ENACTING MOBILITY

Studies into the Nature of
Road-related Social Interaction

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Mobility has become a keyword for contemporary western society. It encompasses both global flows of ideas, goods, money and people as well as ordinary movements of everyday life. Focusing on the mundane features of mobility, this thesis highlights two vital assemblages – the road and the roadside – as disregarded phenomena in accomplishing mobility. The aim is to counterbalance the predominance of insufficient or inadequate road conceptions by providing alternative sociological observations and interpretations of road interaction. This is achieved by taking a closer look at roadsides and the residents, representational objects and mediators that inhabit them.

Instead of dwelling on the inherent 'horrors of representation', my attempt to contribute to a sociology of the road, will be fuelled by an overarching ambition to learn more about how representations actually are made strong - how they are repaired, how they are framed, how they are used and distributed, how they are tended and not attended to, how we 'muddle through' and accomplish things - despite their insufficiency and pitfalls. Cast as two complementary challengers of current models of representation, ethnomethodology and actor-network theory are comparatively analysed, tracing out a theoretical underpinning of alternative interpretations and studies of road/roadside interaction.

Additionally, I contribute to a more profound understanding of road use and road interaction by looking in some ethnographical detail at three sites of 'roadside negotiation'. I have followed bus-drivers as they move between bus stops, as were they bees visiting flowers. The mutual understandings of locations are crucial for these mobile occupational groups, enabling to successfully perform collaborative tasks. I have participated at the work of a petrol station where a continuous flow of vehicles, commodities, money and people is sustained and made accountable. From the production and recognition of fluency, the constant negotiation and articulation work of situations, to continuous maintenance and repair of movement, petrol stations *ten* to mobility.

Finally, I have documented the population of private, personal, moral and illicit signs mounted along the roads. These signs enable intermediate interaction between roadside residents and their passers-by. But the signs are also carefully edited through the maintenance work as editing the road. The ultimate ambition, empirical and theoretical, is to counterbalance inadequate conceptions of 'the road' and 'the social' while casting the road as media enacting mobility.

CKNOWLEDGEMENTS

CONTENT

PART I

PART I

Getting ready for the road – Perspectives, Goals, Guides

1.1 Roadsides – more than a side phenomenon

> As we watch the street we see people
> Passing through in cars, trucks, bicycles
> motorcycles, taxis, busses
> Walking, running, standing, climbing, sitting, lying down,
> in wheelchairs or on crutches
> Looking for destinations
> Getting in or out of vehicles, parking and deparking them
> Window shopping, buying selling
> Using phones, mailboxes, trash cans
> Socializing, playing, 'hanging out'
> Cleaning, repairing, constructing
> Policing
> Waiting, resting
> Taking care of children
> Carrying parcels, delivering[1]

There are scenic roads, winding roads, steep roads, fast highways, dangerous roads, bumpy roads, congested roads, shortcuts, dead-end streets, neighbourhood streets, memory lanes, through routes, narrow country roads overgrown with weeds, and many, many, more kind of roads. Some roads, such as Downing Street, are famous while most others are ordinary roads. Some are special for us but not for others, like the street we grew up on or the road where I lost control over my car. There are advanced constructions with bridges and tunnels, and roads hardly distinguishable from the nature embedding them. Some roads are made solely for high-speed races, others for pedestrians alone. There is a great variety of roads, made of different materials, designed for disparate purposes and carrying very different meanings for us; still, they are all roads. So much is certain: roads are heterogeneous.

Roads – whose etymological origin is ride or journey[2] – enable us to move or transport goods, people and ideas from one location to another. Roads facilitate mobility; in fact one often speaks of automobility as *the* paradigm of everyday mobility in contemporary western society.[3] Still, roads and road use often remain disregarded phenomena in social science, a neglect that I claim stems from inadequate conceptions of both 'the social' and 'the road'.[4] In my reading, this inadequacy is two-fold. First, with all due deference to their professionalism and lawful purposes, many road use practitioners (e.g. road administrators; transportation politicians; traffic engineers and designers), systematically tend to *dis onne t* or

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[1] K. Lynch & Southworth (1974) in K. Lynch (1990:590).
[2] Source: Merriam-Webster Dictionary & Thesaurus on-line web version.
[3] Beckmann (2001a; 2001b); Featherstone et al (2005); Miller (2001); Pooley et al (2005); Sheller & Urry (2000; 2006); Urry (1999; 2000; 2004).
[4] A view generally shared by e.g. Beckmann (2001a); Featherstone (2004); Urry (2004). Few have however provided any thorough explanation for this neglect, with M. Lynch (1993) as one exception.

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indeed even short-circuit 'the social' and 'the road'. Secondly, those who could be expected to authoritatively speak up for its salience, tend, when it comes to roads and mobility, to heavily *under socialise* 'the social'. Hence, many sociologists seem to have it that there is nothing particularly social in road-life worth attention, apart perhaps from some isolated instances of stigmatisation of black drivers; and therefore leave the field to psychologists applying cognitive models on traffic behaviour, or to road safety researchers arguing that roads would work so much better without any disruptive social interference, as when peer pressure causes drunk-driving.

With this thesis, I hope to leave a small contribution to the dismantling of this two-fold inadequacy. By sandwiching reviews of a fairly large selection of theoretical concepts with pieces of fieldwork utilising ethnomethodology styled observational techniques, the ambition is to reassemble, in a piecemeal fashion, 'the road' and 'the social'. Although not always explicitly interlinked in the texts composing my work, those conceptual tools and field observations, both tuned to sense and register the minute accomplishments of ordinary road interaction, will in conjunction bring to the forefront that which is normally neglected. In trying to achieve this, the site constituting my field will not, as one of course could expect, be the road itself. Concurring in the idea that knocking somebody sideways may sometimes be the best tactics, I instead will dwell next to it, namely *along the roadside*.

Roadsides are part of both the road and its surroundings; yet belong to neither of them. In this multicoloured and sometimes fairly chaotic borderland we find fences, alleys, petrol stations, motels, fast food franchises, bus stops, signs, flowerpots, billboards, property lines, custom controls, rare geological relics, speed cameras, art installations, resting places, archaeological excavations, antique shops, flee-markets, wastelands, and much more; in short everything large and small, cheap or special, short-lived or permanent, that has been created along the roadside to catch the interests of road users.

Roadside residents populate the roadsides. Whereas road users of course refer to people in the situation of employing the road to move from one place to another – private drivers, pedestrians, cyclists, motorcyclists, bus drivers, postal workers, maintenance workers, garbage collectors, salesmen – roadside residents are those who in close proximity to the road for a short or long time become bystanders to road use. Road use has an impact on those that inhabit the surroundings of the road, at the same time as roadside residents, mostly enmeshed in assemblages, which also include non-humans like buildings, signs or services, in various ways affect the road users. As Karl Raitz has pointed out, the relations between the two are more numerous and more profound than could be comprehended in just a side or fringe phenomenon: 'we must recognize that the geographical, social and political processes that underwrite the making and use of both roads and roadsides are interrelated. One provides the context for the other, so neither can be defined, described, nor understood in isolation.'[5]

Consider for a moment the coupling between the depot team and the race car driver in Formula 1. Their point of intersection is the pit stop, where racing cars stop dead after having furiously spun round and round on the racetrack. They do so to be re-equipped, repaired and refuelled, so

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[5] Raitz (1998: 364).

as to a split second later be able to reappear on track at full speed.[6] During this rather spectacular repair of mobility, not only the artefact but also the human, the driver, drops dead, it seems, whereas the shortly before laid-back depot team is what operates at a furious velocity. Sociologically, this pit stop encounter between road and roadside cannot be depicted as a parallel coupling, neither a sequential one. It is, I claim, a relation of mutual and thorough interdependency. It knits together 'being-on' and 'being-off' the way; to remain the former, you must at times, even if it is only for less than ten seconds, be the latter. And it is not solely about sustaining mobility – also surviving 'off the way', such as an isolated roadside community, depends upon being visible from 'on the way'.[7]

Of course pit stops are quite special. 'Off the way' does not at all have to imply that humans and non-humans alike drop dead to rise again in full vigour seconds later. Let us look at another example of sustaining mobility, nowhere near immobility:

> *A woman parks her car beside the petrol station. She buys a bag of groceries and then returns to her car to move it to one of the petrol pumps. As she refuels, she takes the time to rearrange some papers in her backseat. She locks the car to re-enter the store. Shortly after, she is back on the forecourt with a piece of paper in her hand, starts her car once more, and moves it to the car wash queue.*[8]

This seems very different. The temporary immobility on the petrol station forecourt here enabled the woman to actively attend to her needs while repairing mobility. This road user did not stop dead when off the way becoming a roadside resident. Not only did she refuel her car, she also, by moving small distances in between various facilities on the petrol station court (and inside her own car), 'refuelled her body' by buying groceries, and rearranged a few things. Although obviously taking very different organisational and cultural shapes, the mobility of both the race car driver and the ordinary motorist depend on the service that these sites of temporary immobility can provide. Both hinge their doings on the existence and indispensability of roadside residents, making them an integral part of road use.

Just being there 'off the way', is often enough to sustain that relationship, but in other cases it is required that roadside residents once in a while actively are made visible for those on the road / 'on the way'. To illustrate this, a representative of yet another category of road users, namely a bus driver, during my fieldwork once remarked while we passed a very rarely frequented bus top: *'You drive on habit, you wouldn't notice if someone was standing at that bus stop.*[9]' Even though visual markers like poles were there the place had, for this driver who had never stopped there, lost its significance as a bus stop. In lack of affirmation, the bus stop and the surrounding landscape blurred.

In addition to the independency at work here, there is also a certain kind of tension between roads and roadsides. Hence, while roads are typically rigorously regulated, through public authority decrees or Royal ordinances, roadsides can be quite odd or unruly; a side-site for individual, entrepreneurial, local or vernacular expressions in straight or silent opposition to, or just incommensurable with, the rationales upheld

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[6] For a sociological study of high-speed races, cf. Ronfeldt (2000).
[7] I am grateful to Mark Elam (personal communication) for the idea of this passage.
[8] Excerpt from the author's observations at a petrol station, 2002-06-10.
[9] Bus driver B, evening route, 2000-02-02; rural area in the south-west of Sweden.

by the road administration. In accord with this, and as the above excerpt illustrated, roadsides are also frequently associated with a friction necessary in making them noticed or affirmed 'on the way'. The relationship roads-roadsides here contain a delicate balance between modes of extending vs. modes of eliminating friction; accommodating what I later on will refer to as 'different intensities of staying'.

Pursuing the friction theme, road*si e* metaphorically announces that the theoretical toolbox to be made use of in my work (mapped out below; section 1.4) is in many respects at odds with what may be described as the mainstream road sociology or traffic research. To conclude this section then, this thesis is not depicting roadside studies as essentially separable or complementary to road studies. Instead – by looking closer at bus-drivers' attention to roadsides, by studying a petrol station's responsiveness to various requests among road users, and by reflecting upon the ingenuity roadside abutters display in their efforts of forwarding a message to road users – I hope to contribute to a more profound understanding of road use and road interaction; countering the inadequate conceptions of 'the road' and 'the social'.

1.2 Conceptualising the road:
Three alternative perspectives

Roads and roadsides are often taken for granted. Notwithstanding, incompatible or contradicting definitions often clash here. I can for example open my local newspaper to find a debate between left and right wing politicians on how the inner city should be rejuvenated. One side argues that inner city traffic must be constrained while the other argues that it must be allowed to expand. Both sides strive for the same goal, making the town more pleasant, but the road plays very different roles in their imaginations. Whether in city planning, at design sessions or political meetings, on newspaper pages, in chat rooms, blogs, or during breakfast conversations, competing discourses on roads easily generate disagreements.

We can study a situation in traffic and from one perspective become amazed by the orderliness emerging in a flow of moving cars, while from another angle complain about the terrible mess of inconsistencies that forces road users to act erratically. Similarly, we might argue that encounters and interaction in traffic merely cause conflicts while at other times argue that this interaction is necessary to resolve disputes and to accomplish traffic. Still, if we organise the variety of views and definitions of 'what the road is', three predominant or archetypical perspectives on the road emerge; interchangeably endorsed by legislators, designers, traffic engineers, road users and road residents. Even if being simplifications, we are not unaffected by how they frame the road. The perspectives are not merely images, but maps, itineraries, production and development plans which prescribe how we should conceive of the road and how tricky things in road use should be tackled.

*1.2.1 The road as an infrastructure or mobility:
stabilising, making structures coherent*

An *infrastructure* is an artificial structure supporting a specific use, an underlying foundation or basic facility.[10] Although basic, they fall into oblivion, like backdrops vis-à-vis activities. In their work on depicting the Internet, Susan Leigh Star and Karen Ruhleder presented the following list of salient features of infrastructures:

> embedded in other structures
> transparent to the tasks it supports;
> represent a vast reach or scope;
> are acquired through membership;
> <u>linked</u> with conventions of practise;
> embody standards;
> erected on a pre-existing basis;
> become visible upon breakdowns.[11]

Roads fit very well with these definitions. They are embedded in almost any mode of transportation and vital in the overall structure of cities. Roads support driving by directing and constraining the activity. Roads exist all over the world and require a driver's licence as a proof of membership. They embody standards such as right or left side driving imposed on the road use. Many roads follow the routes of previous pathways and portholes and road maintenance work is tediously visible.

An infrastructure is like a passive but constantly present functionary, authoritarian in a sense, however treating everyone as equal. Entering the road is conditioned by an obligation to comply with conventions stipulating how you must act. It enables communication, understood as the exact or approximate replication of a message, simply by moving that message to its new location. The infrastructure is a black box where stable relations determine how variables relate to each other. Hence, it appeals to rationality. For an infrastructure, roadsides are, at best, a scenic frame; but most often just an out-of-the-way place, a corridor, an ignored appendix.

Even though roads are ancient the coherent understanding of them as infrastructure stems from the mid 19th to the early 20th century. During this period the responsibilities for constructing and maintaining roads changed from an obligation for local landowners to a centralised and institutionalised function of the road administration (in Sweden founded in 1841). The gradual adoption of cars escalated this shift and the quality of roads improved considerably. In parallel advanced sewages, railroads, utility services such as electricity, gas et cetera, were introduced or innovated during this period. Hence the understanding of the road as infrastructure coincided with the expansion of many other infrastructures.[12] The understanding of the road as infrastructure implies a strong political interest and responsibility in the *construction* and maintenance of roads.

The infrastructure perspective has ever since then been influential, particularly in the development and design of new roads or highways. It for example dominates Buchanan's widely recognised work of

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[10] Source: Merriam-Webster Dictionary & Thesaurus on-line web version.
[11] Star & Ruhleder (1996); Star (1999); Bowker & Star (1999); Star & Bowker (2002).
[12] For the Swedish history of roads and road administration see e.g. Blomkvist (1998; 2001), Celsing (1998), Gullberg (1998), Heddelin (1991).

transportation[13] from the early 1960's. Roads are there conceived as mono-functional, built solely to enable transport.[14] The roads themselves remain passive, as a backdrop to the decision-making and actions taking place in buildings elsewhere.

This perspective is also echoed in the everyday life of traffic, as when a bus-driver commented: *'Passengers have no interest in knowing what contractor they travel with Their only interest is to get from one location to another'*[15] Passengers embark the bus, pay the fee and get transported to another bus stop, where they can disembark – without interacting with the road, only with the bus and the bus driver. Thanks to a vast ready-made organisation providing public transport, passengers only need to know her or his destination. From the passenger's point of view, public transportation is an infrastructure that moves you without you being moved by it.

1.2.2 The road as a system o mobility: combining elements and facilitating flow

The term *system* implies to 'a group of interacting, interrelated, or interdependent elements forming a complex whole'. When we speak of a system we refer to an assemblage whose elements jointly enable specific acts to be performed. The term stems from Greek and Latin where it means to combine, set up, cause, or establish. It also denotes patterns of harmonious interaction; e.g. a prevailing social order, a composition of rules governing behaviour, a procedure for obtaining an objective, everything that pursues orderliness by being well organised and methodological.[16]

Roads can be described as systems, interdependent elements forming a complex whole that facilitates mobility. Roads are a vital part of the *automobility system*. From a system perspective, the road is a network of asphalt, concrete, sensors, traffic lights, crossings, intersections, slipways and bypasses, gravel and ditches which reach out globally and defeat natural obstacles such as rivers and mountains through bridges and tunnels connecting everyone and everything to everywhere. Roads are more than an underlying structure; they are active elements that together with other elements create a flow of people, commodities, information and ideas.

People and objects move on the road in an orderly fashion relying on a system of rules and regulations, maintained through socio-technical systems: driving licences, policemen, speed-bumps, speed-cameras, fences, traffic lights, CCTV's, emergency phones, lights, signs, et cetera. A system evolves and learns through feedback, as new components and combinations are added the rest of the system tunes in so that a stable and predictable flow can be maintained. From a system perspective '[c]ommunication is about relation, not essence.'[17] It is released from materiality even though it maintains its predictability since the relations are identifiable as

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[13] Sir Collin Buchanan (1907-2001). Joined the Ministry of Transport, UK, 1935, professor in Urban Transport. Renowned for 'Traffic in Towns' published in 1963, seminal for modern transportation planning, highlighting the great benefits of cars while also recognising the threat they pose to urban as well as rural environments, cf. Buchanan (1964).
[14] As pointed out in Juhlin & Sjöberg's (1999) study on the role of the traffic planner.
[15] Bus driver A, third route, a comment raised after stopping at a big bus stop where busses from different contractors stop, 1999-09-23; suburban area in the south-west of Sweden.
[16] Source: Merriam-Webster Dictionary & Thesaurus on-line web version.
[17] Hayles (1999:91).

patterns – as flows[18]. Replication is replaced with analogy. A system promotes efficiency, it sees to it that traffic can be optimised. Roadsides are here a supplementary system: with their signs, posters, traffic lights, et cetera – conveying and exchanging appropriate information – they coexist with the superordinate system of roads.

The system perspective gained ground concurrently with car driving escalating, and the accompanying urge to govern and control the *use* of roads. In parallel, it was theoretically energised by the ideals and constructs of the prospering cybernetic school from the 1950's and 60's. Derived from the Greek word for 'steersman', cybernetics stands for the synthesis of information, communication and control. Cybernetic systems 'are constituted by flows of information'[19] where information is understood as 'bodiless fluid that [can] flow between different substrates without loss of meaning or form.'[20] As such, information moves between different parts of the system enabling the system to act appropriately; the flow of information is what counts, since it is the system's behaviour and ability to reach its goal which is important.[21]

Even though cybernetics often is referred to as outdated, it remains prominent in transportation research. For example Intelligent Transportation System (ITS) is a research community focusing on efficiency of traffic by monitoring, controlling and ordering *road use.* By implementing advanced applications of information and communication technologies, ITS strives to increase the efficiency of smooth and safe traffic flow, even when road use is stretched to its limits.[22] By controlling all the systems involved in *road use*, researchers argue that they can improve traffic.[23]

Inheriting the cyberneticians' enthusiasm for information conceived as a universal, disembodied entity regulating every kind of system, the ITS community promotes an extensive use of sensors and strategically displayed 'double-click-information'.[24] The question however is whether that provides an adequate tool to capture and cope with the contextualised interactivity and hybrid complexity of everyday traffic. The bus driver's job for example includes interacting with numerous other drivers, traffic control centres, bus terminal centres, communication systems, timetables, route itineraries, clocks, bus stops, maintenance crew, billing systems, political decisions, information displays, garages, busses, passengers and so on.

During my participant observation study particularly addressing the everyday communication and collaboration between bus drivers[25], one

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[18] Shove (1998), in her survey on sociological studies on automobility systems, may illustrate this: *'Whether framed in terms of urban geography, political analysis, social theory, or environmental discourse questions about the car in use tend to be pitched at a rather more abstract level, focusing, for instance, on themes of accessibility or mobility in general. … the car itself appears as a kind of consumer, making demands and imposing "its own" constraints on planner, commuters and pedestrians alike.'*

[19] Hayles (1999:84)

[20] Ibid:xi.

[21] Ibid:141, see also Rosenblueth et al (1943).

[22] Esbjörnsson (2005:46) argues that much of ITS is motivated by the increased use of private cars in relation to congestion and other strains stretching the limits of what the road can endure. See also Chen & Miles (1999).

[23] However, despite the vast amount of funds, ITS' projects have not yet measured up to its grand visions. Cf. Juhlin (1997; 2001b), Juhlin & Sjöberg (1999), Walker et al (2001).

[24] A construct set forth by Bruno Latour in a lecture at Göteborg university, 2006-05-31. See also Latour & Hermant (2004:plan14).

[25] The study was conducted in close collaboration with Oskar Juhlin. See Juhlin & Normark (2000a; 2000b); Juhlin & Normark-Vesterlind (2001); Juhlin et al (2000)

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driver after obviously having reflected a good while upon the implications of this multiplex interaction in traffic for the nature of his work, told me: *'The uncalled-for automatic information is very annoying – it is simply too much information. … The most important thing is to find one's own rhythm, and not stress to death over the timetable'.*[26]

1.2.3 *The road as media* en cting *mobility:* circulating sensations, activating fluidities

Originating from Latin, *medium* means middle, in-between; a term whose meaning, especially in its plural form media, has expanded considerably in the last decades. In particular we of course use it to refer to the many means of mass communication – i.e. the ways by which images, representations, facts, opinions, entertainment, information and other expressions are disseminated through newspapers, movies, television, the world wide web, books, CD's, DVD's et cetera. The term also designates something in between extremes; an intervening substance through which something else is transmitted; an agency through which something is accomplished, conveyed or translated; a surrounding environment in which something functions and thrives; a means of expression shaped by the materials or creative methods involved.[27]

At first, roads may not at all look like the Internet, Times magazine or BBC. Yet, I claim that regarding the road as media can be feasible especially if we bring into the picture the interdependency between roads and roadsides. Today's density of traffic turns the road/roadside assemblages into spaces of mass communication, calling upon the vast amount of road users flowing through them on a daily basis. Through the outstretched road/roadside media messages can be displayed, political opinions aired, civic recommendations distributed, and illicit behaviour spurred.

