and Kitchin explain that as long as one has a computer, a modem and a telephone one can connect to one of the network spaces and through it to the rest of the Internet:

[w]ithin each network space users are normally presented with different modes of interaction, varying in their sophistication and immediacy. Users can browse information stored on other computers, exchange electronic mail (email), participate in discussion groups on a variety of topics, transfer files, search databases, take part in real-time conferences and games, explore virtual worlds (both textual and visual), run software on distant computers, and buy goods and service. (2001:2).

Because of the popularity and hype surrounding the Internet and the World Wide Web (WWW) (since the mid 1990s), one may believe that the Internet is a new phenomenon. Contrary to what many believe though, the Internet has been around for quite a while. Information and communication(s) technologies (ICTs) 'can trace their origins as far back as Charles Babbage and the first recognisable basis of a computer, Samuel Morse and the telegraph, and Alexander Bell and the first patented telephone system' (Winston 1998, in Dodge and Kitchin 2001:6). Or as Neal Stephenson (1996) puts it:

The world has actually been wired together by digital communications systems for a century and a half. Nothing that has happened during that time compares in its impact to the first exchange of messages between Queen Victoria and President Buchanan in 1858. (Neal Stephenson 1996: in Dodge and Kitchin 2001:6)

It is within this context, as well as that of the military-industrial complex and the cold war, that the Internet was created. After the Soviet Union's launch of Sputnik 1 in 1957 and the moon landing of Luna 2 in 1958, the US Department of Defence created ARPA (Advanced Research Projects Agency), whose mandate was to rapidly advance technological development, in order to keep pace and again overtake the Soviet developments. (Dodge and Kitchin 2001:6). Initially, the Internet was 'conceived as a method to link several incompatible systems at various points across the US so that resources could be shared. […] The specifications for the system were that all computers in the network were all directly connected to all the others' (ibid: 7). Thus the communications system 'should be able to function after an atomic war, and communication should be possible even though parts of the Net was down. All nodes are therefore self-contained and equal.' (Aarseth 1997:25, my translation). The first nodes of the ARPANET were made operable in 1969. The ARPANET was a packet-switching network,

with at least two available routes between all the nodes. (Dodge and Kitchin 2001:7). As explained by Dodge and Kitchin (ibid.):

> Packet-switching involves breaking data or messages into units of equal size for posting through the system. Each packet is labelled with an identifier and the address of its intended recipient. The packet is passed from one packet-switch (node on a network) to another until it arrives at its intended destination. Packets can travel using alternative routes and their destinations are reassembled into their proper sequence using individual identifiers.

The network was later made more sophisticated through the TCP/IP protocol, linking up incompatible machines that would also link to satellites and packet radio systems (ibid). The Internet is the global connection of non-commercial computer networks that was developed from the basis of the ARPANET (Aarseth 1997:25).

Email soon became one of the most popular services on the Internet. 'Thus, long distance personal computer-mediated communication was born' (Dodge and Kitchin 2001:9). Another popular service or medium was bulletin boards. They were the forerunners to general file sharing and public access services and the start of non-academics' and computer scientists' involvement in computer-mediated communication (ibid: 10). Also virtual gaming worlds, so-called MUDs (Multi-User Dungeons), created by students and run on university servers, were popular communities. (Dodge and Kitchin 2001:10-11, Rheingold 1994, Aarseth 1997:75).

2.1.1 The World Wide Web

However, it was with the World Wide Web (WWW) that the Internet got its breakthrough in the general public. The term WWW is often and somewhat misleadingly used interchangeably with the Internet. The WWW is, however, not synonymous with the Internet, it is rather a service on the Net, or perhaps one could say, a way of using the Net. It was created in Geneva in 1992, quickly followed up by a graphical interface for Macintosh and Windows – Mosaic – in 1993, leading to the WWW's becoming the most popular service on the Internet (Dodge and Kitchin 2001:11):

The World Wide Web (WWW) consists of multimedia data (mostly text and static graphics but also sound, animation, movie clips and virtual spaces) which are stored as hypermedia documents (documents that contain links to other pages of information). […] Using a browser program such as Netscape Navigator or Microsoft Explorer, users can connect to remote computer host and explore and interact with the information stored there. [..] By clicking the mouse cursor on a link […] the user is transported between pages. Thus, the WWW provides a powerful medium in which to explore related subjects, allowing users to easily 'jump' between, and search for, other relevant documents, without concern for their specific location in the network or in geographic space. (Dodge and Kitchin 2001:3).

2.1.2 Cyberspace

A term often used interchangeably with the Internet and the Web is 'cyberspace', which is derived from the Greek word kyber (to navigate) and literally means 'navigable space' (Dodge and Kitchin 2001:1).The term originates from William Gibson's 1984 novel *Neuromancer* and refers to:

a navigable, digital space of networked computers accessible from computer consoles; a visual, colourful, electronic, Cartesian datascape known as 'The Matrix' where companies and individuals interact with, and trade in, information. (Dodge and Kitchin 2001:1).

The term has later been 'adapted and used in a variety of ways […], all of which refer in some way to emerging computer-mediated communication and virtual reality technologies' (ibid). As envisaged by Gibson, cyberspace refers to the conceptual space that is created between people communicating within ICTs (information and communication technologies), rather than the technology itself (Dodge and Kitchin 2001:1, Aarseth 1997:108).

2.2 Cognitive linguistic theory

Over the last 20 years, research within various fields has resulted in convergent empirical evidence indicating that our human body plays a far more crucial role in human reasoning and language than earlier thought. Building on these findings, cognitive theory thus rejects the traditional dichotomy between (the) mind and (the) body, in which reason has been thought to be disembodied and abstract - distinct from perception, the body and culture as well as from mechanisms of imagination, for example metaphor and mental imagery (Lakoff 1987:7). Contradictory to the philosophical assumption that mind and body are separate, empirical research has come up with evidence that *the mind is inherently embodied*, that *thought is mostly unconscious*, and that *abstract concepts are largely metaphorical* (Lakoff and Johnson 1999:3, my emphasis). Cognitive linguistic theory therefore rejects traditional theories, which claim that concepts and word-meaning are transcendent, objectively definable and independent of the human conceptual system. Research has, to the contrary, shown that we organise our concepts around prototypes, that is, typical members of a category that have a special cognitive status, which allow fuzzy boundaries between categories. Moreover, categories are formed at a psychologically basic level, in respect of perception, function, communication and knowledge organisation (see Lakoff 1987 for disucssion):

> human concepts are not just reflections of an external reality, but [..] are crucially shaped by our bodies and brains, especially by our sensorimotor system. (Lakoff and Johnson 1999:23-24).

Language is believed to be a cognitive phenomenon, based on the same conceptual system used in thinking and acting, and thus becomes a vital source of evidence (Lakoff and Johnson 1980:1).

In the following sections, I shall only go into the mechanisms involved in conceptualisation that are relevant to my later investigation, that is, image schemata and their metaphorical projections. Finally I report on two related studies on Internet metaphors.

2.2.1 Meaning through image-schemata

From birth we experience such phenomena as force, directionality and boundedness through our perceptions and interactions. These experiences are structured in what Johnson calls 'image schemata'. Johnson (1987) explores in great detail such structures, defining an image schema as 'a recurring, dynamic pattern of our perceptual interactions and motor programs that gives coherence and structure to our experience' (1987:xiv). This is what Johnson proposes:

> in order for us to have meaningful, connected experiences that we can comprehend and reason about, there must be pattern and order to our actions, perceptions and conceptions. *A schema is a recurrent pattern, shape, and regularity in, or of, these ongoing ordering activities.* These patterns emerge as meaningful structures for us chiefly at the level of our bodily movements through space, our manipulation of objects, and our perceptual interactions. (1987:29).

According to Johnson (1987), 'the *human body*, and especially those structures of imagination and understanding that emerge from our embodied experience' (1987:xiv, author's emphasis) has been ignored and undervalued in objectivist accounts of meaning and rationality, because 'it seems to have no role in our reasoning about abstract subject matters' (ibid.). Contrary to Objectivism, he argues that meaning is not separated from human understanding, claiming that 'a large range of structures arise out of our bodily experience and provide patterns that are meaningful to us and that influence our reasoning' (ibid.:18). His emphasis is on the 'central role of human imagination in all meaning, understanding and reasoning' (ibid.:ix). 'Without imagination', he claims, 'nothing in the world could be *meaningful*' (1987:ix). Two types of imaginative structures that are central to his study are image schemata and their metaphorical projections (to be accounted for below) (ibid.:xiv).

Johnson derives his use of the term from Immanuel Kant, who saw image schemata as nonpropositional structures of imagination (1987:19). Johnson's 'image schemata' should not be confused with the typical notion of schemata as general knowledge structures, e.g. the term 'script' used by many of his contemporaries. He distinguishes his view 'from those that put stress exclusively on propositional structure.' (ibid.).

It is important to note that image schemata are neither propositional (i.e. not abstract subject-predicate structures that specify truth conditions or other conditions of satisfaction) nor rich, concrete images or mental pictures. 'They are structures that organize our mental representations at a level more general and abstract than that at which we form particular mental images.' (ibid.:23-24), and can thus be instantiated in a huge number of ways, depending on context (always however, with the same parts and relations recurring (ibid.:79)):

> Image schemata exist at a level of generality and abstraction that allows them to serve repeatedly as identifying patterns in an indefinitely large number of experiences, perceptions, and image formations for objects or events that are similarly structured in the relevant ways. Their most important feature is that they have a few basic elements or components that are related by definite structures, and yet they have a certain flexibility. As a result of this simple structure, they are a chief means for achieving order in our experience so that we can comprehend and reason about it. (Johnson 1987:28).

Image schemata differ from rich images in four respects; 1) they are abstract and not limited only to visual properties, 2) we can perform mental operations on image schemata that are analogs of spatial operations, 3) they can be transformed by our ability to manipulate abstract structure in mental space (eg. following a trajectory), and 4) they are influenced by general knowledge in a way that mental pictures are not (Johnson 1987:24-26). These are all indications that image schemata have a cognitive reality of their own. 'To say that a specific image schema […] *exists* is to say that some of our experiences have a certain recurring structure by virtue of which we can understand them.' (ibid.:102). They are gestalt structures that form unified wholes, by means of which we create order out of, and reason about, our experience (ibid:xix).

Below I will account for some of the most basic image-schemata treated by Johnson (1987) in order to give a general idea of what these image schemata are and how they are important in creating meaning. The figures are included to help identify the key structural features of the schemata and to illustrate their internal relationships. Embodied schemata should not, however, be confused with rich images or mental pictures, as mentioned above. (ibid.:23) '[E]ven though […] definite structures, they are dynamic patterns rather than fixed and static images, as their visual diagrams represent them.' (ibid.:29).

2.2.1.1 The CONTAINER schema

Johnson (1987:30-37) claims that there is a meaningful connection between the many (seemingly different) senses of *in* and *out*, ranging from clear-cut physical orientation in space (e.g. walking out of the bedroom) to more abstract non-spatial relations (such as entering *into* a conversation, getting lost *in* the newspaper) (1987:31). Common to them all is that they are structured according to the CONTAINER schema, consisting of an interior and an exterior as well as a boundary distinguishing the former from the latter. Lakoff and Johnson (1999:180) also refer to LOCATIONs as conceptualised on the basis of the same gestalt structure as the CONTAINER schema, and further that boundaries can be sharp or gradual.

Johnson observes that our most immediate grasp of the prototypical OUT relation, in basic, simple cases such as "Mary got out of the car" and "She shoveled the potatoes into her mouth", 'is referenced to our *bodies* as they orient themselves spatially. […] The body can take up the role of the "thing contained" or the "container". But, in either case, we seem to develop our sense of *in-out* orientation through a host of bodily movements, manipulations, and experiences.' (1987:34, author's emphasis). Further, *in-out* orientation can be projected onto inanimate objects (squeezing out the toothpaste) and from the physical to the nonphysical, by means of metaphorical extension ((tell me your story again, but) leave out the minor details). (ibid.).

Also a feature of many orientational schemata including the container schema, is the matter of "viewpoint" (from which the movement is observed), which is 'already *part of*, or called up by, our OUT schemata. […] The very structure of orientation is perspectival. 'Which perspective is relevant', however, 'will depend upon the context.' (1987:36).
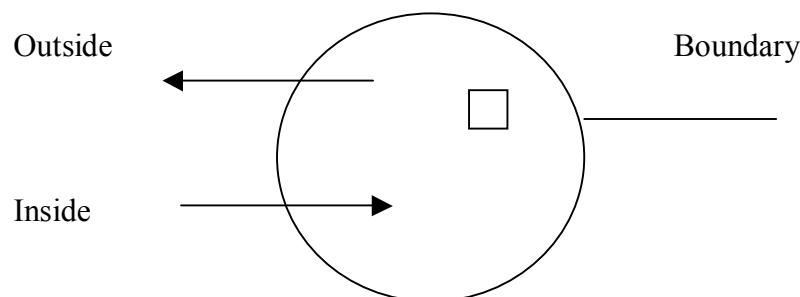

Figure 2.1: the CONTAINER schema

2.2.1.2 The PATH schema

In all the paths we experience as connecting up our spatial world (e.g. the path from your bed to the bathroom, from your house to the bus stop, or the path from the Earth to the Moon), there is a definite internal structure involving a starting point, a goal, and a sequence of contiguous locations connecting the two (Johnson 1987:113). Johnson points out the following characteristics as pertaining to paths; On your route from one point to another, you pass through all the intermediate states in between. Though paths are not inherently directional, we often impose directionality on them. We may also map a temporal dimension onto them (ibid.:114).

Figure 2.2: The PATH schema

2.2.1.3 The FORCE-VECTOR schemata

We are exposed to physical force from the day we are born, so to speak, either as we act upon other objects or persons or as we are acted upon by them (1987:42). We experience gravity, wind, bodily processes, blockages to our motion, and how we are sources of force, by moving our bodies and manipulating objects (ibid.). Force is everywhere, although we are usually not consciously aware of it as such, unless experienced as particularly strong:

> Even though we do not tend to pay attention to the forces that are everywhere inside us and in our environments, it is clear that these forces manifest structures that are very much a part of our having coherent, meaningful experiences that we can call into consciousness, understand, reason about, and communicate in language. (1987:42-43).

Johnson mentions a number of features that form a gestalt structure of our sense of force; all schemas for force involve interaction, or potential interaction. Further, force has a *vector* quality, a directionality, meaning that our experience of force usually involves the movement of some object (mass) through space in some direction. Also, there is typically a single *path of motion* (tied up with the vector quality of forceful movement). Another typical feature is that forces have *origins* or *sources*, and since directional, can be directed to targets. Forces also have degrees of power or intensity, and there is always a structure or sequence of causality involved in our interactional experience of force (ibid.).

All these features form, as already mentioned, a general *gestalt structure* for force; meaning 'an organized, unified whole within our experience and understanding that manifests a repeatable pattern or structure' (ibid.). Below follow seven of the most common force structures operating in our experience:

The COMPULSION schema

The COMPULSION schema describes the experience of being moved by external forces, such as wind, water, physical objects, and other people' (1987:45). As shown in Figure 2.3, the force comes from somewhere, has a given magnitude, moves along a path and has a direction.
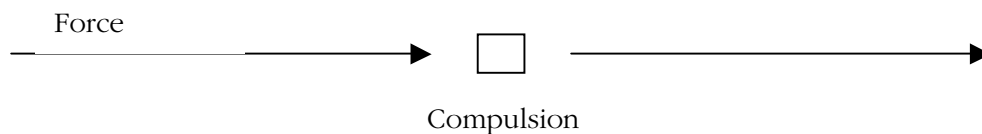
Force

Compulsion

Figure 2.3: the COMPULSION schema

The BLOCKAGE schema

Part of the *meaning* of force and of forceful resistance we learn through repeatedly encountering obstacles that block or resist our force, for instance as babies when encountering

a wall or some other kind of obstacle while crawling around on the floor, and consequently being forced to either stop or change directions (1987:45).
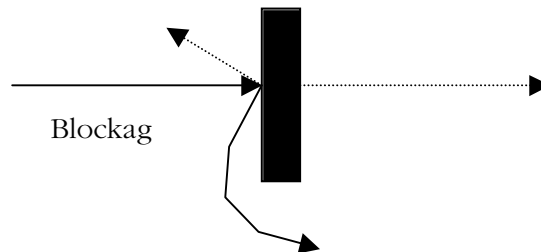
Figure 2.4: The BLOCKAGE schema

The COUNTERFORCE schema

This cluster of gestalts focuses on the head-on meetings of forces, e.g. two vehicles colliding head-on (1987:46).
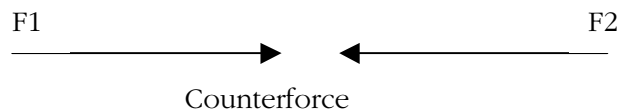
Figure 2.5: the COUNTERFORCE schema

The DIVERSION schema

This schema illustrates a gestalt related to the previous counterforce schema, in which 'a force vector is diverted as the result of the causal interaction of one or more vectors', e.g.

the experience of rowing a boat 'at some angle oblique to the wind' (1987:46), as
illustrated by figure 2.6:
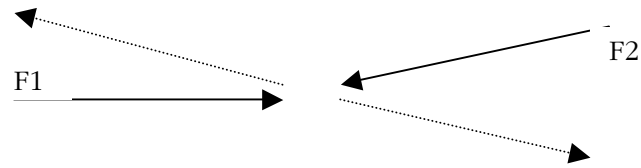
Figure 2.6: the DIVERSION schema

The REMOVAL OF RESTRAINT schema

Figure 2.7 illustrates 'the removal of a barrier or the absence of some potential restraint',
enabling a possible exertion of force (1987:46).

Removal of
restraint
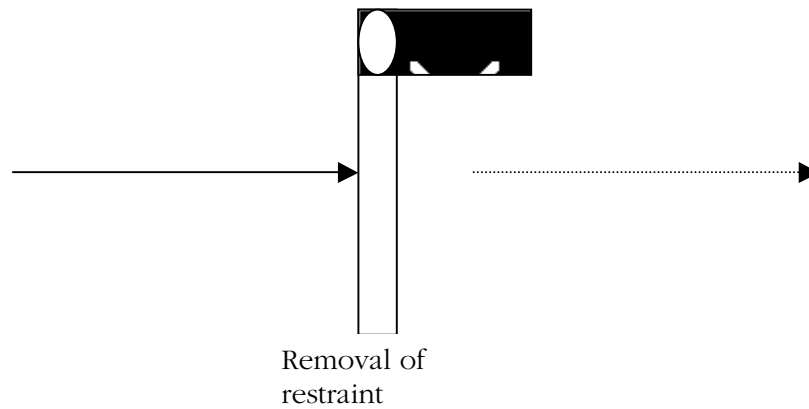
Figure 2.7: the REMOVAL OF RESTRAINT schema

The ENABLEMENT schema

The enablement schema describes 'a felt sense of power (or lack of power) to perform some action' (1987:47). There are some things you feel able to lift, like e.g. the groceries, but not the end of your car. Although no actualized force vector is present, there are 'potential force vectors' and a 'definite "directedness" ' present in the gestalt (ibid.), as represented by Figure 2.8:
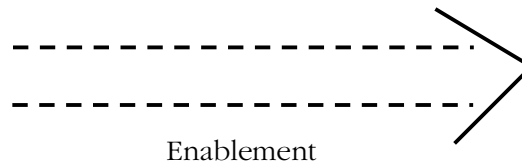
Enablement

Figure 2.8: the ENABLEMENT schema

The ATTRACTION schema

There is a common schematic structure of attraction shared by such experiences as a magnet drawing a piece of steel toward itself, the earth pulling us back when we jump, and feeling ourselves physically attracted to some other person. 'The vectors here can be either actual or potential' and to represent more complex relations of attraction, additional objects might be added. Johnson also explains it as 'a kind of gravitation toward an object' (1987:47-48).
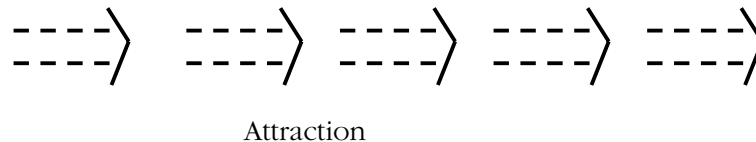
Attraction

Figure 2.9: the ATTRACTION schema

2.2.1.4 The LINK schema

Through our interaction with the world around us we experience a wide variety of both concrete and abstract linkages. There is the natural *coupling of physical objects*, where 'there is a spatial contiguity and closeness of the linked objects, and the connected objects are related via the link' (ibid.:118). Then there are also *temporal connections*, where the link consists of events being experienced as temporally related. (ibid.). 'Given such temporal relatedness, we can experience *causal connection* between temporally linked events. […] we understand our world as a connected and coherent expanse held together by networks of causal connection.' (ibid.). Within the causal network we have *genetic connections* and *functional linking* of parts and entities. The basic LINK schema as represented in figure 2.10 'makes possible our perception of *similarity*. Two or more objects are similar because they share some feature or features.' (ibid.). In this abstract notion of linkage those shared features are their cognitive links in our understanding.

A   B

Figure 2.10: the LINK schema

2.2.1.5 The CENTRE-PERIPHERY schema

Johnson (1987) explains about the CENTRE-PERIPHERY schema that:

> [o]ur world radiates out from our *bodies* as perceptual centers […]. What is "figure" or "foreground" at one moment may become "background" at another, as we move perceptually through our world. At a certain distance from this perceptual center our world "fades off" into a perceptual horizon which no longer presents us with discrete objects. (1987:124- 125, author's emphasis).

This schema is a recurrent structure in a person's *experiential space*, and explains how at a more abstract level, some things, events, and persons are more important than others (ibid.:124). '[T]he nature of our bodies, the constraints on our perception, and the structure of our consciousness give prominence to the CENTER-PERIPHERY organization of our experienced reality.' (ibid.:125).

The CENTRE-PERIPHERY schema is usually not experienced alone, but have various other schemata superimposed on it, for instance the NEAR-FAR schema and the CONTAINER schema. In the latter case 'we experience the center as *inner* and define the *outer* relative to it.' (1987:125, author's emphasis).

2.2.2 Metaphorical projections

As we have seen, image schemas are very much grounded in bodily experience. These schemas can be metaphorically extended, as we saw with, for example, the container schema, which could be extended so as to cover more abstract senses of *in-out*. Image schemas and their metaphorical elaborations are central in what Johnson (1987) calls 'embodied imaginative structure'. He defines metaphor as:

> a pervasive mode of understanding by which we project patterns from one domain of experience in order to structure another domain of a different kind. So conceived, metaphor is not merely a linguistic mode of expression; rather, it is one of the chief cognitive structures by which we are able to have coherent, ordered experiences that we can reason about and make sense out of. Through metaphor, we make use of patterns that obtain in our physical experience to organize our more abstract understanding. (1987:xiv-xv).

One of the tenets of cognitive linguistic theory is that '[o]ur ordinary conceptual system, in terms of which we both think and act, is largely metaphorical in nature.' (Lakoff and Johnson 1980:3). Metaphorical language is a reflection of metaphorical thought, and the systematicity of linguistic metaphorical expressions is taken as evidence of how pervasive metaphor is in our conceptual system.

In cognitive theory, metaphor is not, as treated by traditional theory, a matter of mere words, only occurring in novel, poetic, rhetorical or fictional language. Nor is it deviant language in any way. Even though there are 'dead metaphors', i.e. expressions that once were understood as metaphorical, but have become frozen and are now understood as literal, conventional metaphorical expressions in ordinary everyday language are not dead, but cognitively real. 'The fundamental role of metaphor is to project inference patterns from the source domain to the target domain. Much of our reasoning is therefore metaphorical. […] Conceptual metaphor is what makes most abstract thought possible.' (1999:128-29). Our bodily experience is, first, structured in image schemata, and this structure can be projected by metaphor onto abstract domains. Second, concrete bodily experience constrains the nature of the projections, 'that is, the kinds of mappings that can occur across domains' (Johnson 1987:xv).

2.2.2.1 Primary metaphor

Below I will give an account of the recent theory of primary metaphor as presented in Lakoff and Johnson (1999), with focus on the work of Cristopher Johnson, Joe Grady and Srini Narayanan (leaving out Mark Turner and Gilles Faucounnier's theory of conceptual blending).

Johnson's hypothesis is that conceptual metaphor emerges in two stages. In the conflation stage, young children do not differentiate between two different domains of experience (subjective experiences and judgements on the one hand and sensorimotor experiences on the other), e.g. the experience of affection and the experience of warmth when being held, and connections between the two coactive domains are established. Only later, in what Johnson calls the differentiation stage, are the two domains seen as separate. The cross-domain associations remain, however, as conceptual mappings, exemplified in e.g. 'a *warm* smile' and a 'a *big* problem'. (Lakoff and Johnson 1999:46-49).

Grady takes Johnson's theory of conflation as basis for his theory of primary metaphor. Early conflations as described above lead to the formation of primary metaphors, which he sees as the building blocks of complex metaphors with a more molecular structure. These complex

metaphors are formed by conceptual blending, where long-term connections are learned that coactivate a number of primary metaphorical mappings. Examples of primary metaphors are: IMPORTANT IS BIG, INTIMACY IS CLOSENESS, MORE IS UP, KNOWING IS SEEING, STATES ARE LOCATIONS and ACTIONS ARE SELF-PROPELLED MOTIONS. (ibid.:46-53).

Narayanan's neural theory of metaphor accounts for how '"associations" made during the period of conflation are realised neurally in simultaneous activations that result in permanent neural connections being made across the neural networks that define conceptual domains. These connections form the anatomical basis of source-to-target activations that constitute metaphorical entailments.' (ibid.:46-47).