The road as media highlights the fluidity in contemporary modernity.[28] Interaction is here vital, but understood as largely reflexive, partial, inclusive, inconclusive, heterogeneous and multi-layered.[29] No causal relationship can capture the way a situation is developing or appropriately resolved. Instead transparency, negotiation, and the circulation of associations knit together each new situation with the next. Communication is essential, yet also fluid, pending between signifier and signified. Instead of relying on replication or likeness, communication hinges on continuous translation. Roadsides here play a central role, tending and guiding the actions as they unfold. Another aspect is that a medium circulates values which are emotional or sensuous, rather than objective or rational. Pleasure, self-esteem, liveliness, faith, entertainment, rage, anger, frustration, et cetera, come to the forefront when understanding the road as media; not as something to be contained or controlled, but as contributing to the negotiation and repair of misunderstandings and conflicts.

The perspective 'the road as media' is likely to be reinforced by the expansion of mobile information and communication technologies. For example computer science is gradually shifting from a preoccupation with information, data storage, data processing, data transactions and user requirements, towards issues of interaction, mutual awareness and

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[26] Bus driver A, morning route, 99-09-23; suburban area in the south-west of Sweden.
[27] Source: Merriam-Webster Dictionary & Thesaurus on-line web version.
[28] Cf. Bauman (2000); Beck (1992; 2004); Urry (2000; 2003)
[29] Cf. Latour (2005:191ff).

ubiquitous use.[30] Realising how mobile-ICT-use coincides with other forms of mass communication made accessible by road use, opens up new possibilities of interpreting expressions through the road media.

Among the pioneers of this perspective were those architects of the 60's and 70's who objected to the limited criteria by which their work was assessed. Kevin Lynch for example[31], proposed a design that supported a 'sense of life' not only in buildings but also in cities and streets. Hence he and his colleagues started to study cities, regions, roads and buildings looking closer at how these constructions were actively used and appropriated by their users. These studies revealed the road as the nexus of a most heterogeneous gathering; a site harbouring, mediating and merging numerous competing activities, functions, sensations, expressions and expectations.

Similarly Robert Venturi[32] regarded the communication space along the road as significant of our time (predating the world wide web). His investigations provided an insight into how the road continuously was used as a media and how this was an achievement in practise as practise. For him, the study of signposts along the Las Vegas strip was an inspiration for what later became the post-modern approach to architecture, one exploring its expressivity. The connotative expressions mediated through buildings, proved to be a powerful form to issuing one's message.

Also the media perspective can be illustrated by looking at public transportation. Bus-drivers frequently make on the fly adjustments, so that problems pragmatically and temporarily can be solved. For example a bus-driver (A) whom I observed was running late to a rendezvous with another bus at an integrated transportation bus stop. The awaiting bus-driver (B) contacts (A) through the communication system:

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[30] See e.g. Wiberg (2004a) and Dourish (2001). These scholars argue for a shift towards interaction society as termed by e.g. Wiberg (2004b), see also Dahlbom (2003a; 2003b) for a similar discussion. However, these descriptions of computer-aided change tend to overlook the influence of infrastructures, especially those tending to mobility, such as the road, that also are influential for this shift.

[31] Kevin Andrew Lynch (1918-1984), studied under Frank Lloyd Wright, appointed professor at MIT in 1963. Lynch influenced the field of city planning through his work on the theory of city form, and on the perception of the city environment and its consequences for city design.

[32] Robert Venturi (b. 1925) author, architect and partner in Venturi, Scott Brown & Associates. Influential are his theories on 'complexity and contradiction', highlighting the multiple meanings of buildings, structure and decorations.

1	**Bus-driver (B):** Hi, Where are you? I can't wait any longer.
2	**Bus-driver (A):** Wait! I'm driving on the bridge now.
3	**Bus-driver (B):** I can't wait anymore
4	**Bus-driver (A):** But I can see you now
5	**Bus-driver (B):** Okay, then

Figure 1.1: A conversation over the Mobitex radio system between two bus-drivers (transcription).[33]

This conversation is a negotiation rather than an information exchange. Partial indications, such as time, timetable, spatial and visual indications add to a picture of, 'just this' situation, when 'just these' decisions are comprehendible. The outcome of the communication is contingent, depending on precisely this situation and the decisions these drivers make. In this negotiation, bus-driver (A)'s remark that he can *see* bus-driver (B)'s bus (cf. line 4) seems to be a persuasive argument, more important than following the timetable (lines 1, 3) or locating his own position (line 2). Through fieldwork I came to realise that the organised movement of public transport was created by bus-drivers' active collaboration, deviating from or repairing timetables in order to provide a reliable service to the passengers. It was the embodied and situated interaction – not the accurate and uniform information – that accounted for smooth transportation.[34]

1.2.4 Characteristics of roads/roadsides
according to the three perspectives

Even though each of the three archetypical perspectives can describe the same road, they obviously differ quite a bit in how it is conceptualised. To conclude this, I will single out some categories depicting either a key property of roads, or principal activity taking place in relation to roads; attributed to them or performed by either road users or road regulators (in both cases involving also the delegation of certain actions to non-humans). A principal category here is communication. Roads have, just like railways, traditionally been linked to the denotation of communication in the sense of transporting goods, persons, troops, supplies, and messages. Yet communication can be elaborated in distinctively different ways.

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[33]Author's observation and transcription on a bus, early afternoon, 1999-09-22, at smaller centre in suburban area in the south-west of Sweden.

[34] As we point out in Juhlin & Normark (2000a; 2000b) and Juhlin & Normark-Vesterlind (2001), collaboration within the public transport system can be maintained either by the drivers' effort of 'sticking to their itineraries and timetables' or by an active collaboration among drivers. Either way, negotiation and repair are vital, and bus-drivers and their resources continuously accomplish a smooth flow of traffic.

Viewing the road as an infrastructure implies that communication reads as Y's movement from A to B. A system perspective focuses on communication as an essentially smooth flow of information, whereas it in its media conceptualisation refers to 'fluidity', – i.e. to ad hoc, situated interactions appearing and dissolving.

As already has been made clear, roads and roadsides can in my judgment no longer exclusively be appropriately understood as communication in the former senses, as 'simply' communication. As the production of messages increases, the means for disseminating expressions dramatically escalates through mobile, distributed and ubiquitous modes of technology, and the exchange of messages occurs regardless of pre-designated locations, causing the balance to 'tip over' towards media-like features of communication. This has important implications for interaction and learning. An infrastructure outlines a predictable mode of interaction by largely circumventing direct or spontaneous contacts, the system relies on the interaction between units exchanging information, while media nourishes situated and partial interaction where meanings can be translated and circulated. These affect how understandings of roads are shared, how we learn about them. Hence, *infr structure* presupposes authoritative forms of education conveying rules and directions; *system* learns through feedback and regulative orderliness; and *medi* understands knowledge as acquired reflexively; highly dependent on the specificity of each situation.

The alternative modes of communication, interaction and learning, are also linked to different conceptions of causality, agency, and vulnerability. Infrastructure establishes causal relations in an input-output mode, system ties it with systemic or patterned relations, while media senses causality as embodied interdependencies account-able in each new ('just this') situation. In congruence, agency (a construct to be discussed in some depth in Chapter 3) is imagined as an inherited, combined and associative phenomenon, for each perspective respectively.

Further, the three perspectives house radically different configurations of viability and vulnerability. Once in place and running, infrastructures remain stable. Trees may temporarily block up roads and neglected maintenance may inhibit road use but as long as the road users comply with predefined rules and intentions, roads largely remain strong and secure. By contrast, a system requires continuous monitoring and ordering since it consists of multiple units sharing and exchanging information with an in-built risk of losing information at transfer points. In addition, one single malfunctioning element, for example congestion, may diffuse to other elements and disturb or disrupt the entire system. Due to its sensitivity, media is fundamentally vulnerable, always liable to misunderstandings and excesses. At the same time, this sensitivity affords ample resources for collaborative tuning and interpretative repair work, which is precisely why this perspective holds it as crucial that road users negotiate their understandings; accomplishing order, rather than complying with it.

Finally, like a ripple effect, the three perspectives leave their imprints on how to approach the task of mastering (management-control-governance-maintenance) roads, as the complex socio-technical systems they mostly are. Stabilising, combining and circulating are, I suggest, three corresponding notions for mode of control. Or, if instead phrased as overriding rationales for governance: predicting intentions, communicating intentions and promoting associations. Similarly, to secure

or maintain the viability of roads, infrastructure focuses on the wear and tear aspect, system cannot enough emphasise the importance of securing information and minimising noise, whereas media brings to the forefront the road users' own potential for repairing the viable spots of communication. By conclusion then, cf table 1.2, the perspectives provide quite different analytical and methodological resources – affecting the politics, design, development and everyday use of roads:

Road perspective: Mode of … :	Infrastructure	System	Media
–communication	movement, replication	flow, analogy	fluidity, translation
–interaction	predetermined actions; circumventing contact	co-ordinated actions; information exchange	distributed actions; multivocal negotiation
–learning	Authoritative	regulative (feedback)	reflexive
–causality	input – output	systemic; patterned	dispersed; accountable solely from within
–vulnerability	stable once put into operation	sensitive to transfer errors and local deviations	ultra-sensitive by definition
–agency	inherited; distributed	combined; centralised	associative; situated
–control/ securitisation	stabilising; compliance to rules	ordering, monitoring; surveillance	circulating; transparency
–governance/ maintenance	predicting intentions; limiting wear and tear	conveying best practice for optimal adjustments; avoiding information loss	promoting interactivity; repairing misunderstandings

Figure 1.2: A table displaying some comparative features of the three road perspectives.

1.3 The legislator's view

Ironically, 'road movies' have in contemporary culture become something of an icon signalling freedom. In an era when many complain about how 'society' maps out, organises and polices almost every single aspect of the citizens' life, following Kerouac (another icon in the same kit) in taking to the road designates an act of revolt and liberation. But where is the irony then?

Entering the road is, no matter how spontaneous it may seem in a certain situation from an individual's point of view, as far from an informal and unregulated activity as one can come. To start with, the person who is to drive a vehicle on roads (with the exception for some light ones) must be authorised to do so. Road use is not like telephony where the user just has to pick up the phone and call someone. You cannot be just anybody - you have to be in possession of a driver's license. You even have to carry an artefact proving that qualification once up on the road. And before that point, in what for many come out as a laborious as well as expensive exercise, you must pass a specific education to become

that privileged somebody trusted by the authorities to get engaged in road interaction.[35]

Not much discretion in this, it seems. However, having passed that test and having remembered to bring the piece of paper accepted as proof of it, you are free to enter the road anytime (if you are sober, that is); even at the age of 87. It is different for another element involved – the vehicle. This enjoys no life-long trust from society. Once a year it has to pass its own test, performed by persons having themselves passed a test to become authorised inspectors. And yet another element of road interaction, the roads and their many 'accessories' on or along the roads, are surveyed and maintained even more regularly; daily, or continuously. This requires an organisation, well several, since there is one for the state roads, others for the municipalities' roads, and yet others for local roads or by-paths. We pay tax or fees to all those. We need traffic insurance. There are legal agencies and expertise regulating road behaviour and conflicts. There are fire engines, ambulances and tow trucks assisting in accidents. There are road-related interest groups; and so forth. In short – roads come with a massive amount of organising and regulation.

So much for the spirit of liberty. There may of course be good reasons why the elements of road use have to be conditioned, regulated, inspected; possibly at the expense of individual freedom. The reader may e.g. claim that the comparison with using telephony halts. Although there are harassments, 'terror' and even worse things taking place over the telephone lines (or whatever transmission there is), people very rarely get killed by it. By contrast, and very tragically of course, mortal outcome far to often occur when the interaction concerning road behaviour somehow fails.

Without downplaying the need to reduce this risk by all the means at our disposal, I argue that a significant part of the legislation and regulation (including that which we delegate to non-humans, i.e. technology, to execute) is propelled by an implicit model of how road interaction is to be accomplished *sociologic lly*. In other words, the road management we have – although certainly for the good purpose of serving collective goods such as safety, justice, collaboration, efficiency – does not simply afford neutral contexts or frameworks; it orchestrates and reproduces in all its diversity and commonplaceness a specific scientific 'road-interaction-paradigm'.

The three road perspectives presented in the previous section, help me to elaborate this argument. As the rest of this section will demonstrate, 'infrastructure' and 'system' constitute the conceptual core of the 'The Legislator's View', while the road understood as media largely remains marginal, counter-intuitive or sometimes even hostile vis-à-vis the dominating paradigm. This is not exclusively the product of policies, decisions and everyday actions of road authorities. Here, like in many other areas, Academia and the community of road use practitioners, have become interwoven through the phenomenon we often call 'applied science'.[36] Examples of this Science/Traffic entanglement have already been given, and a few more will soon follow, but a detailed account of it is beyond the scope of my work. Instead, I will, after having outlined the

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[35] It has recently been decided in Sweden that not only the individual who aspires to get a driver's licence has to be scrutinised, the tutors whom the aspirant drives with must also partake in a course which can entitle them to teach the particular aspirant. Being a member, i.e. having a driver's licence, is not enough to pass the knowledge of road use.
[36] Cf. Bauman (1989)

Legislator's view, in section 1.4 (introduction), and then again in Chapter 3 (in-depth), present my own academic inspirations.

1.3.1 Engineering interaction

a) Prescribing members knowledge. Let me then return to the driver's license to use it as a witness of what type of knowledge or competence the Legislator here demands the future road user to acquire. First then, there is a lot of knowledge concerning 'how the system works' which is *not* required of you.[37] The demands are instead largely about social competence, but social in a certain sense. We have to learn about rules and norms, and quite substantially too; for many, I imagine, learning to drive in a driving-school may well be facing the most extensive series of interrelated rules during his or her entire lifetime. Learning which those rules are, recognising their relevance in a certain situation (but not in others), and applying them while driving a vehicle, are here established as the firm foundation for social interaction; road competence as rule competence.

Without underestimating what it takes, in a perhaps stressful situation with many other humans and non-humans, to learn to recognise when a rule is applicable or not, this approach only speaks to one type of skill or trait of social interaction. The human sciences have demonstrated the existence of many more. But in traffic it is strongly predominant, I claim. The view of the social as conveyed through those license requirements is manifested in a long row of policies, practices and procedures. They are held together by a common epistemology and cosmology, represented by the left side of dichotomies such as prohibitive-permissive; exclusive-inclusive; universal-local, routinised-improvised; uniform-varied. This resonates the emphasis that the lion's share of sociology ever since its coming into being some hundred years ago has placed on the decisive role of norms, rules and pure categories for explaining how social order is accomplished.

b) Limiting the repertoire of acts. Roads are typically cut in the middle, with a mark, a line, indicating that drivers should use the right side in the direction they are heading. Roads are of course also sometimes separated vertically. By building roads which minimise the risk of encountering others, limiting interaction both in form and content, legislators can isolate and anticipate the repertoire of behaviour available for those who might have to interact. In traffic separation is just about everywhere: those that drive a car can use the major segments of the road; you are a cyclist? then you are restricted to that vertical sub-segment; oh! you are a pedestrian, well then we have this pavement for you, and don't you dare bringing your animals – we haven't made a vertical segment for them – not yet. We will sort it out all right, you can be sure – you just trust your road administrators.

In case you don't trust them, or if at some occasion they themselves lose faith in what they do, then you can always listen to experts ready to restore that faith; here in the wording of a traffic psychologist, sold on separation:

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[37] For example you don't have to know anything about how the pistons in the engine of a car transforms energy into speed, or how the laws of surface tension or climate conditions affect various materials composing the roadway.

Traffic separation linked to a classification of all road categories is a hitherto unrivalled way of solving the conflicting demands of road safety and accessibility … the mere emergence of 'informal rules' (e.g. concerning who should give way to another) is a result of conflicts which shouldn't be there in the first place, and they should be taken care of, to the extent they are not adaptive, simply by being eliminated. [38]

As the sun sometimes is mirrored even in a teaspoon, this short quote is in my eyes quite illustrative for the Legislator's View of road interaction. Its strong belief in pure categories and in formalising social interaction well echoes the rationale of current road administration. Unmistakably intertwined with this rationale is the notion of the 'black box', a widely adopted term in science and technology studies. It refers to the use of something (e.g. a machine, a fact, a representation, a category, a mind) in relation to which one only chooses to focus on the input and the output. Its associations, interpretative practices, et cetera, are dismissed; rendering the complexity of it opaque. A related notion is here 'homeostat', originally a device transforming many different inputs into a stable output, constructed by the founders of cybernetics in the late 1940's.[39] There is also a link with the early 'behaviourists' who argued in favour of refraining from studying the complex mind and instead strictly stick to the input and the output of human behaviour – stimuli and response. More pertinent here, modern cognitive psychology was founded in close interaction with the cybernetic ideas on homeostasis and closed system rationality. Their great trust in management by rules and plans presuppose that humans (as well as non-humans) do little else than simply transport information, messages and meaning.

1.3.2 Re-routing control:
when anomalies of interaction challenge the hegemony

The vertical/parallel separation of traffic is the unprecedented way to minimise interaction between different means of movement. Still legislators regularly face conflicts and anomalies which challenge their view on interaction. In a recent dissertation, Gunilla Björklund raises this problem when looking closer at driver-interaction[40], while, however, simultaneously conserving the road-interaction-paradigm. She starts by establishing that road use necessarily requires negotiation: 'To make the driving task possible every road user has to take the intentions and behaviours of other users into account. In other words, road users have to interact with each other.'[41]

Corroborating that, her study presents a row of examples where driver behaviour must be regarded as genuinely uncertain; neither a reliable input nor any causal output can be predicted. Different drivers follow different sets of rules; informal rules evolve, sometimes in opposition to official rules. They not only must interpret each other's intentions but also what set of rules co-drivers may comply to in order to make their predictions. According to Björklund, informal rules are still caused by vague and conflicting *inform tion in the situ tion*, confusing the decisions made by the individual driver. For example *physic l* features disturb the

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[38] Gärling (1999: 48).
[39] Rosenblueth et al (1943); Beer (1959; 1972).
[40] There is a small but significant linguistic difference of words here. Throughout this thesis I will refer to road interaction or roadside interaction whereas the practitioners of traffic psychology speak of driver-interaction. For them, the intentions and actions explaining behaviour are to be found in the subjective (driver's) mind, shaped by his or her cognitive (intra-subjective) abilities, whereas I understand them as inter-subjective, distributed and collaborative accomplishments.
[41] Björklund (2005:7).

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flow of information causing informal rules to develop. The solution to the problems caused by informal rules is that they '... could be diminished if the road traffic regulations were adjusted to the road design and natural behaviour patterns of humans.'[42]

Even though Björklund tries to amend the Legislator's view, her study on driver-interaction shows that there are clear limits to the applicability of traffic separation. It is simply not possible to isolate each individual to their own road or route; even Legislators have to allow some degree of interaction.[43] Road-administrators are forced to use also alternative modes of control. They for example add information systems to eliminate misinterpretations. Signs are placed along roads so that drivers are reminded of how they should act. Speed limit signs are posted; and if not followed, the police can enforce compliance through speed traps. If the police force is too small, cameras can be installed acting similarly to the speed traps. If drivers only comply with regulations when passing these cameras, legislators may suggest that they should photograph every car passing and calculate the time and distance between series of cameras in order to impose a fine.[44] Alternatively, the speed regulation is enforced automatically in the car, inhibiting the driver to go faster than the speed limit.[45] The developments in Intelligent Transport Systems (ITS), nicely exemplify current efforts to realise the Legislator's view notwithstanding that separation is insufficient to resolve any indistinctness. Hence, ITS can be understood as a lavishly equipped chain of amendments in the way of Björklund.

1.3.3 Folk sociologists as rival legislators:
the possibility of the impossibility of eliminating uncertainty

Despite all efforts of eliminating uncertainty in traffic, there apparently remains the possibility that traffic, contradictory to the infrastructure and system perspectives, cannot be understood using causal relations within a predefined set of variables. Neither humans nor non-humans act like black boxes; instead they act, react and interact in disparate, heterogeneous and only partially comprehendible ways. We transgress and continuously translate rules just as much as we comply with them.

Let me illustrate this by displaying how, *eside* formal signs, non-official signs are mounted along the roadside on people's own accord. As two informants pointed out, this is quite common and made into praxis, even though formally prohibited:

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[42] Björklund (2005:35-36).
[43] For example – at what particular point is one to put a stop to separation? Björklund herself identifies certain new categories which perhaps should have their own separate lanes, like 'the aggressive group' and 'the cautious group'. In addition, she notices a correlation between gender and traffic behaviour. Should we then have separate lanes for women and men? After all, existing law prescribes that they should have equal access to the road system. Another problem is animals, they are ever so hard to get to move within their perimeters; they ignore both signs and fences, and continue to act in ways which are unpredictable. A real challenge for separationists, that is.
[44] Suggested e.g. at a seminar on speed traps by a legislator in Stockholm 2005.
[45] For example a big test called ISA (Intelligent Speed Adaptation) was launched in Sweden between 1999 and 2002 to test and evaluate in-vehicle speed controlling systems, cf. Biding & Lind (2002).

1	**Alexandra:** You can't mount signs as you like…
2	**Peter:** There are rules regarding signs and actually you're prohibited to mount
3	signs at all without permits.
4	**Alexandra:** Well yes, but everyone does it, all these flea markets and
5	everything else.

Figure 1.3: A couple discussing a flourishing roadside road sign practice (interview excerpt).[46]

While both Alexandra and Peter here acknowledge the institutional monopoly on displaying information along the road, they also contest it by claiming that no one conforms to its rules. Regulation and praxis are two different things. Accordingly, in parallel to authorised systems of information, people post personal signs. These inform, guide or warn drivers, promote products and events. They are esthetical, express personal and political views, announce activities taking place, or mark out specific recollections such as a place where someone dear died. They here and there translate the road/roadside into a shopping area, a graffiti board or a graveyard. They may be vital for the understanding of a particular place and road section, and are often silently sanctioned by the road inspectors. Through these expressions of the road the liveliness of the setting is shared, creating a sensation that it is vibrating with life. We experience the road differently by endorsing the interaction provided through the kinetic movement of a particular road section cast as media.

1.4 Towards a sociology of the road: mediators on the move

> It is perhaps difficult to conceive of traffic as anything more than a simplified communicational environment in which interactional relations are reduced to fleeting and impersonal modes of 'contact' (or, better, avoidance of contact), and the highly stereotypical forms of signalling may be too obvious to be worth serious analytic attention by students of human communication.[47]

Needless to say again perhaps, the categories introduced in the last two sections are generalisations. They may look distinct on paper, but once appearing in relation to 'reality' they only very rarely are to be found in their clear-cut, pure form. They may nevertheless capture mental models influential for the everyday perceptions and accomplishments of practitioners, whether belonging to the realms of the Legislator or the camps of academia. These two are entangled with one another, too, and I earlier claimed that the neglect or trivialisation of road interaction (cf. the above quotation) is linked to their joint inadequate conceptualisation of 'the social'.

I will leave it there, since the purpose of my work is <u>not</u> to comprehensively lay bare the analytical underpinnings of the current regimes of road use. The previous section was there to display an important source of motivation for my work, not the agenda to be pursued. In this last section of the first chapter, I will instead take a first

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[46] Author's recorded transcript from interview with two roadside residents, conducted at the roadside residents home, 2003-08-05, rural area, east Sweden.
[47] M. Lynch (1993:155).

stock on the resources, which I have mobilised as guidance in trying to fulfil the first overriding purpose of my work, which then is:

> – *to counterbalance the predominance of insufficient or inadequate road conceptions by providing alternative sociological modes of) observations and interpretations of road interaction first principal purpose).*

Two pillars of how to go about that have already been accounted for: my perhaps at first queer choice of the roadside as home ground or 'truth-spot'[48] for studying mobility (cf. section 1.1), and my epistemic strategy of proactively looking into the role of 'mediators' in creating and sustaining road communication (cf. section 1.2). Proceeding from there, four academic cohorts mobilised as my guides and allies, will now be introduced: the schools of ethnomethodology (EM), action-network theory (ANT), computer-supported cooperative work (CSCW), and, as the least coherent one, a grouping I will label 'Cultural Studies of Road Mobilities' (CRM).[49]

My work has a rather complex relationship with these cohorts. Hence, the four studies making up the second part of this thesis have been carried out, documented and published mainly within the institutional context of CSCW. This vibrant camp, emerging within informatics in conjunction with a motley but dedicated crew of 'reflective practitioners'[50], sometimes emphasises its kinship with EM. In addition, it fairly frequently makes references to CRM; though by way of epistemology, these two communities may appear as largely incommensurable.

With its focus on rethinking and renewing information system design theory and practice – acknowledging the salience of participatory, embodied and constructivist approaches to technology – CSCW clearly qualifies as a contributor to 'STS' (Science and Technology Studies); the academic habitat of my work, and to which ANT belongs. However, due to a persistent unproductive divide between social science on the one side and the design and engineering sciences on the other, few STS/ANT people know about CSCW. Symmetrically, more than at best a shallow awareness of STS is rare within CSCW. Yet there is a good reason why CSCW and STS should gain from recognising each other and engage in an intellectual exchange; one to be traced back to a scholarly ancestor they have in common.

In plain language, Wittgenstein's reflections on the nature of everyday interaction and what it takes to observe 'the ordinary', were once as decisive for the emergence of EM in the late 60's as they became for the new sociology of scientific knowledge one decade later. But whereas this legacy is displayed within CSCW, it, with just a few exceptions[51], seems to have fallen in oblivion within STS. This has obscured the epistemological affinity of the two schools, which is not to deny that there also are important differences in how they have taken on the challenge of

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[48] Cf. Gieryn (2002)

[49] There are other academic cohorts, whose work also have played a substantial role in this thesis, such as communication studies, e.g. Fiske (1990), Visual Sociology and the expanding 'mobility turn' in social sciences e.g. Hannam, Sheller & Urry (2006); Sheller & Urry (2006). Particularly influential are the works by Jörg Beckmann (2001a; 2001b; 2004), John Urry (1999; 2000; 2004; with Sheller, 2000) and Nigel Thrift (2004) see also Featherstone et al (2005). These scholars have eloquently studied the social in the *automobility system*. Without downplaying their importance I have deliberately focused on those contributing to understanding the media perspective of the road.

[50] For a foundational work, see Schon (2003)

[51] Cf. M. Lynch (1993); M. Lynch & Woolgar (1988; 1990).

rendering the ordinary accountable. Pursuing my theoretical interests, and in all modesty, I have therefore set myself the task of breaking this deadlock by inquiring into the affinities as well as the diversities of EM and STS (here represented by ANT). Hence, as composing the second overriding purpose of this thesis, supplementary to the one stated above, I will in Chapter 3 engage myself in the following attempt:

> – *to trace out a theoretical underpinning of alternative interpretations and studies of road interaction by conducting a fairly close, comparative analysis of ethnomethodology and actor-network theory, cast as two complementary challengers of current models of representation (second principal purpose).*

In relation to the fourth school, CRM, I will, to keep the work within reasonable bounds, instead take up a pragmatic attitude. Several references and excerpts from its works will appear in the papers composing the second part of the thesis, however mostly in an eclectic way, not associated with an ambition to account for their wider academic affiliations.

1.4.1 Ethnomethodology

Like sociology at large, EM's overriding concern is to explain the accomplishment of social order. When setting about doing that, a sign of recognition is its fascination of the nakedness of settings within which order is produced. It could for example ask: How can complete strangers organise a car-queue on the petrol station forecourt in ways apparent and acceptable for the cohort present at the station? And how it is that any deviation from that order is delicately obvious, even though there is no institution that monitors the queue, no education on petrol station car-queuing, and no historical relationship among those co-present?

Disciples of EM take this nakedness 'for real'. That is, when proceeding they are careful never to impose any kind of 'cloths' (norms, strategies, structures, contexts, et cetera) on those whose production of social order is to be explained. This they can do only by imposing on themselves a similar nakedness at the outset. This leads them onto a distinct, detached approach vis-à-vis the social object. *First*, social order is here *not* to be found through the investigation of institutionalised social constraints since institutions are the result of social order, not its explanation. Accordingly, social order is treated as a phenomenon locally accomplished within a scene where some cohort concertedly produces this order. *Second*, members of a society are viewed as competent members sensitive to the setting and people around them, acting as 'folk sociologists'. Thus the task for the ethnomethodologist when making assessments, is not to copy and convey the analysis made by the members, instead it is to study the *methods* that the members themselves, as folk sociologists, adopt.

Third, while members constantly adopt methods that account for their own and others' action, these methods are specific for every occasion they engage in. They recognise a queue because of the observable order-productive details of 'doing-queuing', or what the ethnomethodologist would term the *just thisness* of doing-queuing.[52] Hence, ethnomethodologists take seriously the details of the specific setting they study. *Fourth*, as the ethnomethodological domain was formed, it was not

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[52] Following from this, 'just thisness' can only be obtained from 'inside' the situation. Accordingly, as pointed out by M. Lynch (1999), ethnomethodology emphasizes naturalistic settings, perhaps to such an extent that it comes forward solely as a method, not a theory.

just any situation which attracted the researchers. It was their fascination of the ordinary, the commonsense situations, that mundane everyday life often escaping our attention: 'what is right before our eyes but we cannot see because we are blinded by its obviousness.'[53] Roads are examples of settings which easily seem to become a taken-for-granted element of our commonsense world since we need to get along[54].

By conclusion then, the conditions for studying the road, even what it is in the first place, alter when the social element previously used as explanation, is treated as the phenomena we should explain. If social order is the result, then roads must be extremely social. Harold Garfinkel, the founding father of EM, often used traffic flow as a tutorial example. Ethnomethodologists explain the phenomena of social order of traffic by looking into how traffic is recognised by the drivers on the road.

1.4.2 CSCW

Since at least two decades, significant groups within computer science, e.g. CSCW– *Computer Supported Cooperative Work*, have re-formulated the design rationale of information and communication technologies. Four aspects forged the initiation of this community. First, CSCW fills the gap in computer science between micro research of man-machine interface (HCI) and macro research on organisations as, by looking at how information and communication technologies could support small (convivial) work groups. Second, it can be seen as linked to the doctrines of decentralisation and flat organisations in management theory, hinging on small groups' cooperation. Third, from the mid 1980's and onwards, the computer is no longer an isolated unit stored at a distance in some data processing centre, instead it is enmeshed in an intricate network of shared recourses communicating and co-operating interdependently. And fourth, if computers could cooperate and communicate, why shouldn't users also be enabled to do so through computers?[55]

Constitutive for the CSCW school, a paradigm shift then took place, replacing top-down '*automation*' with user-tailored '*support*' as the main imperative for design. The new focus on supporting has raised new demands for the researcher/designer. First, it is crucial to understand the 'complexly social' requirements of the work that computers can support.[56] Seminal studies have showed that work practice is contingent, complex, creative, and sometimes ad hoc situated in ways which no computer can replicate. They require additional work from employees to articulate and 'repair' the shortcomings of information systems.[57] Instead of denying computers a role in this process, the CSCW scholars started to incorporate minute studies of work into the design process. Field studies of an ethnomethodological nature became crucial.[58] Secondly, and closely linked, the objective of computers had to be gradually re-oriented from having merely executed plans and automated sequences into facilitating

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[53] Laurier, (2004a:383); alluding to Wittgenstein's famous self-observation '*…how hard I find it to see what is right in front of my eyes*'.
[54] Bijker & Law (1992) writes about a *tactical* lack of curiosity that is necessary for everyday life.
[55] Bannon (1993); Bowker et al. (1997); Button (2000); Crabtree (2001); Grundin (1994a; 1994b); Moran & Anderson (1990).
[56] The 'social turn' initiated by CSCW (as also by their siblings 'human-computer interaction' and 'participatory design') has far from always functioned smoothly; cf. Dourish (2004); Shapiro (1994).
[57] Cf. Suchman (1987); Gerson & Star (1986); Button & Harper (1993); Berg (1998).
[58] Cf. Button (1993a; 2000); Luff et al (2000b); Bowker et al (1997).

articulation, enabling situated actions, and affording information highly sensitive to the setting and organisation where whey are used.[59]

At first, this community with its original empirical predilection for offices and middle management tasks may not seem to have much in common with roads and roadsides. However, recent re-formations of computer devices in combination with the evolvement of new patterns of mobile work distant working, have pushed the growing cohort of 'CSCW-ethnographers' out on the street. In addition of course, computational devices are now a persistent feature of all public life, not only work; especially mobile phones which are used almost everywhere.[60] Bus drivers, snow sweepers, journalists, consultants, area salesmen, maintenance workers, road inspectors, process engineers, service technicians, hospital staff, patrolling policemen, et cetera, are just a few examples of occupations where daily mobility is accompanied and coordinated with the help of mobile devices, portable or mounted on vehicles.[61]

CSCW is therefore expanding beyond its 'workplace' confinements, confronting the rationale of other computing fields such as ITS (cf. section 1.3.2 above), by adding 'the social' into design.[62] Design generally provides a normative potential – it affords politics or ethics 'by other means'. This potential corresponds with my principal objective of counterbalancing predominant conceptions of road interaction. For two decades now CSCW has transgressed our Cartesian legacy of separation between mind and matter, cognition and action, allowing for a situated agency informed by practical (inter)action; to the benefit of the everyday use, design and accurate social understanding (i.e. sociology) of information and communication technologies.

1.4.3 Actor-Network Theory (ANT)

Like ethnomethodology, actor-network theory is sceptical to the explanatory logic permeating much sociology where society, the social or social order is interpreted through the influence of some pre-existent specifically social categories or factors. Instead, actor-network theory insists that the forces and relationships eventually making up the social typically are composite and multiplex phenomena deserving to be thoroughly studied. Hence, the overall aim of actor-network theory is to trace the quite intricate web spun by the myriad of many different elements *associated* with each other. Only accounted for together, in all their heterogeneity (elements being of different origins, nature, size, et cetera) [63], and studied 'in the making', can these teach us anything useful about agency. 'Social' here designates 'a way of tying together heterogeneous bundles, of *translating* some type of entities into another'.[64] In accord with this, ANT is sometimes labelled the 'sociology of associations'.

It brings along two important investigative guidelines for the way associations should be approached and mapped out. *irst*, social order is

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[59] Cf. Bannon & Schmidt (1991)
[60] For a CSCW-informed collection of papers on mobile phones, see Brown et al (2001).
[61] Cf. Juhlin & Normark-Vesterlind (2001); Juhlin & Weilenmann (2001); Fagrell (2000); Laurier (2001b); Esbjörnsson & Juhlin (2002); Bertelsen & Bødker (2001); Wiberg (2001); Bardram & Bossen (2003); Lundin (2005) to name a few.
[62] For more about using the design rationale of CSCW in relation to ITS, cf. Esbjörnsson (2005); Juhlin et al (2000); Juhlin & Normark-Vesterlind (2001); Juhlin, (2001b).
[63] In contrast to the rigorous epistemic nakedness characterizing EM, ANT thus wholeheartedly attends to 'the fabric of clothes'; both extremes often experienced as offensive by non-believers.
[64] Latour (2000:113).

accomplished not only through the interacting humans co-present in the social occasion, but through everything that acts in the situation. And everything here includes every *thing*. ANT thus recognises how artefacts help to accomplish social order; how they partake in the order-productive cohort. Roads then, are assemblages of technologies, space, spatial arrangements, regulations, rules, signs, symbols, artistic expressions, humans, elks, fences, money, movement, opinions and much more.[65]

Second, when tracing associations, when mapping out the connections of various human and nonhuman actors and studying the order productive associations made, then entities and the properties and meanings which sustain their agency are being recombined or reshaped into other properties by *translation*: '...means displacement, drift, invention, mediation, the creation of a link that did not exist before and that to some degree modifies the original two'.[66] Or phrased in my context: heterogeneous assemblies enable us to use the road and their fringes in a variety of ways through continuous combinations and re-combinations of the available materialities and socialities.

Importantly, ANT distinguishes between actors (human as well as non-human) acting either in causal or non-causal ways, coming forward as intermediaries or mediators respectively. *Intermediaries* then refers to entities that transport, act in predictable ways, and where you are able to discern outcome based on the input[67]. *Mediators* are dissidents to such endeavours, they are entities, which gather and assemble ties, forces and relations in ways that translate and shift previous states. 'Their input is never a good predictor of their output; their specificity has to be taken into account every time. Mediators transform, translate, distort, and modify the elements they are supposed to carry.'[68]

This distinction is significant for the formulations and reformulations of roads and roadsides. If we conceive of the road as a sequential order of intermediaries, then they forward things, enabling people and goods to move smoothly and unaffected: hence, carrying meaning without itself therefore carrying any meaning. However, if the road is essentially an assemblage of mediators, then not even in the practice of transportation, literally, are we relieved from 'the tricks of translation'. Actor-network theory argues for the later description. This should not be misconstrued as a sign of disorder, on the contrary, the success of the cohort of mediators order-productive work enabling others to discern certain predictable patterns. It's just that we need to understand how mediators collaboratively work to create order – that is (to be explored in-depth in chapters 2 and 3), *how representations are made strong.*

1.4.4 Cultural Studies of Road Mobilities (CRM)

My fourth and final source of inspiration is a much more scattered agglomeration of cultural studies that has taken an interest in road use and roadside interaction. These scholars differ in theory, discipline, focus of interest and motives, but largely converge in the way that they understand the road and road mobility through field studies. I will refer to this academic discourse as 'Cultural Studies of Road Mobilities' (CRM).

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[65] Cf. Latour (1988b; 1992); Michael (2000).
[66] Latour (1999a:179).
[67] A bit scornfully this could be described as the wet dream of every ardent evaluator. There is more to it than that, however. When Bloor, one of the founding fathers of the new sociology of science embraced by STS, launched a thorough criticism of Latour (cf. Bloor (1999)), it became apparent that causality for him is an imperative part of all science, and that the objective of his sociology therefore is to identify and analyze those causal relations which are of a social kind.
[68] Latour (2005:39).

Taken together, its work shifts the perspective towards an understanding of the road as based on the abundant interaction taking place through mediators. This shift also includes the function of the roadside, expanding it from being just a corridor of displacement into a site seething from intimate dramas, expressions and games.[69]

As a first distinctive feature, many CRMs minutely describe *how* mediated interaction is accomplished, i.e. the heterogeneous practises of creating, posting and exchanging messages along the road/roadside. In particular they keep track of the various things which mediate meaning. Among the many things taken into account here, cars enjoy a prominent role – it is no surprise that one often speaks of *c r* cultures rather than road cultures.[70] In addition to cars, buildings beside the road do more than provide a shelter; they can express power, attract attention or entertain.[71] Similarly, formal and illegal signs, flags, posters, billboards, bumper stickers, flowerpots, 'totem poles', bus stops, mailboxes, pictures, beer cans, candles, deserted vehicles, petrol stations, speeding cameras, mobile phones, traffic lights, speed bumps, et cetera are used to mediate a message from a sender to a receiver. In short there is a great variety of *medi tors* performing along the roads.

Secondly, CRM reveals *wh t* more specifically these mediators mediate, i.e. the multiple meanings portrayed through the road. It calls attention to a multiplicity of messages regarding legal issues, commercial bargains, personal statements, web addresses, aesthetic expressions, recreational offers, navigational information, safety appeals, poetry, community messages, memorial expressions, religious beliefs, subversive suggestions, political propaganda, sexual innuendos, work-related information, philosophical sophistry, trademarks; to name just a few.

Third, CRM studies *who* the senders and audiences are, i.e. investigate 'citizens authorship' in mass-mediated platforms. It is a personal, vernacular practise, yet observable globally. With road/roadside mediators, individuals can proclaim their personal perspectives, interests, affiliations, faith, values and claims; escaping the anonymity of modern life's mass consumption. 'The authors' can personalise a common location or attach a specific meaning to a publicly accessible place, or visibly participate in discourses of politics and controversy. Salamon, for example, describes how a cluster of bumper stickers appearing after the assassination of Yitzhak Rabin, can be seen as a lively animated folkloristic political discourse between left wing and right wing Israelis.[72] In other words, like the Internet, roads provide the possibility to participate in mass communication, as *uthors*.

Fourth and final, CRM also motivates *why* mediated interaction is essential for the 'workings' of the road/roadside. For example 'the use of bumper stickers to communicate with other drivers on the freeway reduces social distance

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[69] Cf. Davies (1959); Endsby & Towle (1996); Esbjörnsson & Juhlin (2003); Everett (2002); Hartig & Dunn (1998); Juhlin (2001a); Katz (1999); Krampen (1983); Merriman (2004); Morris (1988); Mustienes & Hilland (2004); Petersson (2005); Reid & Reid (2001); Smith (1988); Starrett (1995); Walter & Howarth (2005); Östergren (2006)
[70] Miller (2001); Hagman (2000); Lægran (2002); Gartman, (2004); Inglis (2004); Sheller (2004). Shove's (1998) survey on 'automobility studies' discerns two groups of scientists: those who study the car-in-use on an abstract level, (i.e. in my terminology the road-as-a-system theoreticians); and those who study the car as 'lived life', merely residing under cultural studies.
[71] Cf. Appelyard et al (1964); K. Lynch (1972, 1981); Venturi et al (1977); Heimann (2001).
[72] Salamon (2001), see also Case (1992).

between drivers across physical space'[73], and they 'compensate for the direct contact with people'[74]. Roadside mediators also bridge between and among road users and roadside residents. It enables an exchange where identity and culture can be articulated and eventually re-formulated. For example, during my own fieldwork a member motivated her village's decision to post a private sign in this way: *'since there are many people who do not know that this village is called 'Slut'… and now at least those that pass by will know about us…'*[75] Here the road sign established an entity of 'us' in relation to road users passing by. Roadside mediators, as many CRM's demonstrate, are culturally important since they possess the capability to strengthen one's identity as well as contributing to a shared sense of community and place. By emphatically exploring images, representations, facts, opinions, entertainment, information and other modes of expressions as mediators, the cultures studies of road mobility afford a re-thinking and new sociological recognition of 'the road'; including also – again cf. figure 1.2 – the options on how to cleverly master the many doings enacted along it.

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[73] Aguirre (1990: 95).
[74] K. Lynch & Southworth (1974).
[75] Author's recorded transcript from interview with two roadside residents, 2003-08-08, rural area, north Sweden.

An everyday encounter
with road representations

How can the same thing be understood so very differently? The previous chapter outlined how the road archetypically can be understood in three ways; with correspondingly different implications regarding road communication and road management. In the following passages I will address the principal viability of roads more thoroughly by taking a step out on the actual road at the same time as engaging myself in a phenomenon which is so mundane and interwoven with whatever we do that it rarely is paid that much attention, namely 'Representation'.

I will then claim that representations, once not taken for granted, disclose an ambiguity of vital importance for how we conceptualise 'the social'. Roads rely on the mediating ability that representations harbour since interaction that we traditionally regard as social, such as face-to-face interaction, is preferably to be avoided here. Furthermore, representations constitute the backbone of the many technologies and artefacts populating our roads. In recent years, the road authorities, the car and telecom industry alike, have invented and implemented lots of technical developments and items to improve and assist the workings of the road, thereby increasing the need to gain improved insights into the nature of representations.