Our conceptual system of primary metaphor is basically a result of the bodies and brains we have and the world we live in. 'We automatically and unconsciously acquire and use a vast number of such metaphors. Those metaphors are realised in our brains *physically* and are mostly beyond our control. They are a consequence of the nature of our brains, our bodies, and the world we inhabit.' (ibid.:59, author's emphasis). Does it follow from this that the same primary metaphors are part of every human being's conceptual system? 'When the embodied experiences in the world are universal, then the corresponding primary metaphors are universally acquired' argue Lakoff and Johnson (ibid.:56). Universal conceptual metaphors are, however, not innate, but learned, and contribute to linguistic universals.

Complex metaphors are built out of primary metaphors and forms of commonplace knowledge like cultural models, folk theories and widely accepted beliefs and knowledge. Lakoff and Johnson (1999) describe these metaphors as 'atoms that can be put together to form molecules.' (ibid.:60), like for instance A PURPOSEFUL LIFE IS A JOURNEY.

2.2.2.1 The EVENT-STRUCTURE metaphor

Lakoff and Johnson (1999) claim that our most fundamental understanding of *events* and *causes* is based on two fundamental metaphors, which they call the LOCATION and OBJECT EVENT-STRUCTURE metaphors (Lakoff and Johnson 1999:178-179). Both make use of the primary metaphors CAUSES ARE FORCES and CHANGES ARE MOVEMENTS, but differ in that the first conceptualises events in terms of *locations*, while the latter conceptualises events in terms of *objects*. (ibid.).

Narayanan's model of neural control systems for bodily movement gives a skeletal structure of 'how we structure both the movements of our bodies and events in the world in general.' (ibid.:176):

Initial State: Whatever is required for the event is satisfied
Start: The starting up process for the event
End of Start: The end of the starting up process and the beginning of the main process
Main Process: The central aspects of the event
Possible Interruptions: Disruptions of the main process
Possible Continuation or Iteration: The perpetuation or repetition of the main process
Resultant State: The state resulting from the main process

On the basis of this skeletal structure of bodily movement, *states* are conceptualised as *containers* and *changes* are conceptualised as *movements* from one location to another. (ibid). Lakoff and Johnson (1999) find that the conceptualisation of *events* corresponds to the conceptualisation of *causes*. The literal skeletal structure of causes, however, is very simple: '*a cause is a determining factor for a situation*, where by a "situation" we mean a state, change, process, or action.' (ibid.:177, author's emphasis). The richness of forms of causal reasoning arises from a causal prototype (the direct application of force resulting in motion or other physical change) and a wide variety of metaphors for causation (ibid.).

THE LOCATION EVENT-STRUCTURE METAPHOR

STATES ARE LOCATIONS (interiors of bounded regions in space)

CHANGES ARE MOVEMENTS (into or out of bounded regions)

CAUSES ARE FORCES

CAUSATION IS FORCED MOVEMENT (from one location to another)

ACTIONS ARE SELF-PROPELLED MOVEMENTS

PURPOSES ARE DESTINATIONS

MEANS ARE PATHS (to destinations)

DIFFICULTIES ARE IMPEDIMENTS TO MOTION

FREEDOM OF ACTION IS THE LACK OF IMPEDIMENTS TO MOTION

EXTERNAL EVENTS ARE LARGE, MOVING OBJECTS (that exert force)

LOGE-TERM, PURPOSEFUL ACTIVITIES ARE JOURNEYS

The source domain of the mapping is motion-in-space, whereas the target domain of the mapping is the domain of events (ibid). This mapping 'allow[s] us to conceptualize events and all aspects of them – actions, causes, changes, states, purposes, and so forth – in terms of our extensive experience with, and knowledge about, motion in space.' (ibid.).

The OBJECT EVENT-STRUCTURE metaphor

The other duality of the EVENT-STRUCTURE metaphor has the following mapping:

> ATTRIBUTES ARE POSSESSIONS
> CHANGES ARE MOVEMENTS OF POSSESSIONS (acquisition or losses)
> CAUSATION IS TRANSFER OF POSSESSIONS (giving or taking)
> PURPOSES ARE DESIRED OBJECTS

Compare the two following sentences:

> Harry's in trouble (STATES ARE LOCATIONS)
> Harry has trouble (ATTRIBUTES ARE POSSESSIONS)

The first is an example of *trouble* conceptualised as a *location* you are in; in the second *trouble* is an *object* you can have. (ibid.:195, my emphasis). Figure-ground reversals in perception is a cognitive ability of human beings. The 'two conceptualizations of causation have opposite figure-ground orientations. In the Location metaphor, the affected entity is the figure; it moves to the new location (the ground). In the Object metaphor, the effect is the figure; it moves to the affected party (the ground).' (ibid.:199). However, the causal force is applied to different things in the two cases. In the Location case, the causal force is applied to the affected party, while in the Object case, it is applied to the effect. (ibid.).

2.2.2.3 Image metaphors

In the same way as other metaphoric mappings, metaphoric image-mappings map the structure of one domain onto the structure of another. However, image metaphors do not reflect the mapping of concepts, but that of mental images from domain onto the mental images of another. (Gibbs 1994:258, Lakoff and Turner 1989:90). One of the examples employed by Lakoff and Turner is the image of an hourglass superimposed onto 'the image of a woman's waist by virtue of their common shape.' (Lakoff and Turner1989:90). The locus of the conceptual metaphor is the mental image in which we map the middle of the hourglass onto the waist of the woman. (ibid.). As explained by Lakoff and Turner:

> Image structure includes both part-whole structure and attribute structure.
> […] It is the existence of such structure within our conceptual images that
> permits one image to be mapped onto another by virtue of their common
> structure. (ibid.).

2.2.3. Internet metaphors

Below follow a brief account of two studies where cognitive linguistic theory is applied to metaphorical language about the Internet.

2.2.3.1 Rohrer: The Information Highway dual metaphor

One of the most popular metaphors referring to the Internet, especially in the media, has been the INTERNET IS A HIGHWAY (INFORMATION HIGHWAY) metaphor. The metaphor is structured by the PATH schema, and elements of the mapping include highways mapped onto transmission pathways (cables, etc.), space onto cyberspace, vehicles onto computers (telephones, TV, etc.), goods transported onto information, drivers onto users, journey onto downloading or uploading information, impediments to motion onto technological difficulties. (Rohrer 1997).

Rohrer (1997) states that the Clinton-Gore administration has likened the development of the information highway to that of the federal commitment to plan and build the interstate highway system in the 1950s and 1960s, arguing that the U.S. economic boom this resulted in will similarly be the result of a federal commitment to plan and build the information highway. (Rohrer 1997: in Liebert, Redeker and Waugh (eds.) 1997:185).

Rohrer outlines two different cases of the INTERNET IS A HIGHWAY metaphor, namely what he calls the CYBERSPACE case and the CYBERFUTURE case, and shows that the INTERNET IS A HIGHWAY is in fact a dual metaphor system. In the CYBERSPACE version, the Internet is conceptualised as a road upon which movement occurs, while in the CYBERFUTURE version of the metaphor, the Internet is seen as a road through time that allows travel into the future. The cyberfuture's information highway implies visions of technological utopias. If we do not travel down the information highway we 'will remain hopelessly *stalled* on the way to the future and become a *backward* nation, corporation or person.' (Rohrer 1997; in Liebert, Redeker and Waugh:187).

Rohrer argues that the dual metaphors are often confounded, partly because they are 'deliberately blended together […] because the two systems frequently cohere in their metaphorical entailments.' (ibid.:188). Further, 'Gore's speech blends the imagery of the CYBERSPACE system together with the imagery of the CYBERFUTURE system into a coherent information policy.' (ibid.:195), in order to argue for government involvement in planning both the building of the information highway and the destination to which it will take us. (ibid.:197). 'In the blended space, movement on the highway is simultaneously both building the information highway's pathways (*CYBERSPACE*) and travelling on the information highway's road into the future (*CYBERFUTURE*).' (ibid.:196). Because he blended together incongruous elements from both systems, Gore's speech touched off controversy, and these differences Rohrer argues, shaped much of the debate over U.S. information science policy. (Rohrer 1997, 2000).

2.2.3.2 Maglio and Matlock: the Conceptual Structure of Information Space

Maglio and Matlock (1999) examine the image schematic structure of metaphors underlying people's talk and understanding of the Web. Through interviews with beginning and experienced web users they have collected empirical evidence that shows 'that much of people's conceptual experience of the web is metaphorical and understood through the process of conceptual integration' (1999; in Munroe, Höök and Benyon (eds) 1999:155). Maglio and Matlock (1999) argue 'that people rely on experience in physical space to structure experience in virtual information spaces such as the World Wide Web (WWW).' (ibid.):

> web users often refer to the web as a multidimensional (most commonly two-dimensional) landscape. Obtaining information in this landscape is expressed as traversing interconnected paths toward locations that contain information objects, such as user homepages and commercial catalogue sites. Users say things such as, "I went to his homepage" and "I came back to where I saw that picture". (ibid.:157).

Maglio and Matlock (1999) also found a tendency to view the web user as an agent, actively moving along a horizontal path. Their findings corroborate those of a study by Maglio and Barret, referred to in Maglio and Matlock (1999), in which participants were asked to recall specific web searches, where they argue that:

> web navigation is conceived in terms of a cognitive map similar to a cognitive map of physical space, that is, in terms of landmarks and routes. […] The data showed that participants recalled only a few of the sites they visited. Specifically, they remembered key nodes that led to the target information. (ibid.:156).

Also reported was that beginners more often mixed in their experiences using keyboard, mouse etc, of the physical domain and were more likely to refer to the web as a container than experts. At any rate, 'people seem to prefer to talk about their experience in using the web in […] familiar terms, such as physical motion, physical actions, and physical containers.' (ibid.:163).

A sense of fluidity is created by clicking on links and instantly seeing new information, hence the illusion of motion: 'because directed motion toward goals is part of our embodied experience, it naturally structures how we think about and interact in information spaces, such as the web.' (ibid.:165-166).

2.4 Summary

In the first part of this chapter I have tried to explain what the Internet physically is as well as give an outline of its background and history, in order to have a fundament of factual knowledge to base my analyses on. The second part gives an introduction to cognitive linguistics, a theory that focuses on the close link between human experience and language, that is, how we understand, reason and talk about the world as we perceive it. We have seen that meaning does not exist objectively in the world, but depends on our cognitive capabilities, which are closely tied to our physical and cultural experience. The concepts we form are dependent on human conceptualisation process like image schemas and metaphor.

3 MATERIAL AND METHOD

In the first section of the following chapter I will give some information on the material used in this study. The following section comments on a few problematic issues within metaphor research, while the last section deals with the method adopted and some difficulties in my own investigation.

3.1 Material

The material studied has been excerpted from articles about Information and Communication Technology (ICT) with focus on the Internet, in the printed version of the international magazine *Newsweek*. Over the years, a lot has obviously been written about the Internet, for complete novices as well as for more skilled users. In order to study more general language, I chose *Newsweek*, a magazine directed at the general public, over magazines devoted to computers and the Internet. The magazine covers a wide range of topics, such as business, technology, politics, world events, features etc.

As we remember, one of the research goals of this thesis is to investigate whether there are any conceivable differences traceable over time regarding the metaphors and the underlying image schemata in language used about the Net. Two different years were therefore chosen. The creation of the World Wide Web (WWW) in 1992 and the subsequent release of the graphical web interface for windows – Mosaic – in September 1993 (see section 2.1.1), lead to the popularisation of the Internet as it became more easily accessible. The Internet was thus still a fairly new phenomenon to 'ordinary' people in the beginning of 1994, whereas in 2000 'everybody', at least in the western world, was familiar with the Net in some way or another. Since we use metaphor as a basic means of understanding an unfamiliar domain of experience by using knowledge we already possess, it will be interesting to see if the degree of familiarity would have any influence on the metaphors and the underlying image schemata over time.

The material consists of articles from three months' issues of 1994 and 2000 (12 articles in all), including approximately 31,116 words (see Table 3.1 below). Articles selected were often, but not necessarily, taken from the technology section of the periodical, since the Internet is a phenomenon featuring in many contexts. ICT was used as a broader selection criterion since the Internet itself is an Information and Communication Technology and since it is often difficult to find articles that are explicitly about the Internet and not other technologies. The criterion for inclusion, however, was that the content of the articles would focus on the Internet itself and on people's actions 'there', rather than on technologically sophisticated products. Since some issues are more focused on the topic than others, the number of articles, as well as their length, is unevenly spread among the issues. The number of articles was also very unevenly distributed between the two years. One issue was missing in the 1994 material (14 Feb 1994). A complete list of articles used can be found in the Appendix.

Table 3.1: Material

Source	# articles	# of words	# tokens	# tokens pr. 100 words	Date
Newsweek	4	Ca. 360	81	22,5	Jan-March 1994
"	8	Ca. 30,756	537	1,75	Jan-March 2000
Total	12	Ca. 31,116	618	-	-

3.2 Method

Below follow some observations on the status of method in contemporary metaphor research, before I move on to the method adopted for my purposes.

3.2.1 Metaphor research - status and critical comments

Metaphor theory has been suffering from the lack of an established method within the field. For the most part it has been up to the researcher to decide on the classification and

categorisation of metaphor. Following Lakoff and Johnson (Lakoff and Johnson 1980; 1999, Lakoff 1987; Johnson 1987), metaphor is defined as a conceptual mapping of a source domain of experience onto a target domain. In contemporary metaphor theory, these are sometimes referred to as Topic (target domain) and Vehicle (source domain); 'Topic' conventionally referring to 'the first something' of a metaphor, the 'Vehicle' referring to what the Topic is seen in terms of. (Cameron 1999; in Cameron and Low 1999:13) Between the Topic and the Vehicle there is a perceived incongruity:

> The unexpected introduction of a contrasting something else into ongoing talk or text may signal the occurrence of metaphor to participants and/or analyst. The nature of that contrast between Topic and Vehicle has been used in the literature as an identifying feature of metaphor. It has been variously labelled as a "tension" […], a "conceptual incongruity" […], or as "contrary to accepted practice" […] (ibid. 1999:20).

Cameron also notes, however, that '[i]n real-time discourse processing, anomaly or incongruity is a graded feature of activated concepts underlying lexical items […]' (ibid. 1999:20), and '[t]he degree of difference between Topic and Vehicle domains required for the existence of metaphor is ultimately a matter for decision by the researcher' (ibid. 1999:21).

Cameron also points to a consequence of the widespread use of Lakoff and Johnson's general underlying form of metaphor (A is B), where both Topic and Vehicle are nominal, being that nominal metaphors are thought to be most common or typical. Empirical evidence, on the other hand, suggests that verb metaphors may be more common than nominal metaphors in many types of discourse. (Steen 1999; Cameron 1997a; Cameron 1997b; in Cameron and Low 1999). As pointed out by Cameron, 'Topics and Vehicles can be linked in metaphors of many syntactic forms, within and beyond the phrase and clause' (Cameron 1999; in Cameron and Low 1999:15). Different kinds of metaphor therefore require more nuanced theories of metaphor, where linguistic variability and form, as well as the contextual nature of language in use need to be taken into account (See Cameron and Low 1999 for a more detailed discussion).

The application of the labels Topic (target domain) and Vehicle (source domain) referring to both surface forms (lexical item) and underlying concepts leads us to another problematic issue. As Cameron notes, '[t]he conceptual analysis has already made inferences from language to thought that involve generalisations, and that might need some form of

justification.' (ibid. 1999:14). One of the major weaknesses of metaphor theory is 'the directness of the inferencing from language use to claims about thought structures', (ibid. 1999:18), often referred to as the 'strong view' on metaphor (as advocated by Lakoff and Johnson). 'Lakoff and Johnson identify conceptual metaphor through analysis of Topic-Vehicle relations [..]. They then generalise from the surface language items to inferred systems of thought.' (ibid.:18). Cameron points to the importance of differentiating between the theoretical level of analysis, 'where a central concern is the identification of metaphor' and the processing level, 'which relates to online processing by individuals engaged in production or interpretation tasks', (ibid. 1999:6). This is important since '[The] level at which metaphoricity is determined will influence the evidence required for metaphoricity, and the type of data that will count as evidence.' (ibid. 1999:6).

Also Gibbs (ibid. 1999:38) points to researchers failing to 'recognise the limitations of their research methodologies to study metaphor understanding', and thereby failing to distinguish between processes and product, trying to infer something about the former on basis of the latter, or vice versa. On the one hand, you have philosophers, linguists and literary theorists who 'primarily focus on metaphor understanding as a product and try to infer something about the processes of metaphor comprehension', while on the other hand psychologists and psycholinguists 'primarily study comprehension processes with an eye towards explicating something about the products of metaphor interpretation and recognition' (ibid. 1999:38). 'A theory of metaphor processes is, however, quite different from a theory of what meanings we consciously infer once metaphors have been understood.' (ibid. :38).

In summary, two problematic issues in contemporary metaphor theory are 1) the identification of metaphor, its constituent parts and realisations, and 2) the methodological implications of how generalisations from data are made.

3.2.2 Method adopted

As stated before, the aim of this project is to investigate the underlying embodied structure of language used about the Internet. In that context I intend to say something qualitatively about 1) what image schematic structure we use in the conceptualisation of the Internet 2) how these structures are projected metaphorically 3) how the metaphors are realised syntactically (cp.

Cameron 1999) and 4) do a small-scale quantitative analysis in order to see if there is any change over time.

First of all a pilot study was carried out to see whether such a study would provide interesting material for my project. This being the case, the pilot study, however, also revealed some difficulties regarding selection criteria for articles as well as on the level of the individual examples. Since the Internet is often talked about within the broader context of ICT and cyberspace, and since these technologies also tend to merge, it was often difficult to single out articles and examples that are explicitly about the Internet and not other technologies. On the content level of the articles it was therefore often necessary to scan through the content. On the level of individual examples, I would add the criterion that they focused on people's conceptualisation of the Net and their actions there, rather than physical infrastructure and technologically sophisticated products and how they work. Unclear cases where it was uncertain whether reference was made to the Internet as such, were ruled out.

In the absence of external criteria by which to determine what counts as a metaphoric expression, the excerpts were based on what looked like clear examples of metaphor, that is, where two different conceptual domains seemed to be involved, and would include noun phrases, verb phrases, adjective phrases, adverb phrases and prepositional phrases.

The excerpts were entered into a database, including information for each excerpt with reference to the source, the context in which it appears, the syntactic structure in which it was realised, underlying image schema and metaphor group. An example of an entry is given in Table 3.2 below. In cases where nouns were represented as complements in prepositional phrases, entries have two classifications.

As already mentioned, this is first and foremost a qualitatively study. Since the two corpora are so unbalanced (cf. Section 3.1), I can hardly say to what degree my findings are representative. Some quantitative illustrations are included, however, in order to point to tendencies as they reveal themselves from *Newsweek* magazine at two points in time.

In the following chapter I will present the findings of my analysis according to the 4 research questions: 1) what image schematic structure is used in the conceptualisation of the Internet 2) how are these structures projected metaphorically 3) how are the metaphors realised syntactically and 4) is there is any change over time. The results of my investigation will be discussed in light of cognitive linguistic theory as outlined in chapter 2, as well as related to the studies by Rohrer (1997) and Maglio and Matlock (1999) (see Section 2.2.3).

Table 3.2 Database

No	Date	Excerpt	Syntax 1	Syntax 2	Image schema	Metaphor
1	17.01.94	…**access** to "the Net".	NP		LOC / FORCE (rem.of restr.)	Place
2	17.01.94	…access **to "the Net"**.	NP (postmod)	PP (comp)	(LOC)	Image metaphor
3	17.01.94	Wired also **reaches** thousands more readers online, through the America Online and the Internet	VP		PATH	Info Highway
4	17.01.94	Wired also reaches thousands more readers **online**, through the America Online and the Internet	ADV		LOC	Place
5	17.01.94	Wired also reaches thousands more readers online, **through** the America Online and **the Internet**	NP (postmod)	PP (comp)	(LOC)	Image metaphor
6	17.01.94	"Multimedia" was the most overused buzzword of the year, followed by … and **"the Information Highway"**.	NP		PATH / LOC	Infor Highway
7	17.01.94	…regular reports **from the Net**…	NP (postmod)	PP (comp)	(LOC)	Image metaphor
8	14.03.94	**Keeping** the Cybercops **Out of** Cyberspace	VP (phrasal)		LOC / FORCE (blockage)	Place
9	14.03.94	Keeping the Cybercops Out of **Cyberspace**	NP		LOC	Place
10	14.03.94	A new generation of sophisticated techno-bandits will soon be **prowling** the Information Highway	VP		PATH / LOC	Info Highway
11	14.03.94	A new generation of sophisticated techno-bandits will soon be prowling **the Information Highway**	NP		PATH / LOC	Info Highway

4 RESULTS AND DISCUSSION

The first part of this chapter (Section 4.1) contains a presentation of the findings of my analysis. The second part of the chapter (Section 4.2) discusses the results in light of cognitive linguistic theory.

4.1 Results

The material consists of a total of 618 metaphorical expressions: 81 from 1994 and 537 from 2000, respectively. We see a significant difference in the number of examples between the two years. Below follows a presentation of my findings, including some tables and diagrams for illustration. Section 4.1.1 deals with the distribution of image schemas. Section 4.1.2 presents the metaphors groups identified. This part includes a discussion of examples from my material. The examples will be discussed under the appropriate metaphor heading, commenting on the image schemas involved. Italics are used to underline parts of the example that I intend to discuss from a metaphorical point of view. Section 4.1.3 presents the syntactic realisations identified for the metaphorical expressions.

4.1.1 Image schemas

The following image schemas I found were used to structure the metaphorical expressions excerpted:

CONTAINMENT
FORCE
OBJECT
PATH
MISCELLANEOUS

In some of the examples more than one schema has been identified, while in others no schema is identified at all. As we saw in chapter 2, FORCES, usually have directionality and follow a PATH through space (Section 2.2.1.3). Also the CENTRE-PERIPHERY schema is often followed by another schema, like for instance the CONTAINER schema (see Section 2.2.1.5). The number of schemas as shown in Table 4.1 below, will therefore not correspond to the total number of metaphorical examples as shown in Table 3.1. (see Section 3.1). In 1994, 95 image schemas have been identified, while in 2000, 418 schemas were identified.

Table 4.1: Distribution of image schemas

| Image schema | 1994 | | 2000 | |
	Number of occurrences	% of total (95)	Number of occurrences	% of total (418)
CONTAINER	59	62 %	167	40 %
FORCE	9	10 %	154	37 %
OBJECT	3	3 %	29	7 %
PATH	21	22 %	57	14 %
MISCELLANEOUS	3	3 %	11	2 %
Total	95	100 %	418	100 %
Metaphors per 100 words	22,5	-	1,75	-

Figure 4.1 below shows the distribution of image schemas in 1994:
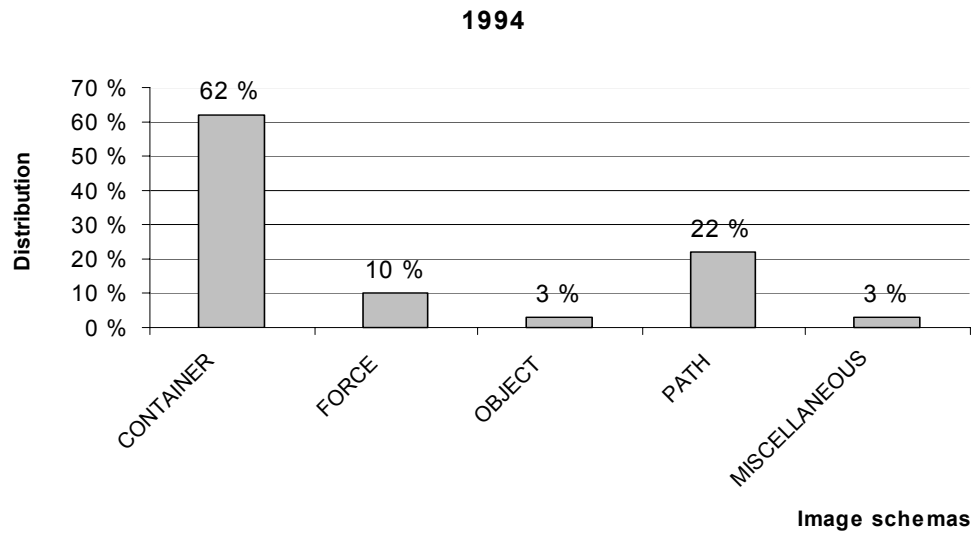
1994

Figure 4.1: Distribution of image schemas in 1994

As we can see from table 4.1 above, the CONTAINER schema is by far the most dominant schema in 1994 with as much as 62 % of the total. The PATH schema and the FORCE schema are also to some extent represented, with 22 % and 10 % respectively.