As soon will be demonstrated, representations are typically strong and weak at the same time; i.e. they may be ever so weak 'inside' but *must* nevertheless be made strong since they are indispensable for us. But how can that be done – who and what is involved in making representations strong. This innocent little question encompasses the *l itmotif* for most of the following two chapters as well as for the empirical work documented in the second part of the book. It is, I suggest, to be intimately linked also to the question propelling the very genesis of the academic field sociology – how is social order accomplished? – and its epistemic twin issue: how can we get to know about such accomplishments?

2.1 Three images – one road segment:
an introduction to representations

Representations image something without of course being that something. Being in possession of an image of a street puts us in a position to say something about that particular street. It enables us to make certain assumptions and descriptions regarding the place without being there in situ; affording a 'visit-less access'. For example, by looking at the arrow on the sign and the direction of the car displayed in figure 2.1, we can assume that the road imaged is located somewhere where right-side-traffic is stipulated. That excludes at least a few countries like Great Britain, Japan and Kenya. Kenya could have been ruled out here also for the exposed variety of tree or the snow-covered roadway; elements of the image more

radically reducing the number of feasible regions being represented. Image interpretators knowledgeable about designs of national road signs can take yet another leap towards locating the road. Moreover, from the tracks in the snow we can conclude that cyclists use the pavement of the street. Through a picture unused by road users we get information about how they use the road. Representations re-present by relating the primal object under representation to other objects familiar to us, and by relating those objects with yet other objects, the primal object, i.e. in this case the street, becomes *real*istic without being real for us.

Figure 2.1: Picture of a street somewhere − but not anywhere.

These qualities should of course not fool us into believing that the street and the picture of the street are identical ('the map is not the territory', as the French proverb reads). By no means, a whole world separates the two. The picture is two-dimensional, flat, strictly constrained by the colours and the texture provided by the book. The texture of the street is entirely different. It is three-dimensional, four if also adding time, consisting of asphalt, movement, temperature, smells, sounds, bumps, et cetera; with all the dynamic cognitive, kinematic, and tactile sensations involved in that. The picture is a frozen image of a specific time, temperature and light (the snow might be gone by now), which are not repeated in exactly the same way on that street, ever. And there is, as we soon shall see, much more to say about weaknesses inevitably attached to representations.

In figure 2.2 you find another image of the same street; not a photograph but a map. Again, the map has many similarities with the street, it symbolises the same location of both the street and the place where the picture was taken. Wherever there is a bend on the street, there is also a bend represented on the map. Just like the picture, the map is two-dimensional. They both fit into your hand even though the map covers a much larger area than the photograph does. The map is also

different from the picture as it is not as fixed to a specific moment; it too eventually becomes outdated, but the validity of the information on the map normally has a longer duration. The map and the picture are two different images representing the same stretch of the road. Both illustrate something in 'the real world' that we try to capture, order and explain: 'Representation is the means by which we generate images of the object out there'[76].

Figure 2.2: A map showing a segment of the same street.

Figure 2.3: A formal road sign denoting a priority road.

Yet another representation is provided by the sign displayed as figure 2.3. As most formal signs do, it signifies a relationship between a specific road/roadside and the rules or regulations constituting the Legislator's view. It empowers us to differentiate between appropriate and inappropriate, between lawful and illicit behaviour, while being there on the road - in situ. In this case a priority road-sign informs the road-users that they have priority in intersections along that road, and that parking along it is prohibited, imposing a specific behaviour on the road-user.[77]

Figures 2.1 and 2.2 represent a priority road. Cars and busses use the road to pass people living in this neighbourhood. The behaviour on this strip of road is in many ways dictated by the definition 'priority road' - it is vital for our understanding of the road-user's behaviour here, and the sign in figure 2.3 continuously reappears along the road (there even is one in the background of figure 2.1). Accordingly, it may in the eye of a road inhabitant be seen as a crude yet informative image of exactly the same street represented by the photograph and the map. However unlike those, the sign is not limited to the specific street since this is a road sign appearing all over a large area (in this case a Northern hemisphere country), representing a large proportion of its road segments.

The three representations are all representing the same road segment. Even so, they are for me very different representatives. Each captures some, but not all, aspects of the object it is supposed to represent. The photograph represents a visually detailed account of the road, enabling me to focus on aspects of the roadside that, during my visit to this place, I couldn't detect. At the same time it is frozen, fixed to a moment. It does

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[76] Woolgar (1988a:30).
[77] Cf. Vägverket (2004) and SFS (1978) where §1.4.5 presents some rules to be considered in relation to priority road signs.

not represent the use of the road even though for example the snow reveals some traces of moving cars. Similarly, the map provides a downscaled spatial resemblance to a birds-eye-view of the road. By looking at the text, colours and symbols on it, I can suddenly see where I am, both from an imagined birds-eye-view and my perspective *in situ.* But it also leaves out vital information. It does not mark out the pedestrian crossings, the forest only contains one shade of green, and not all the street names are marked out. Finally, the sign provides some clear demarcations of how the road should be used, and how road-users should act in crossings or whenever they are inclined to stop and park their vehicles. Hence it can say something about the use of the road, but not about the shape or texture of the road. All representations say something about this particular road, while they also omit other aspects of precisely the same road.

To become representatives of the same road, the representations need to be actively read or interpreted as such. The representations are not simply there, naked, for us to receive. An image, just like a map and a sign, needs our chains of translations to become transformed from their stylised form and figure to acquire the meaning we eventually ascribe to them. Representations are strongly dependent on proficient interpretations carefully put into practice by the/their reader.

2.2 The road as a media 'lookalike': a plethora of representational objects

Figure 2.4: An image of a road crowded with representations.

Roads and roadsides are overloaded with representations. In addition to maps and road signs, there is a whole road-world of representations out there. Figure 2.4 nicely illustrates this. The picture refers to the same road and route that was displayed in figures 2.1 & 2.2. Here it is not the image as a representation but the representational objects *in* the image that I wish

to focus on. Instead of finding one representation that *informs* the road-user, we find miscellaneous signs conveying an almost kaleidoscopical sensation of the place. The road-roadside assemblage here displays several parallel and simultaneous messages, in relation to whose heterogeneity each representation is to be made accountable.

I can discern approximately thirty representational objects in this image, most of which are mounted by the road authorities. For example, in the foreground there is a yellow circle with a red frame and black text. The letters read '30'. People accustomed to roads immediately identify this sign as a speed limit sign, stating that on this part of the road, the car should be driven no faster than 30 km/h. But the speed limit is limited; the text on the rectangle underneath the 30 sign states that it is only applicable on weekdays between 7:am and 6:pm. Though because it is expressed in a shorthand manner, it is up to the reader to assume this meaning, based on his or her earlier acquaintance with reading road-signs.

Part of a general ability to read road signs is knowing that signs are grouped together depending on what they are intended to represent for the road-user. By looking at form and colour you can for example distinguish between mandatory, prohibitory, informative, and warning signs. A road-user who understands the 30 km/h speed limit sign would most likely also easily understand a 110 km/h sign, considering the *category familiarity* between the two representations. Signs can also be repetitive or overlapping, conveying the same or similar meaning to their readers. Approximately one third of the signs in figure 2.4 refer to the intersection discerned in the background. One sign from each direction of the crossing is not enough to impose appropriate behaviour upon the road-users. Signs are complemented with yet more signs to minimise any kind of ambiguity.

Further, we find signs regulating behaviour between different road users and signs regulating the behaviour between road users and roadside residents. Two of the objects in figure 2.4 can exemplify this. First, the yellow sign with red edges resembles the 'speed limit' sign since it uses the same colours; its shape is however different. This artifact imposes upon the road-user the necessity to give way for/to drivers on the intersecting road. It images a precedence relation between different road users on the very same road segment. Secondly, the blue square sign with narrow white edges addresses both road users and bystanders or pedestrian road users. So the road users facing this sign combination are subordinate at the crossing; not only vis-á-vis fellow road users travelling on the priority road, indicated by the yellow triangular representational object (for those who already know, known as the 'give way sign'), but also vis-á-vis the pedestrians who are entitled to use the road too, indicated by the blue representation (known to the knowledgeable as the 'pedestrian crossing sign'). Phrased in socio-linguistic terms, the latter formats the relation between the road user and the pedestrian.

When widening the perspective from the narrow one of regulation rules, the above representation of the road-user as 'inferior' vis-à-vis the pedestrian is of course objectionable. Cars are after all made of steel, robust and capable of high speed, whereas the flesh of a pedestrian is of a much weaker breed. The sign may therefore impose an inferior role on the road-user, but the latter's appearance as assembled with a vehicle,

obviously in some sense inverts that power relationship. Quite another aspect of the 'pedestrian cross sign' is that it, from the road users' point of view, performs the function of distinguishing the group of (potentially) road-crossing pedestrians from the many other cohorts of bystanders which normally can be ignored (that is, cognitively be treated as an insignificant 'noise').

Figure 2.5: Example of two road label signs, mounted on the lamppost in figure 2.4

Labelling combined with dual or mutual *references* makes up another well-known representation practice being manifested here. Roads are ordered by being given a label, a name. (Figure 2.4 has two road-label signs in the background.) These names are found on the map but also on signs strategically placed beside the road. The map as one representation is mirrored in another representation (the sign) – through this the map and the road become *aligned* with one another. The road labels maintain a relationship between the road and the map. If they are removed or made invisible somehow, the map instantly becomes undermined. The map acquires its virtue and connection to the road through the representations found both on the map and on the roadside.[78]

Blowing up the lower right side of the figure 2.4, sticking up out of the snow, we find an orange sign displaying 'Price reductions', twice in fact, plus the three rows '95–9.72; 96–9.88; 98- '. Like most public places, roadsides are perforated with commercial messages luring us to buy some goods. However, while TV commercials

often are overloaded with slogans saluting the supremacy of a specific product, this one seems to be very scant of information. What is for sale? The focus of the camera view is too narrow to tell us. Once back to having the image less enlarged, we discover that just to the right of the sign is another one which reads 'Petrol price reductions'; and looking yet further to the right we can discern some flags, and then a building, and a store,

Figure 2.6: The petrol station located adjacent to the road in figure 2.4

and indeed a complete petrol station. The message on the sign is here only partially provided by the text appearing on the sign. Equally important for the meaning of the sign is the location and the surroundings of the sign. The sign is an index for the petrol station but the petrol station is also an index for the meaning of the sign. In fact, all the

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[78] The terminology used here to describe representational road objects is influenced by Latour & Hermant (2004), and Latour (2005).

representational objects that we have looked closer at are *indexical*; their meanings are interrelated with their surroundings. In this case it is the petrol station beside the road that adds to the meaning of the sign, but the 'give way sign' and the 'pedestrian crossing sign' were also indexical as their meaning became comprehendible only in relation to two roads or to routes of vehicles- pedestrians crossing each other.

On the left side of our original image, there is a bus stop with a pole on which a sign displays the numbers of passing bus-routes. In addition there is a wind shelter with a roof, accentuating the function of the place as a waiting zone. Through the bus stop bystanders become transformed into road-users and vice versa. Inside the bus shelter, additional representational objects depicting public transport can be found, including a route map, itineraries, and timetables for the bus routes passing this particular stop. By aligning these with a watch, passengers can create for themselves a grand overview, a *mobility panorama*, of the entire public transport organisation available at the roadside. A bus stop addresses both bystanders and road-users, but not all of them of course. Only the sub-categories who either provide or use public transport – i.e. bus-drivers, passengers and passengers-to-be – take an interest in its representations.

There are also road representations which are not that accessible. Some are quite exclusive, directed to a very limited group, referring to the specific knowledge of those few; not to commonsense, or broadly shared experiences. By mere chance rather than due to any road sign expertise, I know how to read one such exclusive representation discernable in figure 2.4 – a small red sign, on the right side of the light-pole, with just the letters 'B P' plus the number '1,6'. During a brief period I learned how to work as a fireman. I therefore know that the red sign signals the location of a firepost. The red colour is easy to spot even under the stress when called out. The B and the P are to be understood as the initials for the Swedish words Brand Post, even though they are used also by British Petroleum; which as a guess wouldn't be far-fetched here, since the sign is placed near to the petrol station. And '1,6' informs those in possession of the required professional knowledge that approximately one and a half meter away from the sign, in the direction that the sign is pointing, there is a fire post, well hidden underneath all the snow.

Usually when I myself am on the road, this particular piece of knowledge does not contribute to the way I understand the order of my world; it is merely curiosa – but for a fireman or firewoman it is not. That too may however add to our understanding of representational objects: they are successful because we are forced to *either explore or ignore* them[79]. The 'BP sign' is of no interest for the regular road-user, it *should* be ignored. Hence the signs in figure 2.4 shift from being profoundly

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[79] The 'explore or ignore' heuristics is not, I propose, at all limited to the art of reading road signs. A statement which, if you like, is my humble little contribution to laying down the conditions linked to post-modernity in general; implied also in the very notion of 'media'.

essential – possibly a matter of life and death – to being insignificant or preferably ignored, depending on the intentions of their readers.

 Consulting for the last time figure 2.4 to track some road representations, there is on the lamppost in the foreground yet another type of sign. The sign is, just like the road-label sign, generally understandable for those who can read. Whereas the road-label sign enables its readers to align the road with a map, this other sign 'aligns' to a very different space – namely to the world of foreign exchange control. Although the text 'Warning' on top of the sign may be associated to a worker on the road in need of expressing an important message to the greater road public, the text 'Vote No' in its lower part effectively directs us towards the domain of political rhetorics. Accordingly, it is very unlikely that the typical road-user would interpret the letters 'EMU' in the mid-section of the poster as referring to a fleet-footed Australian bird (as the typical zoo visitor might have done).[80] Instead, he or she associates these letters as well as the entire poster to multilateral modes of currency control, and their contemporary political manifestation – the European Monetary Union.

The 'EMU sign' differs from the earlier ones inasmuch as it does not carry a message that is relevant for the activity of driving, nor is it important for the workers on the road. It may nevertheless have been perceived as relevant by both drivers and road workers during that election because everybody, regardless of group affiliation, is today affected by the huge network of money transactions and the particular institution which was under scrutiny here. The sign reminds us that roads are more than the movement of people and goods; they for example enable us to voice, disseminate and form political opinions.

2.3 Making representations comprehensible: some tentative conclusions

Appraised within the empirical context of this work, representational objects appear quite successful in a number of respects: formal signs impose or manifest rules, and distribute status and precedence order in-between the mobile cohorts; road-label signs align the map with the road; petrol station commercials attract customers among both road-users and roadside residents; bus stops promote and organise access to public transport; road workers have their own set of signs sustaining their work; even political expressions find their place in this plethora of road communication; et cetera. Behind the many apparently innocent or mundane objects, a constant trade of different meanings addressing different audiences pursuing different motives is going on. In my eyes, it has more in common with the diversity of disseminating messages through a media such as television than with e.g. the flow of electricity channelled through an infrastructure.

Some of the representations flooding our roads are literally built-in, materialised as road artefacts, whereas others are tacit images internalised in drivers, pedestrians as well as in institutions involved in road interaction at a distance. Some of their messages are universal and

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[80] The critical reader may find my construction of this interpretative work too doctored up. Because frankly, who reads the bottom part of the poster *before* turning to the mid-part? So, before encountering the 'Vote No!', some may be inclined to the Australian bird after all.

repetitive, while others are carefully tailored to a particular audience. A similarity in shape and colour can create a 'sign-language' where knowing one aids the interpretation of others. At other occasions signs can instead be designed purposely to stand out from such a sublanguage. Rather than merely displaying information, signs often produce, reproduce or break off relations between road users, between roadside residents, or between these two - if we let them, that is, since gradually we learn not only how to interpret the road representations, we also learn to instinctively decide whether and when we should attend to or simply ignore them. When attended to, road representations can help by making our actions intelligible at the spot where we are right now, or just reminding us of some conditions of the contemporary world.

However, for representations to become useful requires work from those engaging in them. They are accessible in plain sight – but only if we are capable of actively interpreting them. Not without knowing what a bicycle-wheel pattern looks like, can we assume that bicyclists use the pavement. Not until it becomes linked to a reader skilled in translating its various colours and symbols, does an image, map or sign convey meaning. To illustrate this, once lacking a context and an educated reader, the non-figurative sign earlier displayed in figure 2.3, could just as well be a crude symbol for worshipping the sun.

Therefore, concealed in these road objects as in many other representations is actually a text, one requiring a manual or an *interpretative practise* to become intelligibly read, or at all envisioned in the first place. In addition, they hold a specific ambition, which is to be interpreted the same way by their reader as by their 'writer'. To make sure this will happen, authors, for example a representative of 'the Legislator', use all sorts of 'tricks' – such as to develop specific 'sign-languages' (cf. above), to mass-distribute and reiterate messages, or to adopt cognitive theories to accomplish the perfect design for legibility. This certainly helps the authors to achieve their ambition, often a lot presumably; but very rarely, I claim, to the extent that they should expect anything like total certainty or full predictability. For reasons to be elaborated in the first part of the next chapter, as long as the author and the reader are different persons, and as long as there are two or more persons either authoring or reading 'the same' message, representations are *inherently insufficient*.

Their insufficiency is not, as one would think judging from the strategies often worked out by the Legislator's expertise, principally to be understood as due to misunderstandings, cognitive constraints or intellectual disability among the readers, distorting them into misrepresentations. Instead, it is mostly to be understood as the result of two or more coinciding intelligible accounts supporting incommensurable interpretative practices. In the previous section I demonstrated how some accounts of representational objects, being ever so incorrect or even screwy from a Legislator's or sign editor's view, still were intelligible accounts. EMU could once disconnected from political topicalities indeed refer to a bird, BP is also an abbreviation for British Petroleum, and the 'BP sign' could refer to the petrol station instead of the fire post. Hence, the intelligible *meaning* of objects along the road can always be *questioned*.[81]

Indeed, all the signs captured in figure 2.4 are provided and made comprehendible within the specific context where they are located. For example the meaning of the pedestrian crossing sign is provided by its

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[81] Cf. Collins (1992:Ch.1) on 'the awkward student'; and more generally Ch 3 in this work.

proximity to the crossing, the petrol station advert is comprehensible in relation to the adjacent petrol station and the EMU warning sign is a pointer directed to an election held in the fall 2003. Again, by conclusion, the interpretation of representations is intertwined with their contextual location, producing a variety of interpretative practices.

Acknowledging that representations are inherently insufficient or weak even, would not be such a challenging and controversial thing, if it were not because they in many complex human endeavours – and traffic is certainly one of them – are *indispensable* to us. That is, at the same time as being obliged intellectually to affirm that representations by nature and in use (circulating in the everyday practice) are essentially weak, we cannot – neither in our role to cope or survive as members of such an endeavour, nor in our joint responsibility to try to regulate it somehow (all being legislators at the end of the day) – just let them remain being that. They have to be *repaired*; i.e. authors and readers, both individually and collaboratively, have to assiduously work to maintain them, to adapt them to become compatible and converging, serving the in-principle unattainable goal of shared understandings. Representations 'simply' have to be *made strong*.

As long as we are enabled to continuously calibrate, adjust and collaboratively reflect upon the interpretative practices involved, then representations can look fairly insignificant, and still be strong and influential. But although often appearing as quite mundane or tacit, that repair work is never straightforward; even less is it in my mind sociologically trivial or unchallenging. Congruent with the first principal purpose of my work as set forth in section 1.4, I have therefore assigned myself the task of adding to the knowledge of how road representations are made strong. Regardless of whether we think of it as an infrastructure, a system, or as media, the vast network associated with road interaction, comprises a multitude of 'little things' or minor representations which during the course of repair work may become ever so significant. Hence, tracing the role of this wider assortment of personal artefacts or gadgets inhabiting our roads, will be just as important as the workings of representational objects such as road signs.

Concluding this chapter then, my attempts to contribute to a sociology of the road, will be fuelled by an overarching ambition to learn more about how weak representations actually are made strong; how they are repaired; how they are framed; how they are used and distributed; how they are tended and not attended to; how we 'muddle through' and accomplish things, despite their insufficieny and pitfalls. To do so, I have followed bus-drivers as they move between bus stops, as were they bees visiting flowers; I have participated at the work of a petrol station in providing fast and smooth service; and I have documented the population of private, personal, moral and illicit signs mounted along the roads. But before presenting my accounts of that, I will in compliance with the second purpose of the thesis, take the representation discourse one step further, by conducting a comparative analysis of two scholarly communities particularly dedicated to track down repair work and representations *in the making*.

CHAPTER 3:

Two pillars of a sociology
en cting the road

The previous chapter left the reader in a sort of dilemma. On the one hand representations were depicted as indispensable for the workings of the road, as when a sign informs the car driver and the pedestrian of the proper relationship between them at a crossing. On the other hand, the many representational objects competing for attention along the roadside all seemed insufficient, and disturbingly so, considering their dealing with matters of life and death.

As far as their strength was concerned, I in particular pointed out two features enabling representations to become so powerful. First, when interpretating them, we often refer to explanations that capture not only a single event but also relate to past, future or distant events. This referential quality is axiomatic to all activities grasping features beyond the activity itself. Secondly, representations take advantage of the fact that few situations have entirely new characteristics. They are affiliated with objects, events and phenomena we experience, rendering the situation familiar. Through its representation an object becomes aligned to other past, future and remote situations. Further, what some in a situation refer to as an object, others can in a different situation refer to as a representation. Instead of being reduced to a dualism of representation or object, we can take possession of chains of representations.[82]

Pursuing my commentary on the road-based representations arrayed in the previous chapter, I will now look more closely into the nature of representations. For a start (section 3.1), I will explore the fragility of representations, indeed arguing that they are weak by definition. The source of that claim is the questioning of correspondence – how can we, it is sceptically asked, prove that a representation really is a true representation of the object? Is there not always, on closer inspection, the possibility that it is not? This little *grain of doubt* contains in its simplicity the underlying rationale fuelling the theoretical ethos and methodological approaches of this thesis. It goes like this: taking that doubt into account, in a world as heavily permeated with representations as that of road use, you must as a scientist come to understand how people and objects manage to make inherently weak representations strong.