Figure 4.1 shows the distribution of image schemas in 2000:
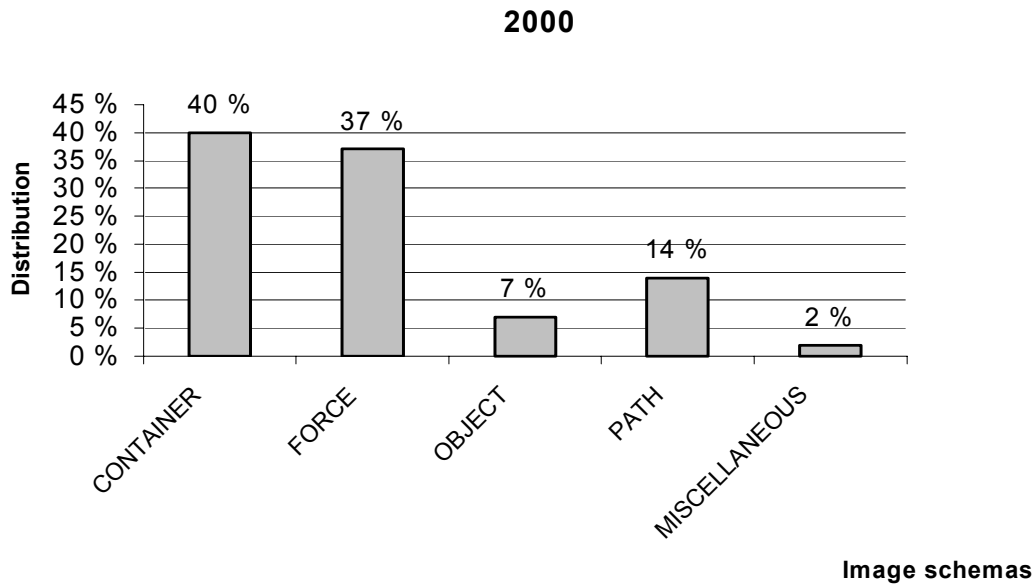
2000

Figure 4.1: Distribution of image schemas in 2000

Figure 4.1 shows us that the CONTAINER schema in 2000 still forms the largest group with 40%, but it is followed closely by the FORCE schema, which counts for as much as 37%. The PATH schema counts somewhat surprisingly for only 14%. The OBJECT schema claims 7% of the total.

In Figure 4.2 we see the relative difference between 1994 and 2000:
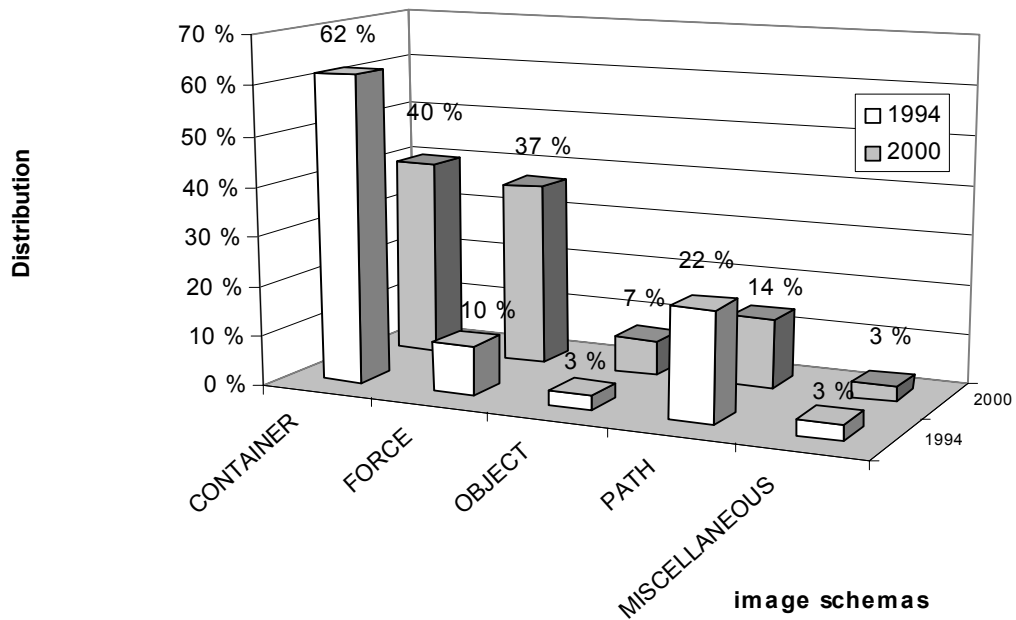
Figure 4.2: The relative difference between 1994 and 2000

The CONTAINER schema forms the largest category in both 1994 and 2000. Both the
CONTAINER schema and the PATH schema, however, show a decline from 1994 to 2000. The
CONTAINER schema goes down from 62% in 1994 to 40% in 2000, while the PATH schema
goes down from 22% in 1994 to 14% in 2000. The only category that shows a clear increase is
the FORCE schema, which goes from 10% in 1994 to 37% in 2000, which makes it nearly as
large as the CONTAINER schema.

4.1.2 Metaphors

The metaphorical expression have been grouped according to the metaphor groups listed in Table 4.2 below:

Table 4.2: Distribution of metaphors

Metaphors	1994		2000	
	Number of occurrences	Distribution	Number of occurrences	Distribution
Complex metaphors		-	97	18%
Image metaphors	7	10%	140	26%
THE INTERNET AS A PLACE	61	75%	107	20%
THE INTERNET AS AN ARENA FOR WARFARE		-	129	24%
THE INTERNET AS AN ARENA FOR BIOLOGICAL WARFARE		-	21	4%
THE INTERNET AS AN INFORMATION HIGHWAY	11	13%	27	5%
Miscellaneous	2	2%	16	3%
Total	81	100%	537	100%

Table 4.2 above shows a fairly high percentage (18%) of complex metaphors in the 2000 material, whereas there are none in 1994. This group contains complex metaphors where the

underlying structure is hard to identify. They are somewhat peripheral to my analysis, but are included in order to give a nuanced picture of the metaphors found. Complex metaphors 'are built out of primary metaphors plus forms of commonplace knowledge.' (Lakoff and Johnson 1999:61, see also Section 2.2.2.2). Image metaphors form an even larger group, with 10% in 1994 and 26% in 2000. Approximately 50% (75 out of 147) of the image metaphors are premodifiers in compound nouns (such as 'Internet business' and 'Web site'). However, the focus of my investigation will be on the rest of the metaphor groups, that is, the INTERNET AS A PLACE metaphor (with as much as 75% in 1994 and 48% in 2000, including subgroups), and the INTERNET AS AN INFORMATION HIGHWAY metaphor (with 13% in 1994 and 5% in 2000). In the following I will present my findings according to these metaphor groups and subgroups, commenting on the image schemas involved. As we remember, my research goal is to investigate not only what metaphors are used about the Internet, but also what underlying structure is projected. As pointed out in Section 2.2.2, image schematic structure can be metaphorically extended, that is 'we project patterns from one domain of experience in order to structure another domain of a different kind. [...] Through metaphor, we make use of patterns that obtain in our physical experience to organize our more abstract understanding.' (Johnson 1987:xiv-xv).

4.1.2.1 THE INTERNET AS A PLACE

THE INTERNET AS A PLACE metaphor is by far the most dominant in both the matieral from 1994 and the material from 2000. The underlying schema of the INTERNET AS A PLACE metaphor is the LOCATION (or CONTAINER) schema. As mentioned in Section 2.2.1.1, a LOCATION is a bounded region in space, with an interior, an exterior and a boundary separating the former from the latter. (Johnson 1987:31-37). Further, this boundary can be sharp or gradual (Lakoff and Johnson 1999:180). LOCATIONs are thus conceptualised on the basis of the CONTAINER schema. I will in the following refer to LOCATION when I feel the focus is on this aspect of the schema. It is, however, only one schema that is involved, that is the CONTAINER schema.

On the most generic level, the Internet, or the Net, or the Web, is conceptualised as a world, as in example [1]:

[1] A **vast** and exciting **world lies** virtually **at our fingertips**

In [1] the *vast and exciting world* is a LOCATION separated from the 'real' world by the computer, reflected in the verb phrase *lies* and the prepositional phrase *at our fingertips*, specifying location.

As we saw from Section 2.1.2, the Internet is often referred to as *cyberspace*. In [2] through [4] cyberspace, or the Internet, is conceptualised as a LOCATION:

[2] Cyber**space** ... is becoming a **crowded** and bruising **place**.

[3] **Keeping** the Cybercops **Out** of Cyber**space**

[4] ... voyagers ... would travel *through* cyber**space** ...

In [2] the CONTAINER schema is further reflected in the words *crowded* and *place*. Cyberspace is conceptualised as a CONTAINER that can be filled up, in this case by people. In [3] the in-out orientation of the schema is reflected in the phrasal verb *keeping out of*. The phrasal verb also indicates that the BLOCKAGE case of the FORCE schema might be involved. There is a FORCE that has to be BLOCKED in order to prevent it from entering. In [4] the preposition *through* also reflects the location aspect.

Examples [5] and [6] below are examples of the CENTRE-PERIPHERY schema. Johnson says about the experiential basis for the CENTRE-PERIPHERY schema that:

> [T]he nature of our bodies, the constraints on our perception, and the structure of our consciousness give prominence to the CENTER-PERIPHERY organization of our experienced reality. (Johnson 1987:125).

The CENTRE-PERIPHERY schema is usually not experienced alone, but has various other schemata superimposed on it, for instance the NEAR-FAR schema and the CONTAINER schema. In the latter case 'we experience the center as *inner* and define the *outer* relative to it.' (1987:125, author's emphasis).

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[5] But **out there in** Cyber**space** there's room for newcomers.

In [5] cyberspace is referred to as *out there* (PERIPHERY) as opposed to an implicit *in here* (CENTRE) where we can imagine the speaker is situated. Given a centre and a periphery, we can also see the NEAR-FAR schema as underlying the deictic expression. The adverbial phrase *out there* also reflects the in-out orientation of the CONTAINER schema that is superimposed on CENTRE-PERIPHERY schema. Consequently, cyberspace is at the speaker's periphery. However, the use of the preposition *in* indicates another CONTAINER superimposed. There is one CONTAINER in which the imagined speaker is situated (*in here*), and the other CONTAINER is *cyberspace*, reflected in the prepositional phrase *in*.

[6] How many rich Aldrich Ameses could be lurking **out there** anyway ?

In [6] the CENTRE would be *here* as opposed to *out there* in the somewhat vague periphery. Again the CONTAINER schema is superimposed, as exemplified by the adverbial phrase *out there*.

More concretely, cyberspace is referred to as *the Internet*, *the Net*, or *the Web*, as in [7] - [11] below:

[7] It's not as if security problems are a new phenomenon, on **the Internet** or **elsewhere**.

[8] … the companies **on the Net**…

[9] … sexual habits **on the Web**.

[10] … regular reports **from the Net**

[11] ...her students use the five computers ... to hook up to **the Internet where** they study such subjects as...

Although *the Internet*, *the Net* and t*he Web* belong in the category image metaphor, (see Section 2.2.2.3), my analysis of [7] through [11] finds that the focus is rather on the location aspect of the Net, thus the LOCATION schema is the salient one. The adverb *elsewhere* in [7], the preposition *on* in [8] and [9], the preposition *from* in [10] and the adverb *where* in [11] are

all indicators of location.

> [12] ... develops technology to make **navigating the Net** easier...
>
> [13] ... preserving **the innovative frontier** of the Net ...

The word *navigating* in [12] indicates that the Net is conceptualised as a LOCATION. The PATH schema is also present, the source domain for the conceptualisation being motion through space. In [13] the word *frontier* calls to mind the exploration of new land, the underlying schema being LOCATION.

As long as the Net is conceptualised as a bounded region in space, with an interior and an exterior, it follows that if you want to be 'inside', you need to cross the border between inside and outside of that location. Examples [14] and [15] highlight the in-out orientation of the LOCATION schema:

> [14] Delphi Internet Services ... offer direct **access** to **the Internet.**
>
> [15] When **Net access** will be a life blood…

If you do not have access to the Net, then you are on the outside, if you have access on the other hand, you are 'inside' or the at least have the ability to enter. Thus the REMOVAL OF RESTRAINT case of the FORCE schema is also at work here, that is, there is a 'potential' restraint that in this case is absent; thus there exists an ability to enter.

> [16] According to the Net warriors, the **site**'s software had **"inherent holes"**
>
> [17] … find **the weaknesses** that **site** operators haven't **plugged**.

In both examples above the noun *site* highlights the LOCATION aspect of the schema, while the CONTAINER aspect is more salient through the use of the noun phrase *"inherent holes"* in [16], and the noun phrase *the weaknesses* as well as the verb *plugged* in [17], drawing attention to the boundaries of the gestalt.

In examples [18] through [24] below we see an elaboration of the primary metaphor INTERNET AS PLACE. One of the characteristics of places is that there are other places and other structure there, like for instance buildings. Once you are on the Net, you find yourself in a world with several other locations to visit, like for instance digital *salons* and cyber*rooms* as below:

[18] There they would browse **libraries** of data...

[19] ...linking on-line users into hundreds of digital **"salons"** specifically interesting to them.

[20] ...customize their own **cyberrooms**...

[21] ... the cruelest twist was the attack on **the cyberstore** Buy.com.

[22] …all it takes is a well-directed "denial of service" attack to blow away **the edifices**…

[23] ...**at** government **web sites**

[24] Millions of meaningless digital packets … were descending on the once pastoral setting of **the Yahoo server farm** like a plague of bits-locusts.

One of the entailments of the CONTAINER schema is transitivity of containment, that is '[I]f B is *in* A, then whatever is *in* B is also *in* A.' (Johnson 1987:22). If you find yourself in a *cyberroom*, it follows that you are still in cyberspace. Examples [18] through [24] above are all examples of the CONTAINER schema. However, in [23] and [24] the LOCATION aspect is perhaps more prominent than the CONTAINER aspect of the schema, exemplified by the prepositional phrase *at* as well as the noun phrase *web sites* in [23] and *farm* in [24].

Other characteristics of a place are entrances and exits, as in [25] through [27] below, where the words *portal, gates* and *log on* reflect the in-out orientation of the LOCATION schema:

[25] The **portal** Excite at Home ...

[26] ... regulars who say they can't **log on** for the crush **at its** (America Online) electronic **gates**.

[27] At the beginning of November, ... [x] **logged onto** eToys to order a game of ...

When you 'log on', you 'enter' a system or a 'world' by giving some kind of identification.

The notion of entrance is better reflected in the phrase 'log in(to)' which is used synonomously with 'log on'.

If you are *on the Net*, that means you are *on-line*.

> [28] You can read the Los Angeles Times and Chicago Tribune **online**…
>
> [29] … more than eight in 10 customers say they plan to shop **online** again next year …

The dictionary defines *on-line* as an adjective or adverb meaning 'connected to, served by, or available through a system and especially a computer or telecommunications system; also: done while connected to a system' (Merriam Webster, online). In the above examples the word seems to have taken on the meaning of location. *Online* above could easily be replaced by *on the Net*.

> [30] "Everyone and their mother is **going online**," says [x]
>
> [31] All the personal, sensitive information now **going online** leaves the Web open to the worst kind of privacy violation…
>
> [32] People may **be flocking on line,** but they are not always finding what they want.

That online is a marker of LOCATION is further indicated in [30] through [32] by the verb of motion, *go*, which reflects the PATH schema. In other words, the destination is the Net, and the only way of getting there is through being connected. Thus one could say that *going online* means changing from one state in which one is not connected (off-line) to a state in which one is connected to the Internet (on-line). Through the outline of the LOCATION EVENT-STRUCTURE metaphor (see Section 2.2.2.1) we have seen that 'states are conceptualised as containers, that is, bounded regions in space' and further, that 'changes are conceptualised as movements from location to location' (Lakoff and Johnson 1999:176).

> [33] …**tracking where** they **go online.**

The source domain in [33] is motion through space. The PATH schema is underlying *go* and *tracking*, while the LOCATION schema is underlying the words *where* and *go*.

On-line is often used as premodifier, as in [34] through [36] below. Again the adjective is an indicator of LOCATION:

[34]…at **online** music retailer [x] …

[35] Petopia.com …is one of a half-dozen **online** sites offering pet supplies.

[36] … a new **online** grocery service…

The Internet is, basically, a network of networks. In [37] below, however, the networks are rather conceptualised as LOCATIONS. The *products* are being *thrown* (PATH) from one LOCATION to another, caused by a FORCE, the implication being that they change from one state in which they are only available offline, to being available online. Thus we see that the LOCATION EVENT-STRUCTURE metaphor is also involved, through the CAUSATION IS FORCED MOVEMENT and CHANGES ARE MOVEMENTS (into or out of bounded regions) sub mappings:

[37] Every traditional publisher in America **is throwing** products **onto the networks**.

4.1.2.1.1 THE INTERNET AS AN ARENA FOR WARFARE

The Internet is not only a location, it is also a rather unsafe place that needs to be defended. The INTERNET AS AN ARENA FOR WARFARE metaphor is a subcategory of the INTERNET AS A PLACE metaphor, (which again has the sub category THE INTERNET AS AN ARENA FOR BIOLOGICAL WARFARE). The INTERNET AS AN ARENA FOR WARFARE metaphor is also well represented in my material.

Underlying all the examples in the INTERNET AS AN ARENA FOR WARFARE metaphor is the gestalt structure for FORCE, usually the COMPULSION schema, but also the BLOCKAGE schema and the DIVERSION schema are represented. As stated in Section 2.2.1.3, FORCE has a *vector* quality, meaning that 'the force is exerted in one or more directions' whether there is some object (mass) moving through space, or 'only a force exerted against an object that is not moved or changed'. (Johnson 1987:43). Further, the force vector is prototypically moving

along *a path*, or moving an object along a path (ibid:). Thus, forces have *origins* or *sources*, and 'because they are directional, agents can direct them to *targets*.' (ibid:). Johnson outlines seven of the most common force structures that operate constantly in our experience; COMPULSION, BLOCKAGE, COUNTERFORCE, DIVERSION, REMOVAL OF RESTRAINT, ENABLEMENT and ATTRACTION. Below follow some examples from my material:

[38] **Hackers** launched 72,000 attacks against 20 Taiwanese government Web sites**.**

[39] **The red hackers** launched a blitzkrieg against Japan earlier this year.

[40] ... was one of dozens of sites from which the hackers mounted their barrage in last week's attacks.

Originally the word 'hacker' ([38], [39], and [40] above) means an expert at programming and solving problems with a computer, but in the media 'hacker' has become synonymous with 'a person who illegally gains access to and sometimes tampers with information in a computer system' (Merriam Webster's Collegiate Dictionary, online). A hacker *breaks into* computer systems, hence *hacker* reflects both the REMOVAL OF RESTRAINT case of the FORCE schema as well as the CONTAINER schema in examples [38], [39] and [40] above.

[41] **Launching an assault** on someone's computer or **Web site** without an apparent financial gain…

[42] …all it takes is **a** well-directed "denial of service" **attack to blow away the edifices**…

[43] …used **to blast** last week's **victims**…

[44] …who **fires digital missiles from** a cybercafe in Amsterdam.

The verb phrase *to launch* in [40] typically means 'to start off' or 'to set in motion', whereas *attack* in [42] means 'to launch a physical assault (against) with or without weapons.' (Collins Dictionary and Thesaurus). The underlying schema is the COMPULSION case of the FORCE schema. In both examples the *attacks* are directed against bounded regions in space, that is, LOCATIONS. [43] is also an example of the COMPULSION case of the FORCE schema, reflected in the verb *blast*. FORCES are, as already mentioned, directional and follow a PATH, as reflected

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in the preposition *from* in [44].

In some cases the attacks take a special form. Examples [45] through [48] involve the use of what I have labelled DATA AS A LIQUID SUBSTANCE:

> [45] …some of the giants of e-commerce **were shut down by a torrent of bits sent by hostile invaders**.

In [45] *hostile invaders* are the agents behind the FORCE (*torrent of bits*) that is *sent* along a PATH and exerted on the giants of e-commerce so that they are *shut down*. The affected entity (*giants of e-commerce*) could be said to be forced by the invaders to move from a state in which they are *up and running* to being *shut down,* the visual imagery being that they are moving from an upright position to a flat down position. Thus, it could be argued that the EVENT-STRUCTURE metaphor is involved; the CAUSES ARE FORCED MOVEMENT mapping of the metaphor underlying *by a torrent of bits sent by hostile invaders* and the CAUSES ARE FORCED MOVEMENT mapping underlying *were shut down*.

> [46] …prognostications arising from last week's **hack attack** that **swamped parts of the Internet**…

Underlying [46] is the conceptualisation of an implied LIQUID SUBSTANCE going over the borders of some LOCATION. The compound noun *hack attack* reflects both the FORCE and its agent. The verb *swamp* can also metaphorically mean 'to overburden or overwhelm or to be overburdened or overwhelmed, as by excess work or great numbers.' (Collins English Dictionary and Thesaurus). Through this last meaning, we see that the CAUSES ARE FORCES mapping of the LOCATION EVENT-STRUCTURE metaphor arguably is reflected in *hack attack*, while the STATES ARE LOCATIONS and CHANGES ARE MOVEMENTS (into our out of bounded regions) mappings underly *swamp*; *parts of the Internet* change into a state where they are overwhelmed and overburdened, that is, not functioning properly.

> [47] …we will have no idea whose ***packets*** **are flooding** the server.

In [47] *packets* are conceptualised as a LIQUID SUBSTANCE (OBJECT) *flooding the server*. If we consider the two meanings of *flood*, which are: 'to inundate or submerge (land) or (of land)' and 'to fill or be filled to overflowing, as with a flood' (Collins English Dictionary and Thesaurus), we see that in the first case the LOCATION aspect is reflected while in the second case the CONTAINER aspect is reflected in the word.

> [48] But analysing **the flow of bits**, they discovered what [x]called **"a huge tidal wave of data".**

In [48] the *flow of bits* is an OBJECT (liquid substance) moving (PATH) through space by self-propelled motion (FORCE). Both *flow* and *huge tidal wave* reflect high intensity of FORCE as well as motion.

Being under attack, the key word is *defence*:

> [49] The key seems to be **protecting** all of cyber**space** from **predatory** programs that recruit dozens...in a DOS attack.
> [50] "We can always **refuse access** to our Web sites from suspicious Internet providers"
> [51] We can **defend** the Net without compromising its openness and innovation…
> [52] …"clumsy method" **to prevent** the attacks, by **denying access** to all mainland Internet addresses.
> [53] "Pretty much once we **blocked** it they figured it out and stopped, " says [x].

In [49] through [53] the underlying image schema is the BLOCKAGE case of the FORCE schema. The force is directed against a bounded region in space (*cyberspace, Web sites, the Net, Internet addresses*) and the borders of those locations are the ones that has to be defended. Thus we also have the LOCATION schema present. Since FORCE involves motion of some mass or object through space, which in the examples above are blocked, we could say that the DIFFICULTIES ARE IMPEDIMENTS TO MOTION entailment of the LOCATION EVENT-STRUCTURE metaphor is also underlying examples [49] through [53] above.

4.1.2.1.2 THE INTERNET AS AN ARENA FOR BIOLOGICAL WARFARE

A subgroup of the INTERNET AS AN ARENA FOR WARFARE metaphor is the INTERNET AS AN ARENA FOR BIOLOGICAL WARFARE:

[54] …**to keep** Internet systems **inoculated**

[55] … **a civilian virus** named Bloody, … **was launched** from Taiwan…

[56] …has developed **some 2,000 computer viruses** that could be **launched** against the mainland.

[57] Millions of meaningless digital packets … were descending on the once pastoral setting of the Yahoo server farm like **a plague of bits-locusts**.

[58] On Wednesday, the hit list **spread** to computer-journalism site…

In the above examples, the Internet with all its hardware, software and information is conceptualised as an organic environment, which is vulnerable to infection. Computer viruses are programs written for the purpose of damaging other people's computational resources. A virus attaches itself to another program where it replicates and spreads to other programs. Although some viruses are relatively harmless, others are designed to destroy data and/or cause harm to the system.

In [54] the BLOCKAGE case of the FORCE schema is the underlying one. According to the dictionary 'inoculate' means 'introducing (the causative agent of a disease) into the body in order to induce immunity' (Collins English Dictionary and Thesaurus). By doing so, one creates a defence or BLOCKAGE against infection and viruses. The BLOCKAGE is an IMPEDIMENT TO MOTION, securing that the systems and environments remain in a healthy, uninfected state. Hence the LOCATION EVENT-STRUCTURE metaphor is also made use of.

In [55] and [56] the viruses are caused by an agent (CAUSES ARE FORCES) while in [57] and [58] they move by internal force (ACTIONS ARE SELF-PROPELLED MOTION) in that they replicate themselves. In either case they follow a PATH of motion.

4.1.2.2 THE INFORMATION HIGHWAY METAPHOR

A very typical metaphor for the Internet in the media has been the INFORMATION HIGHWAY metaphor. The term itself is not very frequent in my material, and is only present in the 1994 corpus. Other elements of the mapping, however, are present as reported below.

Rohrer's work (1997), cf. Section 2.2.3.1, has revealed that there is actually a dual metaphor system with two distinct metaphors, the CYBERSPACE metaphor and the CYBERFUTURE metaphor. In the CYBERSPACE case 'we envision ourselves and our computers as *traveling* through space to another destination', while in the CYBERFUTURE case, on the other hand, 'the Information Highway is a road through time rather than through space', where 'the information highway is a road leading into the future [...]' (Rohrer 1997; in Liebert, Redeker and Waugh (eds):187). Underlying the INFORMATION HIGHWAY metaphor is the PATH schema.

The CYBERSPACE metaphor:

[59] A new generation of sophisticated techno-bandits will soon be **prowling the Information Highway**

[60] …government eavesdroppers already scan the Internet, tap into computers and **prowl** our **phone lines**

[61] ... turn the nation's telephone system and **electronic byways** into a vast eavesdropping net.

In all the above examples we see the most stable element of the mapping. The Information Highway ([59]), the phone lines ([60]) and the byways ([61]) are all examples of the infrastructure of the source domain (roads) mapped onto the target domain. As pointed to by Rohrer, there is a strong visual similarity between highways and cables. The underlying schema is the PATH schema. The PATH schema is further reflected in the verb *prowling* in [59] and *prowl* in [60].

As we know from the physical world, roads connect locations together. Connections between computers are the roads on which information travels. The underlying image schema is PATH:

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[62] "Massive amounts of **data overloaded** our **connections**.

[63] … it took more than 20 seconds to load it up, no matter **how fast the connection**.

In [62] above, data is an OBJECT moving with FORCE along a PATH. Too much traffic (*data*) creates a 'traffic jam', in other words there is a BLOCKAGE to traffic. Different connections have different capacities, or different 'speed limits'. In [63] there seem to be a 'traffic jam' of some sort. As outlined by Rohrer (1997), impediments to motion map onto technological difficulties (see Section 2.2.3.1).