This requires sharp tools, i.e. constructs and methods capable of sensing and articulating the minute details and expressions through which humans and non-humans interact in the context of road use. Disappointed over the extent to which mainstream social theory seems to offer these, if it at all acknowledges the need for them, I have associated myself with two scholarly communities briefly introduced in chapter one: ethnomethodology and actor-network theory. With no illusions of doing

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[82] On resemblance and reference as the core of representations, cf. M. Lynch & Woolgar (1988), see also Latour (1988a).

them full justice, the bulk of this chapter – sections 3.2 and 3.3 – will be devoted to an account of how these two schools go about unveiling the work involved in 'negotiating representations'. As will be concluded (3.4), they sometimes provide quite different answers, and they differ even more in how they have chosen to re-present how representations are rendered strong. Nevertheless much more unites them and they both share with the author the fate of being captured and intrigued by that little grain of doubt.

3.1 The Insufficiency of Representations

This obviously was also true for the sociologist of science Steve Woolgar who wrote a slender but significant book to get to the bottom of weak representations. In the course of his analysis an entire epistemic complex emerged – 'The Problem' – harbouring three interrelated insufficiencies.

3.1.1 The Problem of inconcludability

irst, in any given situation there always remains an *inconcludability* between a representation and the object it is supposed to capture.

> It is always possible to ask for further clarification, elaboration, elucidation and the like. Attempts to meet this request are ultimately doomed to failure in the sense that they inevitably involve the use of other representations (in the form of words, signs, gestures, graphs, and so on) as part of the clarification process and these documents can themselves be subject to the same kind of requests for yet further elucidation.[83]

A classical demonstration of this is Harold Garfinkel's student exercise:

> Students were asked to report common conversations by writing on the left side of a sheet what the parties actually said and on the right side what they and their partners understood that they were talking about. …

> …Students filled out the left side of the sheet quickly and easily, but found the right side incomparably more difficult. When the assignment was made, many asked how much I wanted them to write. As I progressively imposed accuracy, clarity, and distinctness, the task became increasingly laborious. Finally, when I required that they assume I would know what they had actually talked about only from reading literary what they wrote literary, they gave up with a complaint that the task was impossible.[84]

As Garfinkel himself points out here, the complaint of the impossibility of completing the exercise was not that the students did not have enough time or resources to complete the task but that 'The very way of accomplishing the task multiplied its features'.[85] By repeatedly being asked to clarify the background expectancies in relation to the conversation, the students were pushed to create texts which successively required further clarifications to become fully comprehensible. It proved impossible to establish a precise understanding of the conversations by differentiating between what was said and what was talked about. Nor did the students manage to get rid of the interpretative ambiguity by filling the remaining gaps of what was said with intentions, beliefs, thoughts, and so forth. They simply couldn't stop the process from regressing.

Not only Garfinkel's students have become frustrated over the never-ending nature of representations. For example when looking at the road signs in chapter 2 we were able to produce alternative but still intelligible accounts of these objects (cf 'EMU' and 'BP'). As soon as differences in the

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[83] Woolgar (1988a: 32)
[84] Garfinkel (1967: 26)
[85] Ibid: 28

backgrounds of interpreters were considered, some unambiguity remained. And I assume that every parent, like myself, can provide numerous examples of children at different stages of their development testing you and the limits of representations by posing follow-up question to every answer you come up with. The inconcludability of representations seems as mundane as it is universal.

3.1.2 The Problem of indexicality

Second, following Woolgar, a problem immanent in representations concerns their *indexicality*. This term has been traced back to Bar-Hillel's early efforts in developing computerised methods for translating texts from one language to another. His work resulted in the identification of a wide range of terms – such as pronouns, deictic expressions, anaphoric usages, auxiliary verbs, diffuse tokens and idiomatic expressions – which he designated 'indexical expressions' They made computerisation quite difficult[86] since: 1) they could not be translated in advance; 2) their sense varied with the occasion of use; and 3) the contexts implicated by such terms were themselves variable. Thus, indexical expressions are problematic as their reference changes with each occasion of use[87].

According to Garfinkel, indexical expressions are everywhere in everyday life:

> The demonstrably rational properties of indexical expressions and indexical actions are an ongoing achievement of the organized activities of everyday life. Here is the heart of the matter. The managed production of this phenomenon in every aspect, from every perspective, and in every stage retains its character for members of serious, practical tasks, subject to every exigency of organizationally situated conduct.[88]

The pioneer of conversation analysis, Harvey Sacks, once used the following two sentences to illustrate one salient feature of indexical expressions, namely the importance of sequence: 'The baby cried. The mother picked him up.' At first they appear unproblematic. Most of us would probably describe a situation where a baby, in a cradle perhaps, starts to cry whereupon the mother rushes to comfort it. But the feature Sacks wants to draw our attention to is how our interpretation here is dependent on the sequence of the two sentences. By changing their order a radically different understanding of the situation appears: 'The mother picked him up. The baby cried.' Suddenly the meaning has changed, even though we still envision a mother holding a child who cries. Since indexicality is inseparable from creating meaning, no communication involving words and sentences provides an objective – i.e. a non-relational, immutable – hard core of meaning.[89]

As demonstrated in chapter 2, indexicality is absolutely essential for the meanings of representational objects along the roads. Without the information afforded by the index of the signs, messages would soon start to disintegrate.

3.1.3 The Problem of reflexivity

Third, any representation is captured in its own *reflexivity*; it is, still following Woolgar, elaborated by drawing on the knowledge of the

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[86] Computer scientists still struggle with the difficulties of indexicality. Although finding new ways of working around them, they fail to eliminate them completely; Liberman et al. (2005).
[87] M. Lynch (1993:19; 184).
[88] Garfinkel (1967:34).
[89] Sacks's classical example is described in e.g. Livingston (1987). For a general account of indexical expressions, see also Barnes & Law (1976).

represented object, at the same time as that knowledge is elaborated by what is known about the representation[90]. We anticipate and rely on a reciprocal mode of cross-reference between representation and object to confirm the validity of their relationship.

Many scholarly groups and disciplines have taken a keen interest in the reflexivity problem. One major issue refers to an ethnographer's dependence on and strategic use of personal experiences when encountering and interpreting an organisation or culture, which has today become an almost compulsory feature in reporting accounts in social science. Another reflexivity discourse refer to the methodology of research by taking seriously that if knowledge, including scientific knowledge, is a social construction, then the knowledge claims of those studying the constructors' work must be social constructions too.[91]

Yet another principal aspect of reflexivity emerged from the observations of everyday social interaction as developed within ethnomethodology. It focuses on how the sense of a question, indicative gesture, or silence in conversation as a 'collaborative reflexive achievement' makes up a persistent trait of interaction:

> With respect to the problematic character of practical actions and to the practical adequacy of their enquiries, members take for granted that members must at the outset 'know' the setting in which he is to operate if his practices are to serve as measures to bring particular, located features of these settings to recognizable account. They treat as the most passing matter of fact that members' accounts, of every sort, in all their logical modes, with all of their uses, and for every method of their assembly, are constituent features of the setting they make observable. Members know, require, count on, and make use of this reflexivity to produce, accomplish, recognize, or demonstrate rational-adequacy-for-all-practical-purposes of their procedures and findings.[92]

Illustrating this, the road objects with which we got acquainted represent something meaningful only as long as we act according to the behaviour that these representations suggest. A bus stop is only a bus stop as long as busses regularly and predictably stop at the bus stop to pick up and drop off passengers, and a petrol station totem only works as long as customers come and go.

In science studies this form of reflexivity has attracted much attention. Pickering's study on neutral wave energy physics provides an elucidatory example. A European group reported in 1973 the discovery of a 'weak-neutral current', described as a major landmark in the development of gauge theories (a class of quantum field theories). On closer inspection, Pickering showed 'that the reality of the weak neutral current was the *ups ot* of the particle physicists' practices, and not the reverse'[93]. It was whether some inscriptions should be understood as 'neutron background' or as indications of 'weak neutral current', that for a long period decided whether this current was detected or not detected; the interpretative practice and the natural phenomenon were inseparable[94].

Not until theories supporting the existence of 'weak neutral current' in the early 1970s grew appealing enough to offer a new intellectual climate,

[90] Woolgar (1988a:33).
[91] This implication of reflexivity has, since it first was established as a keystone of the Strong Programme (Bloor (1973;1976)), been debated again and again within the STS scholarly community. Particularly heated was the debate on 'new literary forms' that Woolgar and Ashmore (Woolgar (1988b); Woolgar & Ashmore (1988); Ashmore (1989)) experimented with. See also Hine (2000:50-57) on different tactics for responding to this challenge of representations.
[92] Garfinkel (1967:8).
[93] Pickering (1984:87).
[94] Ibid: 97

was it 'actually discovered'; though experiments both prior and subsequent to this date were consistent with the theories. Representation and object constituted each other:

> The assessment of natural phenomena is itself conditioned by the dynamical aspect of scientific practice: that is, by the continuing process of choice of experimenters to perform one experiment rather than another and of theorists to elaborate one theory rather than another. The central idea implicit in this aspect of the analysis has been that… within the dynamical system so constituted, natural phenomena are the medium which sustains, and is sustained by, a symbiosis of experimental and theoretical practice – a symbiosis wherein each realm of practice constitutes both justification and subject matter for the other.[95]

Taken together the three principal features now introduced highlight the inherent weaknesses of representations; any form of knowledge production that hinges on the object/representation connection is axiomatically insufficient. Concluding with our guide, we can never disregard these 'methodological horrors', which, far from being introspective, call for an onslaught 'reevaluating the fundamental assumptions of modern thought.'[96] The recognition of those horrors was constitutive of the vivid vein of scientific relativism established by The Strong Program.[97]

If representations always are associated with methodological horrors, then the sociological feat is not to show that they actually are, but rather *how* they are made strong or robust enough in the specific situation or context where they are used. What kind of work, resources and transformations are involved? In what follows I will present ANT analysts and ethnomethodologists inquiring into the accomplishments of representations, each in their own distinct way but also complementary to one another, by observing representations *in the making*.

3.2 In Pursuit of a Sociology Beyond the Horrors of Representation (I): Situated Interpretative Practice (EM)

3.2.1 Accomplishing Accountability

> 'Ethno' refers to members of a social or cultural group (or in Garfinkel's terms, members of a local social scene) and 'method' refers to the things members routinely do to create and recreate the various recognizable social actions or social practises. 'Ology' as in the word 'sociology' implies the study of, or the logic of, these methods. Thus Ethnomethodology means the study of members' methods for producing recognizable social orders.[98]

As made clear in the quote, EM represents a very simple idea, namely studying the methods humans use to make sense of the world and the order of the world. To study this, ethnomethodologists start by affirming that the order and sense of the situation is something people must work constantly to achieve, based on witnessed accounts which people must be able to identify: 'ethnomethodological studies analyze everyday activities as members' methods for making those same activities visibly-rational-for-all-practical-purposes, i.e.

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[95] Ibid: 114.
[96] Woolgar (1988a:30).
[97] Bloor (1973;1976) & Barnes (1974). This 'Magna Charta' for a new philosophy and sociology of scientific knowledge (SSK) laid down four basic methodological guidelines – causality, impartiality, symmetry and reflexivity. The principles have since been embraced, contested, reframed, and sometimes pushed to extremes within the wider STS. They also remain influential in ANT. For a review of the debates concerning the Strong Program, see Bohlin (1995:16-59).
[98] Warfield Rawls in Garfinkel (2002:6).

'accountable,' as organizations of commonplace everyday activities.'[99] Accounts, accountable, and accountability all refer to members' co-accomplishment of order and visibility. It is both a process and an accomplishment that can be observed (or rather documented while partaking in it). The minute study of accountability can therefore be seen as 'ethnomethodology's central phenomenon and research recommendation.'[100]

Accountable, as used in EM[101], carries a specific meaning. First, it implies 'the condition that something can be accounted for, that it is something for which accounts can be given.'[102] For example, a group of cars on a petrol station forecourt can be called a queue. Second, accountable implies that something is observable – that, both the person producing the account and the co-present cohort recognising the account can witness it, e.g. that there are cars and drivers on the forecourt and that the cars are placed, observably, in specific ways in relation to each other. Third, accountability is accomplished within and part and parcel of the activity/event that it simultaneously creates orderliness for, e.g. the way the cars are located in relation to each other is the order of the queue as well as the queue itself.

Fourth, accounts and account-able are accomplishments by the cohort, both those producing it and those recognising it. A car queue on a petrol station forecourt is accomplished by the movements of the car drivers, but also by the drivers and staff who enter the forecourt. This mutual achievement by those who produce and recognise the work of making a situation accountable lies behind the description of accounts as 'production and recognition work'.[103] Fifth, the competence required for the production and recognition work is anticipated in the situation, as when a driver places his car in a queue-specific way and takes for granted that everyone will see that s/he is queuing. Sixth, accounts are neither objects nor representations, but in-between; they are assemblages of witnessed objects and activities. And they are not representations, even though the representations are created out of accounts. By illustration, the statement 'queues are created due to the limited amount of pumps in relation to the frequent use of cars' can be seen as predicated on the witnessed existence of queues, which in turn is based on the accomplishment of accounting situations as queues.[104]

3.2.2 Witnessed accounts: scenes, 'just thisness', and 'documents of'

What ethnomethodologists study then, are the witnessed accounts on the basis of which the cohort accomplishes social order. This is achieved within immortal, ordinary society – i.e. among members of a local social scene.[105] For ethnomethodologists this scene is restricted to the situations where the cohorts' order-productive work appears, exclusively created *wit in* the situation. Ethnomethodologists emphasise this scene rather than 'individuals', 'groups of populations', 'institutions', et cetera.

> The classic demographic questions focus on the characteristics of the individuals who make up the population: gender, race, income, religion, education and so on. Garfinkel's focus on patterned orderliness places the emphasis on the scene and away from the

[99] Garfinkel (1967:vii).
[100] Livingston (1987:141).
[101] See Garfinkel (1967:1-2).
[102] Livingston (1987:123).
[103] Ryave & Schenkein (1974).
[104] Cf Livingston (1987:123ff).
[105] Immortal stems from Durkheim's use of the word and highlights the consistency in social objects, i.e. the great recurrencies of ordinary society, staffed, provided for, produced, observed, and observably, locally and naturally accountable; cf Garfinkel (2002:92 note 1).

population, from this perspective, the variables are in the scene and not in the population. … The sort of social order that classical thinkers like Durkheim were after does not lie in the characteristics of populations, but in their situated details of practise and therefore, cannot be rendered in studies, following Parsons' plenum, which create an analytical universe to replace the real one. Neither can they be revealed by traditional studies of the actor's point of view that focus on individual beliefs, values and perspectives. For Garfinkel, the key lies in the detailed studies of those that are essential to the production of local orders.[106]

EM rejects demographic 'macro' studies as well as 'micro' studies of individuals actors' point of view. Instead the emphasis rests on scenes and their 'just thisness'[107], the epistemological rationale of which is that the 'role', i.e. what someone is accountably seen as, is always created within the situation:

It is the workings of traffic that make its staff available as 'typical' drivers, 'bad' drivers, 'close in' drivers, and anything else that demographers need to have in order to administer a casual account of driving.[108]

The collaborative details of the population that staffs a situation are created by the workings of the phenomenon itself. What people in a situation are seen as does not depend on individual attitudes or conformity to norms, but rather on their production and recognition work, and what they, through this work, are accounted as. Hence it is the populational cohort and its accomplishments that make up the basis for local production of order, not 'identity' or 'institution'.

The explicit focus on the local production of order and their cohort obviously defies the importance of institutions, aggregated structures, global systems et cetera that generally inform 'the sociology of the social'. For example in Wieder's study of the halfway house, the daily life of convicts was strongly regulated by abiding to what was referred to as 'the code', a seemingly invisible code that structured the activities for staff and inmates.[109] Can the order that reoccurred at the halfway house be a locally produced order – when it was so persistent? Yes, definitely. Mutual 'intelligibility is only made possible in and through the enactment of recognizably recurrent local orders of shared enacted practise'[110].

Wieder showed that it was the way the code was told that enforced its structure on the behaviour of the convicts; i.e. the way that the convicts 'told the code' was seen in light of 'the code', while 'the code' was accomplished by 'telling the code'. Acknowledging this profoundly reflexive nature of social interaction ethnomethodologists such as Wider advocate the importance of studying how constraints – code, structure, institutional order, built environment, et cetera – are *realised by the members in the situation*.[111] Thus, if we want to understand how social objects are accomplished, then we can only observe them *in situ*:

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[106] Rawls in Garfinkel (2002:24).
[107] Beside 'just thisness' EM use 'haecceity' to describe 'what makes an object what it uniquely is'. The term highlights that the concreteness of things is part of the phenomenon of social order. If we disregard the details, we also disregard the foundation for accomplishing the social order. On haecceity, see M. Lynch (1993:265ff) and Garfinkel (2002:22,38).
[108] Garfinkel (2002:93, note 3). For other EM-inspired accounts of traffic se also e.g. M. Lynch (1993), Livingston (1987), and Laurier (2001b; 2004b).
[109] Wieder (1974).
[110] Rawls in Garfinkel (2002: 24-25).
[111] Wieder concluded that the code was not dependent on the individuals since staff and convicts changed throughout the study while the code did not. For another example of how institutional constraints are witnessable in the local situation, see Garfinkel (1967:76-103).

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shot gh sqaffic, *It is not the intrinsic structure of that work.*![4]

3.2.3 Ethnomethodology vs Formal Analysis:
Durkheim's aphorism re-visited

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ir an ensisx *sui generis*Ãi,e, one v hich cannos be qedt ced so indiuidt alr[5],
Whe sv o diffeq hov eueq qadicallx v hen is comer so v has one rhot ld qead
inso shas rhaqed awiom, I oq she foqmeq gqot p(rocial oqdeq(oq qasheq 'she
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[2] Piuingrson &; 95?1-'
[3] J aqfinkel &9--0?. 41' dercqiber hov a foqmal analxrs &Jobeqs Neqman' cot ld *specify the
traveling wave as a casual structure of the traffic stream's rate of flow. With it they could also specify
other consequential structures of the wave and the traffic stream.'* Et s shex cot ld onlx obreque shir
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obrequable(and ansicipased in each follov ing acst al care(rince shas v ar v isnerrable onlx fqpm
she peqrpecsiue of she cohoqs accomplirhing she sqaffic v aue,
[4] Piuingrson &; 95?03' Amx isalic,
[5] J aqfinkel &9--0?29)2; (43)49(;.). 0-'AR , Pxnch &; ; 1?. 33'AVav lr &; 95?. 19',
[9] Whe seqm qefeqr so she nosion of a hxposhesical uansage poins oq porision v heqe an obreuqeq
compleselx and objecsiuelx can oueqlook a qereaqch rt bjecs, Whe ideal ir so qemain independens(

conceptualised as objectified (reified) cultural or psychological 'dopes'. Put into practice such a view renders the cohorts' order-productive work invisible, leaving, in the wording of an eloquent scholar concurring with EM's critique, the social scientist with 'soft humans and weak moralities'.[119] Phrased in the terminology introduced in chapter 1, conceiving humans as judgemental dopes[120] is equivalent to treating them as intermediaries, whereas the alternative competent member depiction makes them into mediators. Emanating from this objection against the view of humans as dopes, the critics launched a close-knitted programme that soon opened up a deep divide between itself and mainstream sociology; by Garfinkel referred to as 'formal analysis'[121]

Formal Analysis	Ethnomethodology
• institutional *order*	• interactional *order*
• social *institutions* are constituted by rules and norms of individual behaviour	• social *institutions* exist/are reproduced through contexts of accountability
• *action* conceived as:	• *action* conceived as:
execution of plans; rules/norms obedience	articulation work; situated agency
• variables in the *population*	• variables in the *scene*
• the contingencies of individual differences	• actual recognisable reproduction of practices
• *classic* accountability:	• *natural* accountability:
prove something in the context of existing social theory	design an experiment that would work
• the attitude of *scientific theorising*	• the attitude of *everyday life*
• analytic distance/detachment	• 'vulgarly competent'
• *context* understood as:	• *context* understood as:
- a form of information	- a relational property
- essentially stable	- an occasional property
- delineate, definition in advance	- defined dynamically
- a representational problem separable from action/activity	- an interactional problem

Figure 3.1: *Outlining the rebellious EM mode for 'social order inquiry'.*[122]

A common view is that EM is merely a qualitative method for conducting social science – a particular and for many rather 'queer' version of ethnography lacking any far-reaching theoretical ambitions. Although often quite blunt in rebutting mainstream social analysis, the ethnomethodologists themselves have contributed to this description by their 'distinctive, some would say insolent, attitude towards theorizing.'[123] Against this background, Garfinkel's recent work represents a noticeable shift. It is concerned with 'Durkheim's aphorism' which generally has been read: 'The objective reality of social facts is sociology's fundamental principle.' By returning to

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'removing oneself' from the study so that one can see the object of inquiry in relation to all other things. Such aspirations are however fiercely debunked in both STS and EM cf. Livingston (1987). Op cit note 115
[119] Latour (1992:227).
[120] Garfinkel (1967:66ff)
[121] Parricide is a 'drama element' involved here, as Garfinkel's tutor at the time was the most prominent practitioner of 'formal analysis' among American sociologists –Talcott Parsons.
[122] Glimell & Normark (2004); elaborating M. Lynch (1993) and Dourish (2004).
[123] M. Lynch (1999:212)

this principle proclaiming the core of 'the social', Garfinkel brings the remote EM settlement back to sociology's epistemological mainland, and he does so in an unexpected way.