Traffic is another element of the highway mapping:

[64] … as the team started **tracing the traffic.**

[65] [x] and the team started **redirecting** Yahoo's **traffic to** an unaffected server …

The *traffic* is an OBJECT moving through space by self-propelled motion. The traffic follows a PATH of motion, which is also reflected in the word *tracing* in [64].

As on a highway, if there is a traffic jam at some location, traffic needs to be *directed* to some 'open' route. [65] is an example of the DIVERSION case of the FORCE schema. The DIVERSION schema is a variation of the COUNTERFORCE gestalt 'in which a force vector is diverted as the result of the causal interaction of two or more vectors.' (Johnson 1987:46). The PATH schema is also involved, as we have seen that 'our experience of force usually involves the movement of some object (mass) through space in some direction' and 'typically following a single path of motion' (1987:43). The OBJECT (traffic) in this case changes course as a result of the interacting FORCE of the team. The preposition *to* reflects the destination of the PATH schema.

According to Tim Rohrer's illustration of the metaphorical mapping (see Section 2.2.3.1), 'downloading' and 'uploading' correspond to the 'journey' of the source domain:

[66] Microsoft's new online service that **downloads** the latest game results into your computer.

[67] Not being able to ... or **download** music.

[68] it took more than 20 seconds **to load it up,** no matter how fast the connection

Data or information is sent from one machine to the other within the network. One could say that the Internet is conceptualised as a conduit where the information travels to the user along the PATHs of the Internet.

The CYBERFUTURE metaphor

[69] Now savvy teachers focus more on giving kids **access to the Information Highway**.

A teacher's role is to equip pupils with knowledge that will help them getting on in life. An important means of doing this in these technological times is by *giving kids access to the Information Highway*, which as we have seen from Rohrer's outline, is the way to the future. The word *access* also reflects the in-out orientation of the CONTAINER schema as well as the REMOVAL OF RESTRAINT schema.

[70] To less fortunate students, **the Information Highway** is about as real as the yellow brick road to Oz.

Not all students are so lucky as to have the chance to follow the PATH to desired locations in the future.

4.1.2.3 Image metaphor or network ?

Basically, the Internet is a physical network of networks. However, the word *network* makes use of the image metaphor *net*. In fact, *network* is listed in the dictionary as another word for *net* (Collins English Dictionary and Thesaurus). A word used interchangeably with *network* is

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system. *Network* is explained as 'an interconnected group or *system*' and 'a *system* of intersecting lines, roads, veins etc.' (Collins English Dictionary and Thesaurus, my emphasis), while *system* is correspondingly explained as 'a *network* of communications, transportation, or distribution' (Collins English Dictionary and Thesaurus, my emphasis). Examples [71] through [84] make use of the mental imagery of a *net,* including LINKS between physically connected objects.

[71] The same **connectedness** that makes the Net so robust also makes it vulnerable to "the weak link in the chain" effect …

[72] …with an increasing number of always-on **connections.**

[73] In 1999 there were 58 million world wide **connections**…

[74] …by 1999 perhaps 38 percent of households were **connected**.

4.1.2.4 Miscellaneous

Below I will account for some of the examples that did not fit in easily in the other metaphor groups.

[75] through [78] do not fit into the INTERNET AS PLACE metaphor, but are still examples of the CONTAINER schema. In example [75] the Internet is conceptualised as a CONTAINER that can be filled with *content*. The words *patches* in [76], *patch* in [77] and *plugged* in [78] all call to mind a CONTAINER:

[75] ... provide both transmission services ... and **"content"** (from Internet services to films, TV programs...).

[76] Many security measures are simply **patches** on an older open system.

[77] The system is getting worse faster than we can **patch** it.

[78] While holes among the servers have been largely **plugged**.

In the examples below it could be argued that the Internet is seen as an information source or library. The information is seen as residing within pages, which are CONTAINERs for information, although physically this is not so. Note that in [79] and [81] there is a figure ground reversal. In [79] the *page* is moving toward the *Net surfers*, while in [80] the customers are moving towards *a page*. The word *access* in this example also indicates that the page is conceived of as a CONTAINER. In [81] the *homepages* reside at some LOCATION, that is at *the Geocities sites*.

> [79] Net surfers accustomed to an average **page**-loading time of 1.7 seconds …
> [80] … less than 10 percent of Yahoo's customers could access **a page** ...
> [81] The company's Geocities **sites**, which **hosts** just-plain-folks **homepages**…

In example [82] below there seems to be a 'competition' between *page* and *site*. The verbs *rewrite*, *read* and *include* are all associated with *pages* and not *sites*, altough there is no mention of *pages* in the example. In either case the underlying image schema is the CONTAINER schema, which is also reflected in *include*, although the LOCATION aspect is more salient in connection with *sites,* which is also reflected in the preposition *to*. Both the LINK schema and the PATH schema could possibly be argued to underly *links*, but PATH associates with *sites* and the prepositon *to*.

> [82] … to **rewrite** the CIA's Web **site** to **read** ... and **include links to porn sites**.

Example [83] does not quite fit into the Highway metaphor, but still makes use of the PATH schema. The Internet is conceptualised as a LOCATION through which we can follow a PATH to some end point.

> [83] Who will be found **at the end of the digital trail**?

In examples [84] through [86] below the Internet seems conceptualised as an OBJECT:

> [84] … profiles of ... 100 million **Internet users**...

[85] At present most **home users** have dial-up service through modems and old phone lines.

[86] ... the Internet was **built** to allow trusted **users** - not the public - to share information instead of concealing it.

4.1.3 Syntactic phrases

Figure 4.3 below shows the distribution of syntactic phrases in 1994 and 2000.
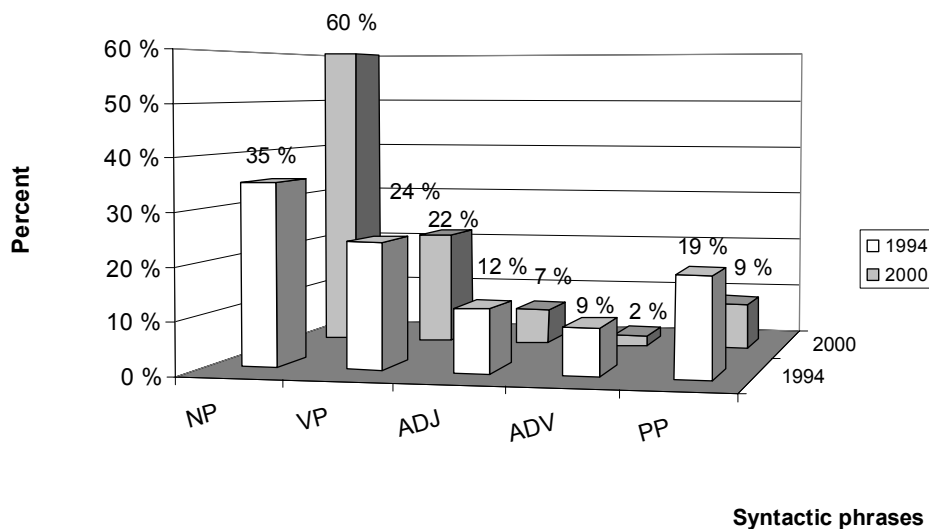
Figure 4.3: the distribution of syntactic phrases

As we can see from Figure 4.3, the metaphorical expressions are predominantly noun phrases, 35% (34 occurrences) in 1994 and as much as 60% (350 occurrences) in 2000. Verb phrases are well represented in both 1994 with 24% (23 occurrences) and 2000 with 22% (130 occurrences). In fact they are nearly evenly distributed in percent. Adjective phrases, adverb phrases and prepositional phrases are also to some extent represented, although on a smaller scale. Interestingly, however, all those three groups show a higher percentage in 1994 compared to 2000.

4.1.4 1994 compared to 2000

First of all, I found that image schemas were underlying the vast majority of the metaphorical expressions excerpted. The CONTAINER schema is the most dominant schema with 62% (59 occurrences) in 1994 and 40% (167 occurrences) in 2000. Further we see a great increase in FORCE schemas, from 10% (9 occurrences) in 1994 to 37% (154 occurrences) in 2000. The PATH schema, however, shows a decline from 22% (21 occurrences) in 1994 to only 14% (57 occurrences) in 2000.

Secondly, the number of metaphors as well as the number of articles were much larger in 2000 than in 1994. Also the length of the articles is greater in 2000. The 1994 material consists of 4 articles (including approximately 360 words) whereas the material from 2000 consists of 8 articles (including approximately 30,700 words). In 1994 there were 22,5 metaphors per 100 words, while in 2000 the number would be 1,75 metaphors per 100 words, or 17,5 metaphors per 1000 words.

Of the metaphors used, the INTERNET AS PLACE metaphor is the most dominant in my material, with 75% in 1994 and 48% in 2000 (including the subgroups the INTERNET AS AN ARENA FOR WARFARE and the INTERNET AS AN ARENA FOR BIOLOGICAL WARFARE in 2000). The material revealed more complex and elaborate metaphors in 2000, as indicated by the subgroups to the INTERNET AS PLACE metaphor - the INTERNET AS AN ARENA FOR WARFARE and the INTERNET AS AN ARENA FOR BIOLOGICAL WARFARE – which were not present in the 1994 material. The group of complex metaphors also pertains to 2000 only. Image metaphors were found at both points in time, showing an increase from 10% (7 occurrences) in 1994 to 26% (140 occurrences) in 2000. Near 50% of these were premodifiers in compound nouns. The INFORMATION HIGHWAY metaphor forms the smallest group (if we leave out the miscellaneous category) and shows a decline from 13% (11 occurrences) in 1994 to 5% (27 occurrences) in 2000.

Thirdly, metaphorical expressions are realised as different syntactic phrases, including noun phrases, verb phrases, adjective phrases, and prepositional phrases. However, the majority of metaphors are realised as noun phrases in both corpora, with 60% (350 occurrences) in 2000 compared to 35% (34 occurrences) in 1994. Verb phrases are also well represented with 24% (23 occurrences) in 1994 and 22% (130 occurrences) in 2000. Adjective phrases, adverb phrases and prepositional phrases are also to some extent represented, however

with a higher distribution in 1994 than in 2000. In summary, the main tendencies were as follows:

- The CONTAINER schema was the most dominant image schema in both 1994 and 2000.
- The FORCE schema shows an increase from 1994 to 2000.
- The PATH schema shows a decline from 1994 to 2000.
- The INTERNET AS A PLACE metaphor was the most dominant metaphor used about the Internet in 1994 as well as in 2000.
- The INTERNET AS A PLACE metaphor is more elaborate in 2000 with the subgroups THE INTERNET AS AN ARENA FOR WARFARE and THE INTERNET AS AN ARENA FOR BIOLOGICAL WARFARE.
- The INTERNET AS AN INFORMATION HIGHWAY metaphor shows a decline from 1994 to 2000.
- Although the majority of metaphors were realised as noun phrases, metaphors appeared as other syntactic categories as well.

4.2 Discussion

The aim of this thesis has been to investigate what structures are used in the conceptualisation of the Internet at two different points in time (1994 and 2000), on the basis of metaphorical expressions excerpted from magazine articles about the topic. As explained in Section 2.1, the Internet is a network of physical networks. However, it seems to be difficult to express what the Internet is without using metaphor. The Internet is hardly ever referred to as a network, and even when it is, the sense is more that of location (cf. example [37] Every traditional publisher in America is **throwing** products **onto the networks**, p. 46). The cyberspace metaphor is quite pervasive in reference to the Net. As we have seen, the term *cyberspace* itself literally means 'navigable space' (Section 2.1.2). This meaning is also reflected in the name of the two most popular browser programs; Netscape Navigator and Microsoft Explorer. Thus, it was hardly surprising to find the source domain for metaphorical language about the Internet to be *space*, and more specifically *motion through space*.

What we have seen in the previous sections is that embodied image schematic structure, like LOCATIONS (CONTAINERS), PATHS, FORCES and OBJECTS, which emerges from our bodily

experience, is employed in the conceptualisation of the Internet. If we look back on Section 2.2.1 on image schemas, we remember that:

> in order for us to have meaningful, connected experiences that we can comprehend and reason about, there must be pattern and order to our actions, perceptions, and conceptions. *A schema is a recurrent pattern, shape, and regularity in, or of, these ongoing ordering activities*. These patterns emerge as meaningful structures for us chiefly at a level of bodily movements through space, our manipulation of objects, and our perceptual interactions. (Johnson 1987:29, author's emphasis).

This structure is metaphorically projected in order to make sense of the Internet, which is a fairly abstract domain of experience. It can be difficult to make sense of the structure of the Internet as a whole, how it works technically and how all the information is structured. Information in itself is a rather abstract 'thing', that is, information is not literally a thing, but that is how we metaphorically treat it in order to be able to reason about it. That way we can handle it as if it were a physical entity. In relation to the Internet, we treat information as if it were physical pages, or locations (sites) in space, although it is only information, in the form of bits and bytes, which are electronic signals, stored on machines connected through the Internet. The information can be viewed through a browser program, which facilitates the 'illusion' of a page or document. Or, by clicking on hyperlinks or the browser program's back and forward buttons, one also get a sense of motion. (Maglio and Matlock 1999; in Munroe, Höök and Benyon:165).