Hence, instead of contesting this construct of that mainland's most influential early theoretician, Garfinkel questions its predominant interpretation. For the last 90 years, he proposes, the disciples of Formal Analysis have misinterpreted Durkheim's aphorism. The crucial point here is the interpretation of 'principle'. Rather than having had in view the social fact as a pre-existing entity with an inherent explanatory potential, Garfinkel argues that Durkheim, with the word 'principle', may have thought of social facts as the key *phenomena* which sociology was meant to study[124]. This argument, to which I will return in section 3.3.2, resembles Latour's when questioning whether 'the sociologists of the social' have confused that which they should study with that by which they should explain.

3.2.4 EM at the Petrol station:
reading locations and 'doing heterogeneousness'

Let us for a while regard the petrol station forecourt as one of many local scenes where order is accomplished. Here in the overall arrangements of things – the placement of parking-lots, pumps, car-wash, rental-trailer parking, the entrance of the petrol station store, et cetera – everything is used as resources for the order-productive cohorts' accomplishment. For example, parking close to the trailers can be a witnessable account for renting trailers, as in the following observation.

> *A car parks by the trailer and a man walks into the store. His car is parked on the forecourt with the rear of the car pointing in the direction of a trailer in the trailer park. The man walks up to the counter, he says: 'I would like to rent that trailer'. The man also points towards his car as he uses the word 'that'.*[125]

Figure 3.2: The layout of the petrol station forecourt.

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[124] Garfinkel (2002:65-66)
[125] Excerpt from the author's observations at a petrol station, 2002-04-04.

The spatial arrangement[126] of the forecourt, affording a clear view from the counter of the forecourt and the rental-trailers to one side, assisted the conversation between staff and customer (see figure 3.2). By parking in front of a trailer, the effort of describing the object that the man wanted to rent was eased considerably. The car 'pointed' to what the customer 'intended' to do at the petrol station. He also took 'possessional territory'[127] of the space in front of the trailer, thus 'booking' the trailer prior to his formal request to rent it. The relation between the location of the car and the trailer thus made visible was integrated into the conversation as a relational term[128] to make the rental procedure smooth. At times, I observed how the staff already started to prepare the paperwork when they saw someone parking by the trailers. Similarly, if someone parked by the pump, they would write down the license-plate number in case of a 'splash n' dash'[129]. Seeing how and where people park is thus an important aspect of the production and recognition work at the petrol station.

The frequent use of spatial arrangements as clues for the production and recognition work did not however imply that everything had its designated place. On the contrary, people could park and engage in other activities than those primarily associated with the place, but this too was a situated accomplishment. For example people could park in front of the rental trailers without leasing them, they could wait for a pump to become vacant[130], park and buy things in the store, wait for travel companions, change diapers, read newspapers, take coffee breaks, and so forth. Sometimes, these subsidiary tasks were considered inappropriate, especially when more than one visitor wanted to use the same spot for different activities, as in the next observation:

> *A truck driver (A) parks in front of the rental-trailers. He enters the store and buys a cup of coffee and a newspaper. After that, he returns to his truck and steps up into the drivers-seat but the truck does not move. Instead the driver stays at the forecourt, reading his newspaper while sipping coffee. I could see into his truck cabin from the counter where the newspaper was lying on the steering wheel. Twenty to thirty minutes later a car drives up close to the truck. The driver of the car (B) switches to reverse and moves his car so that its rear is facing one of the rental-trailers. Shortly thereafter (B) enters the store asking Barry, a staff member, if he can rent a trailer. Barry assists him with the necessary paperwork. As they finish the procedure and (B) leaves the store, another customer (C) enters asking Barry if the trailer with a railing is vacant. Barry responds that it is, and again he picks up the necessary paperwork. When the papers are signed both Barry and (C) leaves the store. The trailer with a railing is blocked by the truck and on the way to the trailer Barry taps on the far end of the truck. The truck driver (A) removes the newspaper from the steering wheel and shortly afterwards starts his engine.*

[126] Cf. Crabtree (2000); Laurier et al. (2001), a spatial arrangement, such as a petrol station totem, is firstly constructed for its visibility along the road. Secondly, it is known to 'members' of the place; we know that there is a petrol station wherever we see a totem. Thirdly, it is paired with an interactional competence for the use of the place, for the petrol station totem with the activity of refuelling. But also, mirroring an increasing heterogeneity of the place, with the possibility of buying groceries, fixing the car, drinking coffee, et cetera see chapters 6, 7.
[127] Goffman (1971:62), Laurier et al. (2001).
[128] Schegloff (1972).
[129] That is refuel and drive away without paying for the gasoline, cf. chapter 7.
[130] That is accomplishing a queue.

> *Barry drags the trailer to customer (C)'s car while the truck leaves the forecourt.*[131]

The truck driver used the location in front of the rental trailers as a parking lot, where he could take a break and read his newspaper. This was perceived as appropriate at first, since the space in front of the trailer was one of the few locations on the limited forecourt where a truck could stop without doing being 'in the way'. But when the two customers renting trailers arrived the appropriateness of the truck driver's parking became contested. Barry went out on the forecourt to handle the situation and by tapping on the truck made its driver move the vehicle. Through the situation, the staff and customers collaboratively *accomplished* an understanding of the location as for the moment inappropriate to park at in order to relax and drink coffee. The activities taking place at different locations on the forecourt were perceived as *more* or *less* appropriate depending on the appearance of other competing activities in situ.

The co-present cohort used the arrangements of objects, inside the store and on the forecourt, to accomplish order. The order of the place was part of the cohort's accomplishment while it reflexively provided the 'documents of' how that order should be maintained. But not by restricting and limiting the space to a few activities, but instead distributing (allowing/denying) accessibility to a wide variety of services all of which were temporarily considered appropriate or inappropriate depending on the situation, i.e. doing-heterogeneousness.

3.3 In Pursuit of a Sociology Beyond the Horrors of Representation (II): The Sociology of Associations (ANT)

3.3.1 Rethinking agency

In addition to being as intrigued by how inherently weak representations can be made strong as are the EM practicians, the next troop on display here has manifested a particular passion for inquiring into the nature of and limits to the very notion of agency: what is it that actually acts? how do objects and subjects relate to acting? what makes one action more powerful than an other? To place that on the agenda, and to advance a theory with agency as its distinctive feature, this troop – namely the school of STS known as 'ANT' (Actor-Network Theory) – early in its formation launched a new construct to help convey its core ideas:

> Whatever acts, or shifts action, action itself being defined by a list of performances through trials; from these performances are deduced a set of competences with which the *actant* is endowed… an actor is an actant endowed with a character (usually anthropomorphic). [132]

At first sight, this addition strikes one as needless or nonsensical even, since an actant seems to be merely a synonym for the established term actor; both are apparently defined by the actions they perform. To illustrate this from the noisy world of road use, 'the driver' is defined by the performance of driving regardless whether he or she is called an actor or an actant. An act is however performed in a setting. In the world of theatre an actor is usually part of assemblages of other actors, décor, props, and so forth; whereas in traffic the driver acts in a setting of roads,

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[131] Excerpt from the author's observations at a petrol station: 04042002
[132] Akrich & Latour (1992:259) (*my emphasis*).

the own car, others' cars, other drivers, signs, and a wide variety of road-based constructions.

Settings often call for a spokesperson. In the theatre setting we may expect a director to step forward as a spokesperson, whereas in the laboratory setting the spokespersons typically are scientists. Importantly, for the analytical perspective as developed by ANT, there are spokespersons speaking for people who in principle could speak for themselves, but also (if you just keep an eye out for them) spokespersons for things which couldn't: '…both people able to talk and things unable to talk have spokesmen … I propose to call whoever and whatever represented *actant*.' [133]

At this point the connotations of 'actor' and 'actant' start to diverge. The use of the latter ANT-coined construct is much more general; it essentially means a *representation-in-its-use*. Creating a relationship between an object and its representation requires work, an effort performed by an actant. Even though its performances define the actant, the purpose of those acts is to establish, maintain, alter the relationship between representation and object –actants are accordingly *mediators* between representation and object. By terming them actants, an initial conceptual basis for a deeper analysis of the relationship between representations and the world 'out there' is laid. The actant is *in-between*; it is established and defined through its dual relationship.

Further, in the breed of sociology being construed and practiced by ANT, an actant never comes naked, since it is irredeemably interlaced with a network. The network comprises the repertoire of associations or resources assembled by the actant enabling it to act. When representations are strong, these associations are rendered invisible, while when weak, they become transparent. Each new constellation of actant and assembled or attracted associations brings new possibilities to act, nourishing and directing agency. The tiny hyphen in the acronym ANT accomodates a productive fusion where the centralised notion 'actant' is fused with the decentralised notion 'network'. Without it, 'actant' would lose its raison d'être and analytical power; since actant and network …

> … designates two faces of the same phenomenon, like waves and particles, the slow realisation that the social is a certain type of circulation that can travel endlessly *without* ever encountering either the micro-level – there is never an interaction that is not framed – or macro-level – there are only local summing up which produce either local totalities ('oligoptica') or total localities (agencies). [134]

For the founders of ANT, the term 'network' essentially depicts a shape of how associations are traced; it maps out a space where 'elements retain their spatial integrity *by virtue of their position in a set of links or relations*' [135] Latour found the term network attractive since it implied a productive dualism between fragility and power, concentrated and diluted, weak and strong. But few labels or concepts which become popular can be protected against being reinterpreted in ways its originators may dislike. Today, echoing ten years of www-transmission, network is often referred to as smooth transport without any transformation or translation. [136] As another distortion from the point of view of the ANT practitioners, network has more and more become another word for social relations or contemporary organisations generally.

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[133] Latour (1987:83-84); more about spokesmen, see ibid: 70-74.
[134] Latour (1999b:18-19).
[135] Law (1999:6) (italics in original)
[136] Cf. Law & Hassard (1999)

3.3.2 Rejuvenating sociology through a 'semiotic turn'

The predominant (dis)course of sociology, i.e. the mode of thinking Garfinkel labelled Formal Analysis, starts and ends with social ties. It presupposes the existence of a social material acting on the members of a specific social cluster. For its scholars, the principal task is to identify and isolate that 'social factor' or 'social dimension', and based on that produce authorised accounts of current trends in society. According to ANT, however, instead of explaining anything, those taken-for-granted social aggregates are exactly what should be explained. Its practitioners therefore assign themselves the very different task of tracing, minutely and agnostically, associations of every imaginable kind – as they become enrolled and circulated by the actants (not the analyst). The motto, to explore 'the very peculiar movement of re-association and reassembling'[137], narrows down the essence of a new sociology –'the sociology of associations'[138].

In order to re-assemble a scene without social aggregates, ANT borrows language and terms from semiotics; since 'inscription of author and users in the scene is very much the same as that of a text.'[139] Latour argues that engineers are more successful than their fellow novelists in crafting stories.[140] In extracting the meaning of a situation the ANT analyst adopts the same approach as semiotic commentaries of a text: 'define actors, endow them with competences and make them do things, and evaluate the sanction of these actions'.[141] Adopting semiotics is to study the production and exchange of meanings in a situation without designating meaning to an *a priori* hidden presence. Instead actants 'achieve their form as a consequence of the relations in which they are located'[142]. The use of semiotics is another approach to studying how some representations are rendered strong, or using ANT terminology '…how one privileged trajectory is built, out of indefinite numbers of possibilities; in that sense, semiotics is the study of order building or path building and may be applied to settings, machines, bodies, and programs as well as texts'[143]. Hence, ANT traces the associations – the 'documents of' everyday life – in multiple directions.[144]

One of the virtues of the semiotic approach is that it does not change mode of analysis depending on the composition of the actant under study. It is analysed the same way regardless of whether the text refers to a human or a non-human actant. This may be trivial when confined to texts, but when it comes to studying how representations are made durable, it is not. As previously mentioned, 'the sociology of the social' focuses on the social material that is postulated to be reserved solely for human assemblages. Human actors are therefore interpreted analytically differently from non-human actants. ANT rejects this dichotomy, instead

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[137] Latour (2005:79)
[138] Ibid:9; 68; 120; 160. Also referred to as 'the sociology of translations', or 'associology'.
[139] Latour (1988b:206).
[140] Latour (1992:248). In a stories an author can *shift out,* temporarily displace the reader in three different narrative modes: actorially, spatially and temporally. The engineer, however, can also shift out materially, moving along a chain of translations that '*forces the reader to choose* between *frames of reference'*(ibid:249). Hence, ANT analysts study how translations of shifting matter change the relations in which actants are located; e.g. Latour uses programming language where a shift in matter becomes a substitution (i.e. OR) while the elements that are tied together refer to the association (i.e. AND). By shifting to new associations of materiality the author can enhance or strengthen her/his association (ibid:250ff).
[141] Latour (1988b:306).
[142] Law (1999:4).
[143] Akrich & Latour (1992:259).
[144] In Science in Action, rebutting commonsense dichotomies was postulated as the 5th rule of method: '*We have to be as undecided as the various actors we follow as to what technoscience is made of; every time an inside/outside divide is built, we should study the two sides simultaneously and make the list, no matter how long and heterogeneous, of those who do the work.'* Latour (1987:258.)

prescribing a general or radical symmetry that interprets all involved actants in the same way[145], like semiotics does with texts.

The web of associations linked to the actant extends to representations of all sorts, making it more durable. When for example three marine biologists in St Brieuc Bay got engaged as spokespersons for fishermen, scientific colleagues *nd* scallops, they did so after having been elected as such by all three of these groups. To make their representation strong, they needed to enrol all three groups, and the fact that one of them in fact consisted of nonhumans did not justify a different set of analytic tools. In his famous account of this, Callon showed that the same analysis could be applied to the fishermen's voting process as to the scallops' role in the voting, both becoming conceivable through a chain of translations[146]. With reference to another ANT classic, a hydraulic doorcheck is, in a scene, a mediator which in very substantial ways participates in the entering-the-building accomplishment.[147]

In a study I myself contributed to, we demonstrated how a revolving door could interrupt and divide groups that walk together – forcing them to regroup after passing. It sometimes rudely squeezed you or hit you in the back, it made it impossible for you to be polite by holding up the door for someone else, it discriminated against those with parcels, trolleys and bags, etcetera. In several ways it participated in the production and recognition work at the scene continuously producing witnessable accounts.[148] This accords with the ANT claim '... we are able to delegate to nonhumans not only force as we have known for centuries but also values, duties, and ethics.'[149] Seemingly 'cold' technologies or artefacts such as physical inscription devices in laboratories or traffic signs along roads, may in fact, analytically regarded, be seething with life.

3.3.3 Delegation/Prescription

For many outside, as well as certainly also inside the STS community[150], ANT's general symmetry has been a hard claim to digest due to its clash with a deep-rooted western morality. But also from an entirely pragmatic or practical point of view, it raises several obstacles. To start with, how do we get mute non-humans to speak for themselves? After all, no technology has yet written an ANT account[151]. The interpretative practice shaped by non-humans is still expressed by human spokespersons, fuelled by their particular interests. And then, how can we obtain a fair understanding of the interpretative practices of artefacts when in so many contexts and situations (in traffic not the least) the functions and mediations they perform are black-boxed.[152] Their assembled associations are rendered invisible as part of their accomplishment. Only when they fail to do their job do we notice them: 'Most of the elements participating in it appear to the gaze only in times of crisis or disturbance: a hole in the bench, a wobbly table, a spilt

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[145] Compare this to SSK's strong program which postulates that success and failure should be analysed and explained with reference to the same categories of causes cf. Barnes & Bloor (1982). Concerning radical symmetry, many SSK scholars are openly critical; see Collins & Yearly (1992), Bloor (1999).
[146] Callon (1986).
[147] Latour (1988b; 1992).
[148] Normark, Weilenmann & Laurier: Unpublished manuscript (course paper).
[149] Latour (1992:232).
[150] A dedicated internal advocate of upholding a clear demarcation between humans' and non-humans' (machines) actions and agency is Harry Collins (1990; 1998; Collins&Kusch1998).
[151] They badly need their passionate ghost writers such as Latour (1996:81-82; 200-202).
[152] Akrich (1992:211).

coffee, a cold that adds its germs to words, a stopped watch, a rumbling tummy, a strong perfume that irritates, a quarrel that flares up.'[153]

Accordingly, any ambitious analyst of technology has to invent tools capable of unveiling the obvious. He or she may have to engage in the scene, taking the role of spokesperson as well as analyst. This in fact implies 'adopting anthropomorphism', reflecting on the actions for which the non-human is a substitute; what would be needed to be done in the absence of the non-human; who would do it instead? and what the non-human prescribes back, for example who are excluded from (inter)action?[154] Alternatively (or as a complement) we can find other spokespersons willing to speak on behalf of the technology.

Akrich has suggested innovators as spokespersons speaking for a technology. As one presents a new technology, one also presents a *script*. These scripts are important in the understanding of non-human interaction, since they can be seen as:

> ''…a key' that can be used to interpret all subsequent events… so long as the circumstances in which the device is used do not diverge too radically from those predicted by the designer, it is likely that the script will become a major element for interpreting interaction between the object and its users.[155]

Design documents, manuals, and engineering literature provide an abundance of exemplifications, rules of conduct and scenarios that script the envisioned use of a technology. But, of course, users then add their own interpretations.[156]

> We cannot be satisfied methodologically with the designer's or the user's point of view alone. Instead we have to go back and forth continually between the designer and the user, between the designer's projected user and the real user, between *the world inscribed in the object* and *the world described by its displacement*.[157]

Both these approaches can help us to develop a language delineating what the technology replaces, that is what is being *delegated* to it. As an exclusively human act, delegation is quite unproblematic - a task that for some reason cannot be performed by the population at large is delegated to an individual or a group of people whose responsibility it now becomes to attend to that specific act. However, even though the responsibility now resides with fewer people, the work of disciplining those delegated to perform the act might still be tedious. Those responsible for the delegated action might go on strike, demanding a greater reward for doing something for others, or they may simply do a poor job as substitutes. Delegation is thus much more than something strictly operational or functional – it is moral, cultural, emotional, psychological, and intersubjective.

Instead of delegating tasks from several to a few humans or vice versa,[158] we can sometimes delegate what has been, and could be human

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[153] Latour & Hermant (2004:plan 35).
[154] Technologies have been described as anthropomorphic in at least three different senses: (1) they are human-made, i.e. constructed; (2) they substitute for the actions of people, is a delegate that occupies a position of a human'; (3) they constrain and shape human behaviour by prescribing back which humans are legible to interact with them. Cf. Latour (1988b; 1992).
[155] Akrich (1992:216). (emphasis in original) When these scripts are successful, then they are not only important as 'documents of' the non-human accountability, but they are equally 'documents of' human accountability cf. Grint & Woolgar (1997:Ch 3).
[156] In Informatics Dourish (2001) is used as example and justification for transparency in scripts on technologies, providing the user with the possibility to add to the technology.
[157] Akrich (1992:208-09)
[158] As the action of refuelling the car – which has translated into an action conducted by road-users and not petrol station attendants.

action to non-humans. An actant defined through the same performance can also be delegated an act. Unfortunately, this translation and its modes of expression do not eradicate the tedious work of disciplining the actant. Joining in with Latour, we all know that many non-humans have a tendency to be quite dumb – *'An unskilled nonhuman groom thus presupposes a skilled human user'*. A non-human actant thus imposes behaviour in return on a human who must interact with the non-human actant. In ANT this behaviour that arises in the interaction is called *prescription*.[159] It implies that the technologies not only *embody* facts, but also values, duties and ethics.

Concluding this sub-section, the concept of delegation enables us to discern in a situation the activities performed by non-human actants as the embodiment of the associations which can be traced to the situation. With the help of some version or combination of the two approaches (stepping in as enunciator of the situation; innovators' scripts) briefly described above, we can form an initial understanding of the mediation of the actant. Let me now try to put this in a more concrete form by returning from the ANT toolbox to a 'truth-spot'[160] overflowing with non-human actants, scripts, delegations, and prescriptions: the city.

3.3.4 Representations in the making: Picturing invisible Paris

> It's to the objects that we now must turn if we want to understand what, day after day, keeps life in the big city together: objects despised under the label 'urban setting', yet whose exquisite urbanity holds the key to our life in common… It seems that the big city is even more populous than Babylon, with a multitude of agitated little beings whose combined action gives height, width and depth to the entangled networks described until now as flat as a board[161]

An example of an effort to trace actant-network associations in everyday city life is found in the sociological 'photo opera' *Invisible Paris*[162]. Here it is not Paris but rather a conglomerate of heterogeneous and parallel Parises that is exhibited. It is not the representation Paris, that is in focus, but the *work of assembling* representations. To begin with, Latour and Hermant follow the whole series of *translations* whereby Paris becomes flattened and condensed, turned into a *panorama* that can be accessed from a rooftop or fitted onto a map; a comprehendible structure that condenses both time and space. This panorama appears only through the work of *circulating reference*:

> … the schedule is clearly there, structuring, active, but only if it is adhered to in its flows, its token-like movements, its transformation of signs into notice boards, notice boards into scribbles, scribbles into adjustments, adjustments into decisions… To see the entire school it is necessary first to inscribe it, then to circulate it and finally to make it correspond to some signposts. The structure then appears, assignable and visible.[163]

Making a schedule or buying a cup of espresso alike, we circulate reference, an accomplishment requiring the assistance of multiple little beings, dockets and signs:

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[159] Akrich (1992). As Latour (1992:232) points out: *'Prescription is the moral and ethical dimension of mechanisms.'*
[160] Gieryn (2006). Truth-spots are 'places' not only in the traditional geographical sense. They are also agglomerations or topologies of both natural and human-built things, as well as the subjects of interpretations and narratives giving them a broader meaning as places.
[161] Latour & Hermant (2004:plan 30).
[162] Ibid.
[163] Ibid:plan 5.

> Like the Ecole des Mines, like the city of Paris, the Café de Flore is lined with counting instruments, measurement devices, allocators of tasks, and inscriptions – dockets and signs. What interests us now is the little jump that a coffee has to make to become a price: a step that is both tiny and infinite[164]

By comparison, I at the petrol station encountered numerous mediators enabling slight transformations by which petrol in the pump could turn into a payment at the counter of the store. Through circulation, a representation or panorama such as a schedule is created that then becomes a structure: 'an ordered power that embraces everything in a single unit, silently telling the few living beings in the corridors what to do or where to go'[165] Similarly, with the help of a timetable passengers and bus-drivers can capture the entire transport system, the numerous 'corridors of roads' lined with bus stops where awaiting passengers can embark on the journey.

This chain of associations, with its circulation and translations, on the one hand *reduces*: leaving us with less locality, particularity, materiality, multiplicity, continuity. But at the same time it *amplifies*: affording more compatibility, standardisation, texts, calculations, circulation, portability, overview and relative universality. Hence, we should 'avoid two symmetrical mistakes: the first would be to forget the gain and to deduct the loss; the second… would be to forget the loss'[166] Traffic command centres that Latour visited are capable of capturing the entirety of Paris by *restraining* that which they are *summing up*. Latour terms these control rooms *olig opticons* since their '… wisdom is proportional to their deliberate blindness.'[167]

As earlier discussed, representations typically connect the situation you are in right now with other similar situations. The surroundings are, as Garfinkel would put it, account-able. We can read associations someone else has provided us with. Whether working-the-queue or doing crossing-a-street, we interact with people, but also with objects which mediate by linking scattered traces:

> I'm neither in control nor without control: I'm formatted. I'm afforded possibilities for my existence, based on teeming devices scattered throughout the city. I go from one offer to the next. To progress a little further I grasp the small bits of programme that others have stuck onto each device for me, like we did as boy scouts in our tracking games, with neither goal nor intention, deciphering one by one the coded messages leading us on and on [168]

Although concerned with links to the similar performance, representational objects can embrace very different ideas about the humans, in this case the Parisians, they enrol. For example traffic lights address essentially obedient pedestrians who attend to signs by conforming to the symbolic expression provided by little green midgets, whereas fences direct pedestrians as a horde only possible to discipline through physical obstructions and robust power. Further, in order for many representations, like a timetable or a schedule, to go from weak to strong, we must *align* their symbols and text on paper to the signs, posts, landmarks, et cetera we encounter in the local situation. This translation is in principal an easy one because the same representations are present both on the map and in the situation. The challenge, however, lies in firmly keeping representational objects available in the situation. 'If nameplates and

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[164] Ibid: plan 14.
[165] Ibid: plan 5.
[166] Ibid: plan 17
[167] Ibid: Plan 17
[168] Ibid: plan 32

signposts are to serve a purpose there has to be a reliable institution to fix them in the right places'[169]

Aligning is not an isolated event, but an assemblage of elements enabling what often seems like a simple operation. If we for example look at the bus-timetable, an intricate web of institutions within and between municipalities – public authorities, unions, local government committees, entrepreneurs, opinion polls, political parties, et cetera – are circulating objectives and demands which eventually are translated into a timetable claiming to monitor the route of the bus. By performing structures – as in this case a time-table – oligopticons force people to comply, making weak representations strong. Simultaneously, a fleet of maintenance workers have to sustain and continuously update signs, symbols and landmarks, such as the bus stop, which must be part of the alignment, as well as the many representations that provide the panorama. However things can go wrong at every step along this chain of references. As we will see in chapters 5-8, it was rather the rule than the exception that these alignments erode or become impaired, questioned and ignored.

3.3.5 White-boxed monitoring – the new delegates along the roadside

Cars are equipped with speedometers and roadsides are cluttered with speed-limit signs making it possible to monitor and compare the speed limit with the current speed of the car – hence speeding should easily be avoided. However, speeding still seems to be the preferred rhythm among drivers.[170] Legislators therefore assign policemen the task of regulating carsons'[171] speed by setting up speed traps and issuing fines (or suspending driving licences). But roads are vast[172] and quite hard to monitor for humans. Therefore those monitoring the monitoring have, to a rapidly increasing extent, started to delegate this task to non-humans – e.g. speed bumps[173], automatic speed adjustment systems and speed cameras – all becoming enrolled in the hitherto inadequate governmental programme 'discipline disobedient carsons to keep within the speed limits'.

The Swedish National Road Administration (SNRA) has in three successive stages implemented cameras to become such indefatigable delegates, busy day and night to bring around carsons inclined to speeding behaviour. First, cameras (figure 3.3:A1) were mounted on a few isolated road stretches to test the technology. Two similar signs were used, one stating that the road was a test area, the other (figure 3.3:B1) making it clear that the test was an 'automatic speed trap'. After this initial testing the cameras were installed on a wider range of roads. The signs speaking for these cameras were much more elaborate (figure 3.3:B2). Road users now had to be convinced of the feasibility of the cameras. The signs justified their existence –*'For increased traffic safety'*– and the repercussions to follow if they none the less are ignored: *'Speeding will lead to automatic*

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[169] Ibid: plan 10

[170] As Laurier (2004b) points out, *speed* for the order-productive cohort is a relational entity. Hence depending on how drivers categorise themselves vis-à-vis other members of the cohort, driving slow and driving fast can often be considered as equally offensive.

[171] Carson is this account's actant, short for car-person, as Michael (2000) and many others point out, since ANT accounts start with the performance, they often exhibit combinations of humans and non-humans that can be said to act in the situation, i.e. hybrid agency or co(a)gency.

[172] In Sweden, approximately 415 000 km constructed corridors counts as roads and more than 5 000 000 vehicles are registered to use them – a large population to monitor in a vast area. Source: SIKA (2006a; 2006b); Vägverket (2006)

[173] One of ANT's most cited articles looks closer at these 'sleeping policemen'; Latour (1999a).

registration of personal information by the Police'.[174] Finally, in a third generation, the camera delegates were enmeshed within a large computer network channelling their many registrations to a control centre (cf. olig-opticon) situated in the far north of Sweden. The sign design is now suddenly very plain (figure 3.3:B3), consisting solely of a camera icon pointing towards the road.

Figure 3.3: *Speed cameras, deployed in three different stages, accompanied by three different representational objects.*

Delegating the monitoring of law-abidingness on this part of the road to white-boxed cameras does not mean that we move from human relations to brute materiality. Each stage is not elimination – automation of the situation – but a translation – a shift of responsibilities in situations where all actants still have to *interact* in order to accomplish the act. Delegation does not imply a one-to-one correspondence between the mediation performed by the human actant and the mediation created by the non-human actant, not even between two non-human actants.

Furthermore, the road signs reveal that these translations require spokespersons. At first, the signs speak for the cameras, displaying them as a feature of a field experiment testing automatic speed monitoring. They educate road users about the purpose of the camera while black-boxing the understanding of the camera into a silhouette. In the second phase, the signs hint at the disciplinary network under construction. They display associations we are expected to align with the camera, starting with the SNRA during the test (cf. figure 3.3:B1), and then with the Police as the cameras became more common (cf. figure 3.3:B2). At this stage these institutions assumed their role as progressive spokespersons for the speed limit programme. SNRA launched a major media campaign (spending more than 9 million SEK)[175] presenting digital speed cameras as 'Sweden's new lifesaver'. By aligning reduced risks and saved lives with the

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[174] There was also a figure on these road signs resembling (with some imagination) a CCTV camera (which however does not resemble at all the shape and form of the speed camera).

[175] A modest sum in comparison with the costs of installing speed cameras, of changing laws to allow automatic sentences to be issued, and other parts of the composite programme. It has yet been judged as vital for ensuring the new delegates a 'smooth start'. Source: Personal communication with Anna Lena Holmberg, SNRA,

delegates getting ready for the roads, one strived for a broad agreement on the prescriptions of the technology.

However, as Akrich pointed out, actants are scripted and translated through a back and forth movement. While the Police and SNRA actively promote their script, others contribute supplementary prescriptions that either could strengthen or undermine the legislators' effort. The sign and box in figure 3.4 is one example. Here a 'rival legislator' (cf. section 1.3.3) uses the *shape* of the white-boxed cameras, with its now stabilised prescription of reducing speed, for his own interest of getting motorists to reduce speed as they pass his/her farm. It seems as if this roadside resident assumes that the agency of speed cameras is stronger than that of a plain 'reduce speed' sign. Officially this sign is illegal, but even so it coincides with the program of the Police and SNRA to reduce traffic speed. Although a fake that most

Figure 3.4: A roadside resident's speed camera

drivers soon will see through, this particular supplementary prescription may strengthen the legal one since it reminds us of who the beneficiary, *in the flesh*, might be if we comply to reduce speed – it is not Big Brother institutions but roadside residents, ordinary fellow beings and their living conditions, that the sign now becomes associated with.

3.4 Two intersected crusades: outlining the common ground for two unorthodox scientific communities

3.4.1 Overcoming the horrors of representation: five joint assumptions

Although of course far from emptied of their full content, let me now pass on to the task of juxtaposing the two toolboxes taken stock of. I will start by making plain the basic affinity or similarities between them, which so far have mostly been implicit in my text. Five joint 'Weltanschauungen' will be proposed. Despite their apparently great importance, the communities have seldom been regarded as natural bed-fellows. Some striking differences that also characterise them seem here to have overshadowed the similarities. After having first looked a bit farther into those, I will finish off the chapter by arguing that precisely because of them, and of course their joint thinking, EM and ANT indeed make very good partners. At least for one who, like me, is hunting for a sociology enabling you to study a practice such as road interaction understood as a

reflexive, partial, inclusive, inconclusive, distributed, heterogeneous and multi-layered human endeavour.[176]

Now then, how does the pair approach the problem we set out from, 'the horrors of representation'. *First*, they both assume <u>representation and object</u> to be <u>co-constructed</u>, whether producing scientific facts in ivory towers or everyday life representations and the situations experienced. With a generic term, this argument is often called constructivism. It affirms the conception of knowledge as a situation-specific human creation. Both camps would accept the statement that knowledge is '…made with available material and cultural resources, rather than simply the revelation of a natural order that is pre-given and independent of human action,'[177] with one exception, that is. The EM camps would here replace the word 'natural' with 'institutional'. The reference to natural science in the quote reveals ANT's early focus on investigating the claimed universal objectivity of scientific knowledge production[178]. Its rhetorical and representational weapons were forged to unmask the mechanisms of constructivism operating in scientific practice, whereas constructivism for EM was conceived of as a critique of social science's use of universal a priori social categories or aggregates – institutions –explaining human accomplishments in other much more mundane settings.

Secondly, both EM and ANT <u>emphasise 'in the making'</u>. The focus on the performative aspects of representation comprised by this accords with the overarching ambition of understanding how representations are made strong. But also, if one sees representation and object as co-constructed, there is nothing to be gained from studying the already stabilised; how sustainable representations were rendered strong is buried in the taken-for-granted. Furthermore, focusing on 'in the making' is to embrace the significance of Woolgar's methodological horrors without getting paralysed by them. It is to be intrigued by 'the little wonder' that despite those horrors, representations in everyday life often come out as strong and useful, leaving for the sociologist a large terrain for salient sociological inquiry.

Third, <u>both</u> communities fervently <u>explore 'the performativity' of agency</u>. The phenomenon of agency is ceaselessly under scrutiny and debated. At the same time it 'never exists as such'. It is not an asset or force you sociologically can count on even when it is inert, waiting to be taken in possession by its 'agents'. Refuting this construct, the things which make up agency are not to be depicted or studied with the help of ostensive definition, i.e. what they are in the light of having in advance been labelled and indexed. Mapping out the phenomenon in such a way is, for our pair, misleading for everyone trying to learn how insufficient representations become useful tools of social interaction. Instead, pursuing their commitment to 'in-the-making' and co-constructivism, they need to equip themselves with metaphors and definitions sensing the performative:

> If a dancer stops dancing, the dance is finished. No inertia will carry the show forward. This is why I needed to introduce the distinction between ostensive and performative: the object of an ostensive definition remains there, whatever happens to the index of the onlooker. But the object of a performative definition vanishes when it is no longer performed… [179]

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[176] Cf. Latour (2005:191ff).
[177] Golinski (1998:6).
[178] An inheritance from its ancestor 'SSK' – the sociology of scientific knowledge.
[179] Latour (2005: 37).

Fourth, <u>making representations strong</u> is a task <u>always</u> and entirely <u>anchored in a situated interpretative practice</u>. To understand the methods by which people perform it, you must uncompromisingly stick to 'just this' situation, and the minute details of the cohorts' order-productive accomplishments. Here, EM has provided a plethora of theoretical tools to understand how roads are made to work in-use. Just as finely attuned as these ethnomethods are the multiple 'little things' emerging from ANT inquiries. Evolving from the general symmetry axiom, these are casted as assemblages, tight weaves of humans/non-humans, delicate though mundane hybrids. Mobility in everyday life is enmeshed with pairs of composite things and orderly city-situated users: trash-bin-garbage-depositors, revolving-doors-door-passers, trolley-trolley-movers, traffic-signs-pedestrian-passers-by, pencils-hands, mobile-phones-conversationalists, couch potatoes, drivers-cars, escalators-passengers et cetera; all deserving our full attention:

> By looking at how these are, on the one hand, kept together, sutured, and, on the other, broken apart, sundered, we can begin to unravel otherwise hidden or obscure heterogeneous processes that characterize everyday life. In the process, everyday life becomes conceptually a very complex domain: it is made up of the shifting relations between humans technologies and natures – relations that often settle into ordered flows, but sometimes, spin out in little chaotic eddies.[180]

Fifth, in order <u>to understand the salience of mediation</u> in social interaction, we have to <u>trace the associations</u> of representations, unfolding the 'documents of' that we hinge our accounts upon. Following how people construe chains of associations upon their activities shows how they, in the situation, empower representations while enabling collaborative accomplishments. Studying the ways we translate, tell and circulate references regarding the road and the workings of the road is vital to understanding how the road works. The very rigid internally generated vocabulary of EM, as well as the imported semiotics in ANT, here provide the possibility to effectively map out the production and exchange of messages in communication; to observe how expressions or texts or artefacts, or all combined, interact with people in order to produce meaning.

3.4.2 Odd couple but plausible bed-fellows

Finally then, let me discuss some differences between the two communities. For ethnomethodology, studying representations in the making merely means to distil and delineate directly observable events that are account-able as *the* true and complete mediation of object and representation. This approach highlights participation and interaction in minute detail, the uniqueness or specificity of a situation, and the co-present cohort. Actor-Network theory, on the other hand, although likewise casting action as a situated accomplishment and appreciating minute accounts of it, soon shifts focus to what it is that is mediated: whereto the traces of a representation point, what it may start to enrol beside the object(s) it originally depicted, et cetera. This tracing of associations reflects an understanding of representations as situated *and* distributed phenomena, extending agency and performativity to elements distant in either time or space.

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[180] Michael (2000:10-11)

These highly divergent directions of how to unravel representations in-the-making, of course create a considerable divide. This in turn replicates or projects itself onto many things, out of which I want to draw attention to two. First: how technology is accounted for in the traditions here juxtaposed. EM affords a sharp tool for those wanting to study technology-in-use, as early discovered by the school of informatics called CSCW (Computer-Supported Cooperative Work; Ch.1). These sociologically inquisitive designers share with ethnomethodologists a keen interest in studying the ordinary doings and accomplishments ('work') of everyday life.[181] This has resulted in an understanding of technology achieved as a social production tied to its investigation of work and technology in use:

> Recognising that technology is a socially produced phenomenon directs attention to the details, the haecceties, of its production and allows the work through which technology is socially produced to be inspected for its distinctive character… In other words, an ethnomethodological trust at technology is concerned with how technology is produced in the specifics of the ordering of work activities.[182]

Even so, as also Button argues, the intelligibility of technology is based on and constrained by our common-sense understanding and use of that technology. Nevertheless, ethnomethodologists only acknowledge and produce accounts of technology that can be observed as being immediately rational, i.e. following 'ordinary constraints'.[183] Unlike Button, I see the road taken by EM as uncovering common sense by too narrowly restricting the discussion to 'what can be seen as rational' in this sense; it largely renders the, in my judgement, crucial role played by technology in how representations are made strong, invisible.[184] For example the 'documentary method' can explain how 'ordinary constraints' of technology are reproduced in a social occasion, but it cannot describe the process leading up to how those 'ordinary constraints' become common sense.

Hence, for my purposes, EM has proved to be a fertile and rewarding source of guidance when observing and analysing technology in-use, yet at the same time insufficient or partial in its conception of it. Since its delimitations preserve the dichotomy between technology and social as a priori given, the reformative process causing it will be made invisible in the analysis, which will then reproduce an asymmetry between humans and non-humans without having investigated it.[185] Here I find ANT to be an indispensible supplement to EM. As depicted in section 3.3. above, by allowing the doings of in-the-making to extend and transform themselves as far and as much as the actors' own associations or hints dictate, the analyst being guided by this strand of ideas can capture processes otherwise concealed by a priori or asymmetric assumptions.

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[181] The contribution of EM to CSCW is well documented. Luff et al (2000a:15) note that EM and its subfield conversational analysis (CA) more than any other orientation have influenced the adoption of social science in CSCW; see also Sharrock & Hughes (2001), Button (2000). It has also been argued that EM-informed design qualifies as one of five computer design 'springboards' since the 1950s, encompassing also cybernetics, socio-technical organisation theory, industrial democracy, and art&media lab aesthetics. Glimell & Normark (2004).

[182] Button (1993b:11)

[183] Button (1993b:20-22), see also Hutchby (2001:25), who clarifies this position further.

[184] About Garfinkel uncovering and showing common sense, see Laurier (2004b).

[185] Following EM, the details observed in a situation are juxtaposed with the accounts (or recognition work) that the ethnomethodologist does (as a member of that order-productive cohort). He or she takes for granted that those studied must know the scene in which they accomplish their account-able accounts. However, EM possesses no instrument which like a periscope enables you to catch sight of the recognition work performed by non-humans.

The second discrepancy between the two schools is a highly conspicuous one. No reader of this text who has also read one EM text and one ANT text could have missed noticing it. Its own accounts of actors' (actants'/members') accounts look completely different. The former comes forward as shockingly naked (for some readers even painfully so), rigorously stripped of any concepts or linguistic constructions which could add the slightest little thing from the analyst/author that could distort the observable events made account-able in the situation. Instead, mirroring its sheer enthusiasm for the amplitude of actors' translations, the latter is garmented with multiple layers of clothes and accessories, mostly beautiful, but sometimes just too flashy.

It would be erroneous to regard this discrepancy as just two very, very different choices of outfit or linguistic coating. It certainly concerns and reflects incompatible traits in the underlying epistemologies. At the same time, as I have tried to demonstrate, other vital parts of them are indeed reconcilable. Although necessarily speculative, one may also add that the EM outfit, as different as it may be, on further consideration could make sense for ANT too. After all the Strong Programme, being part of ANT's legacy, prescribes reflexivity as one of its methodological rules, encompassing also being reflexive about the effects of the constructions – e.g. linguistic ones – imposed by the social researcher (author) him/herself; cf. EM's obsession with stripping the skin off its accounts.

At the end of the day, those disposed to highlight the matters of discrepancy, have to make their choice as to which of the two crusades to join. My own preference is for both. Neither of the two fully satisfies my idea of how to approach and explore road interaction, but creatively combined they do. I am skeptical about the excesses of both. ANT can sometimes balance on a thin line between re-affirming the already stabilised associations and sublimating itself into a 'poetic associology', whereas EM at its limits can be so introverted as to look like a holy order. I think they both would be healthier together; one could rescue the other from splendid isolation in the monastry, and one could rescue the other from falling, as once did little Alice, into the rabbit hole.

The making of a
road ethnographer

4.1 My road to the road – three consecutive challenges

It all started during the fall of 1999, when I was enrolled by Oskar Juhlin to participate in the *Bus Talk Informatics* project at the Viktoria Institute. The purpose was to study when, how, and why bus-drivers communicate with each other, and how to design a prototype that, based on empirical studies, could support bus-drivers' communication and subsequently their co-operation. We set out to understand the 'blue-collar' workers of public transport, more specifically how bus drivers regularly picked up and transported those beside the road.

The following three weeks I embarked on busses, took notes and chatted with the drivers. Each time I entered a bus became like a trial of trust, where the driver either accepted or rejected my presence and interest. I had to acquire access again and again.[186] Occasionally, the trip became a mute observation, but mostly the bus-drivers enjoyed my keen interest in their work – leading to long conversations related to their work while doing it. Similarly, the design sessions were trials of trust. I still remember the relief that the Ericsson representative expressed when he realised that I had a background as a chemical engineering student. Finally, working in the project produced trials of trust between me, as a novice, and Oskar Juhlin who during that period gradually established his research agenda. I had to prove my devotion and loyalty to the ideas and objectives promoted by Oskar but was at the same time amply rewarded through the guidance, interest and acknowledgment he offered.

In spring 2002 I embarked on a new research field – the petrol station. This time the study resembled other workplace studies, but my primary interest was not how the staff worked, but how the *station* beside the road worked, including staff, visitors and the assemblage of technologies present at the site. I was presented as a researcher who gradually became a working member of the staff – a colleague who nonetheless was acting a bit strangely:

1	**Jacob:** There's Daniel, sitting and watching
2	**Carl:** He's been sitting there; shit what a crappy job
3	**Jacob:** Yeah
4	**Carl:** Just sitting and writing
5	**Jacob:** ha ha, so fucking boring
6	**Carl:** crappy job, yeah
7	**Jacob:** well it could be alright, hell

Figure 4.1: A reflection by two staff members on the observed observer (record excerpt).[187]

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[186] Cf Hammersley & Atkinson (1995:Ch 3).
[187] Tape-recording at the petrol station, 2002-06-10, southwest Sweden, Tape: 7 mark 38:11.