Throughout the preceding section (Section 4.1) we have seen that in order to describe the Internet, or cyberspace, and what goes on there, we turn to metaphors that allow us to project structure from our experience of the physical world onto our experience of the Internet. It makes sense to talk about information in terms of LOCATIONS, PATHS and FORCES, which are all very basic to human experience. This image schematic structure is projected to form the INTERNET AS PLACE metaphor, the subgroups the INTERNET AS AN ARENA FOR WARFARE and the INTERNET AS AN ARENA FOR BIOLOGICAL WARFARE, and the INTERNET AS AN INFORMATION HIGHWAY. In addition there are quite many image metaphors, which project the mental imagery of a net (see Section 2.2.2.3), as well as a number of peripheral complex metaphors, which do not belong to the main patterns, and where the underlying embodied structure is difficult to identify.

Cognitive linguistics provides an explanation for why metaphor is so pervasive in language about the Net. According to Lakoff and Johnson (1980), '[o]ur ordinary conceptual system, in terms of which we both think and act, is largely metaphorical in nature.' (ibid:3) (see also Section 2.2.2). They focus on the basic human cognitive skill to understand an abstract phenomenon in terms of a usually more concrete phenomenon, through the extensive use of metaphor, which, as we remember, is not just ornamental language, but:

> a pervasive mode of understanding by which we project patterns from one domain of experience in order to structure another domain of a different kind. So conceived, metaphor is not merely a linguistic mode of expression; rather, it is one of the chief cognitive structures by which we are able to have coherent, ordered experiences that we can reason about and make sense out of. Through metaphor, we make use of patterns that obtain in our physical experience to organize our more abstract understanding. (1987:xiv-xv).

Although the metaphors are predominantly realised as noun phrases, verb phrases are also well represented. Metaphors are also to some extent realised as adjective phrases, adverb phrases and prepositional phrases. The descriptive nature of my material could be held responsible for the high number of noun phrases compared to verb phrases and it is therefore difficult to say if this is a general tendency or if it reflects the nature of my material. However, metaphorical language does appear in other syntactic realisations than nouns.

Because of the relative 'newness' of the Internet in 1994, the linguistic evidence was expected to reveal more basic structures, that is image schemas and simple metaphors, while the more recent texts would provide more elaborate metaphors as to what can be found there, inhabitation and actions. This I found to be the case. Whereas there are no instances of complex metaphors in 1994, 18% of the metaphors from 2000 are complex metaphors. Also, the INTERNET AS A PLACE metaphor is more elaborated in 2000, with the sub mappings THE INTERNET AS AN ARENA FOR WARFARE and THE INTERNET AS AN ARENA FOR BIOLOGICAL WARFARE. Clearly, the Internet has become a more 'civilised' and inhabited place in 2000. We saw through my discussion of examples that the primary metaphors that constitute the LOCATION EVENT-STRUCTURE metaphor, such as STATES ARE LOCATIONS, CHANGES ARE MOVEMENTS AND CAUSES ARE FORCES, underlie many of the examples of the INTERNET AS AN ARENA FOR WARFARE metaphor. Various aspects of events, such as states, changes, causes, and actions are as we saw in Section 2.2.2.1 often conceptualised in terms of the EVENT-

STRUCTURE METAPHOR. The mapping of the LOCATION EVENT-STRUCTURE metaphor 'all us to conceptualize events and all aspects of them [...] in terms of our extensive experience with, and knowledge about, motion in space.' (Lakoff and Johnson 1999:177). The high number of war metaphors as well as the increase in FORCE schemas are obviously related to the focus of the articles on hacker attacks. As we have seen, some of the examples involve data conceptualised as A LIQUID SUBSTANCE. It is possible that this fits better in with conceptualising the Internet as an environment, in that they resemble natural forces. Forces are associated with physical existence and place. Part of our knowledge of and experience in the real world is being acted upon by natural forces, like wind and rain.

The 1994 corpus includes references to the Internet as 'cyberspace', 'place', and 'world' and whether or not one has 'access' to this *place*. There are, however, no instances of the word 'site', which is very dominant in 2000, although there are locations like 'libraries', 'salons', 'information repositories', and 'gates'. A reason for this could be that not so many people had access to the Net at that time, and companies had just started to explore the opportunities of the Net, whereas in 2000 'everyone', especially every company with respect for itself, was on the Net. This is evident in the many references to Internet companies etc. *Web*, *Net*, and *Internet* is used extensively as premodifier in compound nouns, like for instance *Internet technology*, *Web consultant*. In 2000, the word *site* seems to have outconquered to some extent *page*. Wheras we used to find information in books, we are now more and more relying on the Internet in our search for information, which is reflected in the use of space metaphors.

The PATH schema along with the INTERNET AS AN INFORMATION HIGHWAY metaphor shows a decline from 1994 to 2000. As we have seen the INTERNET AS HIGHWAY was popular in the media around 1994 and can be traced back to Vice President Al Gore (see Section 2.2.2.3). However, the term seems not to be so productive in 2000. The term itself is not found in the 2000 material, although elements like traffic, roads and journeys are found. My findings are thus in line with Rohrer (1997). I was also able to identify both the CYBERSPACE case and the CYBERFUTURE case of the INTERNET AS HIGHWAY metaphor. The fact that there are fewer PATHs represented in 2000 is somewhat unexpected, since PATHs are closely associated with places. One could speculate that if the material had been of a less descriptive nature, that is, reflecting the experiences and actions of individual users in their search for information, rather than articles describing phonemena, it would yield more dynamic structures, as was the case in

the study by Maglio and Matlock (1999). They carried out interviews where the participants commented on their activity on the Net. They frequently referred to obtaining information 'in this landscape as traversing interconnected paths toward locations that contain information objects, such as user homepages and commercial catalogue sites.' (Maglio and Matlock 1999; in Munroe, Höök and Benyon:157). They also found a tendencey to view the web user as an agent, actively moving along a horizontal path. Also, beginners were more likely to refer to the web as a container than experts. In comparison, my material to a larger extent describes the Internet and what can be found there. However, my investigation supports the main conclusion drawn by Maglio and Matlock, namely 'that people rely on experience in physical space to structure experience in virtual information spaces such as the World Wide Web (WWW).' (ibid.:155). The descriptive nature of my material could be an underlying cause to the high percentage of the nominal metaphor, the decline in PATH schemas and the INTERNET AS AN HIGHWAY metaphor.

5 CONCLUSION

The first part of this thesis gives an introduction to cognitive linguistic theory, which forms the theoretical framework for my investigation. I focus mainly on image schemata and their metaphorical projections as outlined by Johnson (1987), since I am interested in how our conceptualisation of the Internet is grounded in physical experience, through projections of image schematic gestalt structures. One of the tenets of cognitive linguistics is that our conceptual system, through which we reason, think and structure our experience, is largely metaphorical in nature. Within cognitive linguistics, metaphor is defined as a cross-domain mapping in the human conceptual system.

The second part of this thesis presents the findings of the investigation carried out, as well as an indepth analysis of some examples collected from my material. The image schemas identified were mainly CONTAINER (or LOCATION), FORCE and PATH. My findings corroborate those of Maglio and Matlock (1999), who found that people tend to conceptualise the Web in terms of physical motion, physical action, and physical containers (see Section 2.2.3.2). In addition, my analysis revealed that FORCES play a significant role as well in our conceptualisation of how the Internet works.

Correspondingly, the majority of metaphors found involved the Internet conceptualised as a *place* (THE INTERNET AS PLACE metaphor). This metaphor was further extended in 2000, including the INTERNET AS AN ARENA FOR WARFARE and THE INTERNET AS AN ARENA FOR BIOLOGICAL WARFARE. Other metaphors found were image metaphors and the INTERNET AS AN INFORMATION HIGHWAY. Like Rohrer (1997), I found examples of both the CYBERSPACE case and the CYBERFUTURE case of the metaphor system. However, only two instances of the CYBERFUTURE case were identified in my material.

With regard to the methodological issue of the realisation of metaphor (cf. Cameron 1999, Section 3.2.1), I found that although the nominal metaphor was predominant, metaphors figured to some extent as other realisations, like verb phrases, adjective phrases, adverb phrases and prepositional phrases.

Further, the analysis revealed some differences between 1994 when the Internet was fairly new to the broad masses, and 2000 when the Internet had to a great extent become a part of many people's daily life. There were not only more metaphors in 2000, but they were also more complex and elaborate. The Internet seems to have become more civilised and

unfortunately also a less safe place in 2000. We saw a great increase in relative distribution of FORCE schemas in 2000. Also, the the subgroups the INTERNET AS AN ARENA FOR WARFARE and THE INTERNET AS AN ARENA FOR BIOLOGICAL WARFARE are only represented in 2000. This must obviously be seen in relation to the nature of the articles, which were to some degree focused on computer viruses and hacker attacks at that particular time. Further, we saw that the INTERNET AS AN INFORMATION HIGHWAY seemed to be less active in 2000. The relative distribution of the PATH schema also showing a decline in 2000 can be seen in relation to this fact. However, since PATHs are so closely connected to FORCES and LOCATIONS, this is still somewhat surprising. The distribution of verb phrases, which goes from 24% in 1994 to 22 % in 2000, could also be linked to the decrease in PATH schemas. With regard to the syntactic realisation of metaphors, noun phrases were the most dominant in both 1994 and 2000, with a higher distribution in 2000. The decline in distribution of verb phrases in 2000 compared to 1994 can be related to the decline in PATH schemas. Adjective phrases, adverb phrases and prepositional phrases all show a decline in relative distribution from 1994 to 2000.

If we take a look at the overall picture, this tells us that motion through space seems to be the source domain for talking about the Internet. The results presented in chapter 4 indicate that our physical experience, structured image schematically, and metaphorically projected in order to reason about abstract phenomena, form the basis for our conceptualisation of the Internet. This supports Lakoff and Johnson's claim that the physical nature of our bodies and experience influences our abstract reasoning, and explains why it seems so natural to speak of the Internet in terms of location, paths and forces. Although the Internet has been around for a while, it is still a relatively new medium to most people. In Section 2.1 we saw that the Internet is a physical network of geographically distributed machines connected via wires. The nature of the Net and how it works, however, is hard to grasp. It is therefore not surprising that the Net is often conceptualised in terms of a more familiar domain of experience, that is, motion through space, which is a very basic human experience. Metaphors reflect human experience, consequently metaphors about the Net provide insight into how we communicate, perceive and interact with the Internet environment. Cognitive linguistic theory provides a useful framework for explaining the pervasiveness of metaphor in talking about a more abstract domain of experience like the Internet.

One should bear in mind that the nature of my material puts some limits on my data. Because the two corpora are so unevenly balanced, it is difficult to say something

quantitatively about the representativeness of my data. Moreover, the lack of external criteria by which to decide the degree of metaphoricity of an expression, leaves this up to the subjective judgement of the researcher. Moreover, since our conceptual system is largely metaphorical in nature and is employed for the most part unconsciously, I can merely point to main tendencies found in support of related studies, and as well as direction for further research.

As already reported, work has been done along these lines. However, I hope that by this study I have contributed to a wider and more nuanced understanding of 'what kind of place' cyberspace is, that is, how metaphor is a conceptualising device in assigning meaning to our experience with and on the Net. Since 1994 the Internet has become a part of our daily lives and a pervasive mode of communication. Kids growing up today are accustomed to the Internet in entirely different ways than their parents. This way it comes to form part of our cultural experience. An interesting research question would be to what extent the Internet itself may be part of a source domain for experience in for instance talking about communication. The notion of blending, which is touched upon both by Rohrer (1997) and Maglio and Matlock (1999), could also be investigated further. The scope of a this project, however, does not allow me to go deeper into the role of conceptual blending.

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APPENDIX: Articles

-    Happy Birthday: Still Wired at One   (*Newsweek* 17/1 1994)
-    Keeping the Cybercops Out of Cyberspace   (*Newsweek* 14/3 1994)
-    The Information Gap   (*Newsweek* 21/3 1994)
-    The 'On-Line' War Heats Up   (*Newsweek* 28/3 1994)

-    Cyber-Santa's Sleigh Ride   (*Newsweek* 10/1 2000)
-    The Internet and Gutenberg   (*Newsweek* 24/1 2000)
-    Hunting the Hackers   (*Newsweek* 21/2 2000)
-    Report From the Cyberfront   (*Newsweek* 21/2 2000)
-    Holes In The Net   (*Newsweek* 21/2 2000)
-    Why the Market Will Rule   (*Newsweek* 21/2 2000)
-    Hong Kong Gets Its Groove Back   (*Newsweek* 13/3 2000)
-    Cyber Rattling   (*Newsweek* 20/3 2000)