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Perhaps, my colleagues at the station were right – taking notes and observing the most ordinary of ordinary things is at times both tedious, boring and odd. My interest in the ordinary made me exotic. I might have passed as a member but only 'as a member', my accomplishment of doing-being-petrol-station-staff was subsidiary to my achievement of doing-being-observer; both staff and regulars quickly took part in the production and recognition work of my role as a researcher studying the ordinary rather than my role as staff.

When starting on a new project in 2003, I once again had to shift tactics to conduct my research. I wanted to study 'illegal' road signs, signs which were mounted along the roadside to convey some sort of message to road-users without formal consent from the road authorities. Here the problem was not to be accepted as a road user. I already was, with my driver's licence and access to a car. Instead it was that I was a member in isolation. There was simply no way for me to engage in illegal road sign interpretation together with the cohort of co-drivers, encountering them in my own steel-cased hub. I therefore decided to collect photographs of illegal road signs and occasionally stop and interview those having posted the signs – getting the sender's perspective on this practice.

Despite the differences in how I approached the field, the three studies share two central aspects. First, they all echo an interest in the juxtaposition of the road and the roadside, i.e. the mutual interdependency as well as the tension and friction between road users and roadside residents. Second, the focus of each study was a sort of compromise between two involved research communities with partly overlapping and partly conflicting agendas. Throughout my research I participated both in a brainstorming design collective and in an academic theory e*lab*oration community. This has played an important role for the paths chosen and for how I continuously adapted my theoretical and empirical work.

4.2 EM- and ANT-informed Ethnography

Needless to say perhaps, my theoretical insights developed in parallel with my improving empirical skills, and in the post fieldwork processing of data, rather than in the sequential order presented in this book. When I started as a novice, Oskar Juhlin, himself inspired by Lucy Suchman, tutored me on the empirical and theoretical guidelines of our research. Hence, the situated practice of everyday work, *making work visible*, was important for how we approached the bus drivers and interpreted their work.[188] Things like the meticulous work required to accomplish a reliable timetable, the discrepancy between the timetable plan and the situated actions, et cetera, were highlighted due to our choice of Suchman as our guide. Findings based on in situ observations of bus drivers' conversations and negotiations taking place before our eyes had priority. In retrospect, we may have downplayed the importance of go-along interviews[189], which provide many insights into the mapping of associations composing the bus drivers' workplace.[190] Still the focus on situations generated ample

[188] Cf. Suchman (1987;1995)
[189] Kusenbach (2003) see also K. Lynch (1976;1990:263-286)
[190] For a road study more based on such data, see Esbjörnsson & Vesterlind (2002; 2003). For those only familiar with the author-in-the-text it might be valuable to clarify that I, author-in-the-flesh, between 2000 and 2004, used Vesterlind as my surname, hence Daniel Normark and Daniel Vesterlind are the same author-in-the-flesh, at least in this context.

examples with whose help we could pinpoint the insufficiencies of existing communication systems and find new ways of supporting bus drivers' work.[191]

I was somewhat better theoretically and empirically equipped when starting to work at the petrol station. Again, how people accomplished their production and recognition work was my focus. I paid a great deal of attention to identifying the minute details of *how*. I was determined to make records of all the observables witnessed by the order-productive cohort. In addition, ANT enabled me to take non-human mediators into account – i.e. as account-able. For example how the pumps acted, and how staff and visitors responded to their actions, was one aspect explored. I was also attentive to the ways visitors mapped their associations, for example how a visitor could make his use of two credit cards accountable by mapping one credit card to the economics of his family, while the other credit card was associated with work and taxes, et cetera.[192]

Although ethnomethodology and ANT obviously have their limitations with regard to what they can and cannot afford methodologically, I gradually and in an ad hoc manner extracted a list of guidelines when carrying out the petrol station study:

1. Focus on *in the making* – the in-action, in-use, in-situ accomplishments of the order-productive cohort, the *performativity* of agency;
2. Try to be sensitive to the interpretative practice, *the minutiae of how* members do what they do;
3. Whenever possible, *trace* the movements of re-association and reassembling, follow the *translations*, map the chain of *associations* in making and telling 'documents of', follow these traces *in all directions*;
4. Observe the scene 'from within', take into account *all* observables including the multiple little beings, avoid Archimedean positions which merely display 'documented residue' of everyday accomplishments;
5. *Treat* both human and non-human members of the accomplishment *as mediators* – defy a priori divides between human and non-human agency;
6. Identify and listen to the spokespersons stepping in for members, also take the role of the enunciator instead of making the mute invisible;
7. Always be careful not to replace the *explanandum* with the *explanans* – e.g. the social object *sui generis* is what you study, not an explanation.

After having made sense and been helpful when studying the petrol station, these guidelines proved a bit problematical when I started to explore the phenomenon of road signs. The focus on the situation, the scene and the interpretative practice presumes a scene inhabited by an order-productive cohort capable of speaking for itself. However the scene within which the illegal road signs act is not inhabited by others than road users (enclosed in their vehicles) and the physical surroundings. I could not capture the interpretative practice of the road users, how they regarded the sign and acted in response to it. Neither could I observe the 'telling of the signs.' I had to rely on my self-reflexive role as a road user encountering these signs. Ignoring them, due to the absence of visible human-to-human interaction, would re-introduce the human/non-human divide. Hence in addition to documenting the illegal road signs by photographing them, I had to find spokespersons stepping in to speak for the signs, as well as myself acting as an enunciator. Making stops by

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[191] Juhlin & Normark (2000a;2000b), Juhlin & Normark-Vesterlind (2001)
[192] Cf. chapter 6. The network enacted at petrol stations is briefly described in Normark Vesterlind (2004)

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illegal road signs, identifying their 'authors' and interviewing them became an important part of the work, compensating for the difficulties of capturing the situation from within.

However, interviews with human spokespersons can, through the questions and the response, generate categories, so that the interview itself becomes an order-productive accomplishment.[193] Therefore I had to be careful about *how* my questions were presented and treat the data I gathered carefully, and I had to interact with my spokespersons in such a way that their accounts as much as possible were confined to *their* associations. As Katz points out, focusing on *how* – asking the informant to relate, describe and recollect *how* things happened in detail - is of great help, not leaping into explanations of *why* they happened.[194]

Despite having qualified my specific appropriation of it by exploring the theoretical guidelines of EM and ANT, I have often used the generic term *ethnography* when referring to my methodology. Put simply, ethnography in…

> … its most characteristic form involves the ethnographer participating, overtly or covertly, in people's daily life for an extended period of time, watching what happens, listening to what is said, asking questions – in fact, collecting whatever data are available to throw light on the issues that are the focus of the research.[195]

Derived from of anthropology, ethnography has become almost synonymous with qualitative research, not only in mainstream social science but also in a design discipline such as informatics. However, the spread of the method has also led to a differentiation of what it implies, what data it affords and how it should be practised. To count as full-fledged anthropological fieldwork, an ethnographic account should encompass the ecology, the social organisation, the developmental cycle and the cosmology of a community's life.[196], whereas in design it may be sufficient to account for what 'the user' actually does. As Wasson points out 'the user' is a central trope for designers, and ethnography has provided the designers with: a) richer understandings of context of use; b) user requirements which are hard to articulate and c) an understanding of the complex interrelationships between the user and its co-present cohort, predominantly the users' work group.[197] Hence, the way ethnography is carried out differs considerably depending on the discipline and the focus of research.

The different modes of conducting ethnography are mirrored in the time spent in the field. For example to fully grasp the developmental cycle (cf. above) of a community such as high-energy physicists can take many years (e.g. spanning from the first grant application through the actual research phase to publications and academic impact) whereas in informatics an *information* life cycle might be limited to months, or even to 5 or 10 minutes sometimes.[198] Hence, if my objectives with the bus driver study had been to understand the full ecology and cosmology of 'the bus driver community', then the time spent would probably have been years. Since, however, it now aimed at understanding the cycle of information distributed through the communication systems, three weeks provided ample time for observations supporting how it could be improved.

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[193] Cf Silverman (1998:60).
[194] Katz (1999:84-86).
[195] Hammesley & Atkinson (1995:1).
[196] Traweek 1988: 7.
[197] Wasson (2000:377) for a similar discussion see also Millen (2000:280)
[198] Harper (2000:247-251).

Similarly, the petrol station study provided detailed accounts of the staff-visitor interaction while leaving the cultural understandings of the petrol staff community for others to investigate.[199] Playing it a bit too defensively perhaps, ethnographers in design often label their work as 'quick and dirty' or 'rapid ethnography'.[200]

Sometimes several partial ethnographies *taken together* can, I would claim, reflect a wider community than indicated by their strict demarcation. Consider my own interest for the interdependency between road users and road residents, and the (as)sociology bonding them together. When I studied the bus drivers, I followed a group of road users by observing how they encountered the roadside. At the petrol station I followed a group of roadside attendants and observed how they tended to road users. When exploring illegal road signs I took the role of a road user encountering the roadside while interrogating how roadside residents actively engaged with road users. Just like Latour's and Hermant's multiple little Parises, even fragmentary scenes, if strategically chosen and combined, could serve the larger objective of understanding road/roadside communities.[201]

4.3 Road/roadside ethnography: multiple sites, multiple audiences

Consistent with the circumstances and rationales outlined in the previous section, I decided to visit multiple sites in order to study communities with shifting and heterogeneous inhabitants. The sites (public transport, petrol station, illegal road signs) in all their disparity brought to the forefront the road *and* the roadside.[202] I adopted three approaches: (a) following and observing how road users interact with roadsides; (b) participating at a roadside to interact with roadsides; and (c) myself engaging in road use to interact with roadsides.

Approach (a) was used in two studies of public transport and bus drivers' organisational work performed during the fall and winter of 1999/2000. I monitored their daily routes and routines. The first concerned a large contractor in a suburban area close to one of Sweden's largest cities. Here the bus system provided routes within the suburb, between suburbs, to the inner city and to designated bus-stops where passengers could transfer to other busses, trams or trains. The consecutive study took place in a rural area with a smaller public transport system for two adjacent counties each with a population of approximately 12 000 residents. The main village in both was located some 35 kilometres from a larger city, and the public transport system predominantly moved passengers between the two counties, and to and from the main villages and the city.

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[199] For example, much could have been said regarding the accomplishment of gender relations. Traditionally petrol stations display a masculine image of cars, oil, petrol, garages, et cetera. This is changing with its transformation into sometimes resembling a supermarket. To illustrate, a female staff member used an apron to make herself accountable as a supermarket attendant not indulging herself in car issues, while a male colleague instead wore dungarees to convey that his field of inquiry was the car and its needs. Still, these two members displayed only a portion of the accomplishment of gender at the station, calling for further research.

[200] On quick and dirty ethnography Cf. Hughes et al (1994; 1995) Hughes et al, (1997) and on rapid ethnography Millen (2000) & Norman (1999:194)

[201] As Marcus (1995) points out, ethnographies are always partial accounts. See also Hine (2000) and Weilenmann (2003) for a discussion on *adaptive* ethnographies.

[202] As a matter of curiosity, they could all be captured, located and interconnected with one another, by the doings of one single roadside photograph: Figure 2.4.

I sat in the front seat where I was able to converse with the bus driver or observe his/her interaction with passengers, other bus drivers and with the road and roadside passing by. I could also observe how bus drivers organised their work in relation to their surroundings, especially in relation to bus stops.[203]

The second approach was applied when joining the everyday workings of a petrol station through which some 1600 road users passed daily. The station was located beside an urban highway junction in the southwest of Sweden, in-between a large industrial area and suburbia, with a McDonalds restaurant as its closest neighbour. The station was equipped with seven pumps, all customer operated, offering round-the-clock service (see figure 3.2). The station store was equipped with a grill, two counters, one shelf with Videos, CD's and DVDs, and another with rental-movies, a coffee machine and an oven to bake or heat up bread. In one corner of the store, you could find windscreen cleaners, light bulbs, oils, cleaning liquids and other products for car maintenance and repair.

I regularly visited the station between April and June 2002, first as a staff member, working in shifts between 06:00 and 22:00. Already during the second day I was left alone at the counter by my staff colleague with the comment: 'If you know how to work a computer, then you know how to work a cash register.' I observed the store and forecourt as a customer, either standing at a café table or sitting on the grass outside, changing 'costume' to alter the perspective of the site.[204] Throughout the entire fieldwork extensive field notes were taken, for example with a notepad behind the counter, using every spare moment to scribble down impressions and conversations. On four occasions conversations between staff and customers were recorded at the counter (approximately 13h). The field notes and selected recordings were later transcribed and made anonymous.

My last approach was put into action when travelling 4000 kilometres between Gothenburg and Vilhelmina during the summer and fall of 2003. Driving on highways, narrow country roads, gravel roads, winding roads, et cetera; from congested traffic in dense urban areas to desolate forests where the most common road users seemed to be moose or reindeer. I collected more than 2000 pictures of private signs along the road. Most were taken while on the move using a digital or a system camera.[205] 17 interviews were conducted with roadside residents whom I approached after having traced signs by the road to them. Most of the informants lived in rural areas. The interviews were open-ended and usually lasted 20-40 minutes. 6 were conducted indoors, 11 outdoors. In 9 of the latter, the author and the resident could see the signs during the interview, provided detailed descriptions of the way the signs were set up, constructed and how they related to the road. The drawback, however, with interviews

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[203] During three weeks Oskar Juhlin and I accompanied 30 bus-drivers for an average of three hours; some we met twice. We visited lunchrooms and a traffic control centre. We interviewed people involved in the implementation of the used communication system. In the rural study, I on eight occasions travelled with almost the entire workforce working for the entrepreneur (15 drivers).

[204] An adaptive approach described by Zuiderent (2002).

[205] Photographing signs was quite demanding since it sometimes conflicted with the self-preservation task of driving safely. Both are visually demanding; when driving you read formal signs, navigate, adjust to the co-present cohort based on a constant steam of visual indications, and when photographing you locate the appropriate scenery, aim the camera, adjust the focus, and shoot.

adjacent to signs was the widely adopted use of relational terms that were hard to analyse.

These sites constituted the bulk of my empirical work, but some additional studies also played a part in my attempts to provide well-founded observations of road interaction. I interviewed public transport officials regarding the difficulties with current communication systems,[206] conducted initial observations on how children wait at bus stops (how they appropriate the place)[207], I participated in a study on rally spectatorship (both by collecting data and analysing it)[208], and I attended the workshops 'Mundane technology' and 'Movements in the city' (spring 2003) during which British and Swedish scholars collected video-data on ordinary features of everyday life, brainstormed in smaller groups, and then jointly discussed initial findings from those minor field studies.[209]

Alongside trying to cope with multiple sites, my project has addressed, and been addressed by, multiple audiences. The mobility studio at the Interactive Institute under the supervision of Oskar Juhlin was a fairly tight group exploring the possibilities of enhancing different road-use situations through innovative mobile services. Members had backgrounds in informatics, computer science and programming. Their shared interest in road-use and road culture enabled close co-operation and productive exchanges despite different theoretical interests. The emphasis was placed on inventing new mobile devices, and evaluating and introducing them as prototypes. Typically some kind of empirical study preceded the development phase. I presented my findings to sessions in which we collectively went through the material to see how we could envision and materialise possible mobile applications for the settings examined.[210] It was then up to me to develop these novel designs further, however since I lack the required programming skills, the prototypes have predominantly remained at a theoretical level.[211]

In 2002, the Mobility studio initiated a joint venture with two other design collectives lead by Kristina Höök, Swedish Institute for Computer Science, and Lars Erik Holmquist, Viktoria Institute, called *the mobile life project*. The groups benefited greatly from this collaboration.[212] It provided the opportunity to analyse similar lines of thinking and their possible implications for mobile life. The potential of these brainstorming sessions was reflected in the large amount of accepted posters, conference papers and media coverage generated by the participants. I myself presented papers at the annual conferences of Information systems research in Scandinavia (IRIS) in 2000 and 2003, at workshops in Norrköping, Bath and Paris (ECSCW 2005), and at conferences in Turin, Sydney and Surrey.[213]

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[206] Normark (2002 draft).

[207] With Åsa Schöjer between March-Dec 2005; thanks to a stipend from the Nordic Road Association.

[208] Esbjörnsson et al (2006)

[209] Parts of the material can be found in Brown (2004), Laurier et al (2006), Perry et al (draft); Normark, Weilenmann & Laurier, unpublished manuscript.

[210] Esbjörnsson et al. (2004) have defined the design approach in the studio as 'associative design'.

[211] However I gave three students the task of testing the technical feasibility of some design implications from the petrol station study, with encouraging results. Presented in Normark Vesterlind (2003b)

[212] A work-in-progress report on upcoming ideas was put together; Höök et al (2004).

[213] The papers presented were Juhlin & Normark (2000b); Vesterlind (2003b); Normark-Vesterlind (2003); Normark (2004b); Normark & Juhlin (2005); Juhlin et al (2000); Juhlin & Normark-Vesterlind (2001); Esbjörnsson & Vesterlind (2002)

In parallel, I took part in various activities at my academic place of residence, the Section of Science and Technology Studies at Göteborg university. Whereas the design collective *used* sociology to motivate, develop and reshape technologies, this other audience was, along with its empirical interests, also devoted to designing and performing empirical research so as to invigorate sociology. Its common denominator was a fascination for the multiple ways in which science, technology and the social world are shaped by one another. Informed by the STS bouquet of theoretical orientations (SSK, SCOT, ANT, LTS), the colleagues at the Section staged their many encounters with crucial science-politics-artefacts assemblages: nuclear waste disposal; public engagement with science; the social robustness of nanotechnology; regulatory frameworks of car-use; making air pollution governable; new patient movements; and so forth. The benefits of this exchange were pitched more on theoretical and methodological levels, than on concerted actions within a shared field of inquiry.

Excerpts from my fieldwork were presented at four seminars at the Section whereupon different interpretations of observations and readings of texts were discussed.[214] Naturally, I also followed the department's curriculum, which largely proved helpful in brushing up my skills in critically examining and assessing theoretical constructs and claims. Even though the literature I studied during these courses very rarely specifically addressed roads, it provided tools with which I better could grasp the epistemic elements at play when accomplishing accounts of road use and road interaction. Similarly, submitting papers to international audiences of peers at conferences in Darmstadt, Lancaster and Paris, significantly contributed to the theoretical underpinnings of my project. [215]

Finally, early in my time as a Ph D candidate, Hans Glimell enrolled me in co-teaching a five-week course each year between 2002 and 2005. As part of that I supervised minor field studies conducted by the students where they were assigned the task of testing and observing mobile phone use in public settings. The students also got a chance to practise reporting their observations both in oral presentations and in written form. Their findings were often quite insightful and rewarding; I have learned as much from them as I have taught.

4.4 Competing rationalities: the pros and cons of serving several research communities.

Producing this thesis presented a challenging journey, with sometimes abrupt moves from indulging in theoretical matters on the home turf of the Section to letting oneself go brainstorming new communicative devices on the home turf of the Studio. The art of oscillating between the two turfs could in fact have been a research issue in itself.[216] One might expect that the two communities would complement each other nicely, however the same empirical material was in one of them scrutinised for the immediate purpose of distilling design implications while in the other theoretical insights were clearly privileged. I seldom felt I had the time to digest and accommodate these converging interests sufficiently.[217] The

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[214] Cf. Juhlin & Normark (2000a), Vesterlind (2003a)
[215] Esbjörnsson & Vesterlind (2003), Normark-Vesterlind (2004), Glimell & Normark (2004)
[216] After all, STS scholars are authorised sociologists of scientific knowledge production.
[217] One way of characterising the two settings is perhaps to describe the Studio as a multidisciplinary task force, while the Section resonates as an interdisciplinary think tank.

studio expected me to move from one empirical study to the next, while the section expected me to theoretically ground my findings after finishing a study. The amount of time spent on fieldwork became a compromise between enough data for design implications versus enough data for theoretically plausible claims.

But it was not only time that impeded the possible exchange between the communities, the objectives of the research communities also undermined each other. One accentuated originality and novelty while the other highlighted the ability to trace and situate different lines of thought. One promoted the idea of a solitary genius, the other debunked all such notions. Understandably, it is of the utmost importance for a design-oriented community to display originality and novelty. But these features stand in stark contrast to the methods of explanation obligatory in STS accounts. Respect here, as in social science in general, comes from authors' ability to *align* ideas with the cohort of peers and predecessors.

Even though fluctuating between and struggling with conflicting interests was difficult, I certainly also benefited from the project set-up. At the Studio I became part of a research group sharing the same research field, and whose members generously offered assistance to one another's efforts in understanding road interaction. As one among many ethnographers in the design collective, I found many insightful and inspiring insights. The collaboration also gave me the opportunity to see how the sociology of science and technology can inform design research. My footing in its halls enabled me to be firm in my accounts, to anchor empirical claims stringently, instead of glossing over or black-boxing assumptions. But just as much, the set-up made me see how design research can give something back to sociology.

Therefore, at the end of the road, much would be lost in my journey if I would have chosen only one of these audiences. On the one hand there was the risk that my accounts would have become hostile to theoretical insights and academia, that I would have been reduced to chasing new design ideas rather than exploring the many translations and associations enabling social interaction. Similarly, a scholarly community faces the risk of becoming obsessed with the constructs of theory at the sacrifice of understanding the realities we live in. The two audiences balance each other. However, the friction and discrepancies between the two audiences orchestrating my work cannot be concealed. In presenting my research this will stand out – but it is also a part of the result, and a guide for interpreting the contributions to be presented in the following chapters.

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