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Tool and Machine

The Affordances of the Mobile Phone

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CONTENTS

ACKNOWLEDGEMENTS

ABSTRACT

This dissertation investigates the use of mobile phones. The data is composed of 1) 82 audio-recorded mobile phone conversations; 2) 206 text messages and interviews with seven texters and; 3) the video recordings of twelve users using different mobile internet applications via a mobile phone, with the main focus being on eight extracts (from two users) concerning WAP (Wireless Application Protocol) use. The notion of affordance is a key concept, illustrating the situational conditions of the meaningful resources for mobile phone use. The study develops a systematic approach to investigate the use of mobile phones and information and communications technologies in general. In the approach, the idea of affordances is combined with the method of ethnomethodological conversation analysis (CA).

The study discusses the division between usable tools and incomprehensible machines. It is argued that the separation of 'artificial' and 'natural' resources of action is not relevant. In action, technological features are considered like any other resources. When affordances are recognised in relation to the user's own aims, technologies become usable; they are used as *tools*. If users do not identify the affordances of technological artefacts, these artefacts are seen as *machines,* and attention is switched to the functionality of the internal system of the artefacts.

Mobile phones are examples of complex cultural artefacts that connect different kinds of social practices: communication, device and application design, maintenance of mobile networks, marketing, etc. Despite this complexity, for users they afford mundane actions. Technological components jointly increase interaction and sociability. The central affordances of the mobile phone for social actions are 1) the personal nature of the device and 2) the possibility of constant contact. The key functional features that afford these social affordances are portability and textual information, features that, for their part, are afforded through various technical solutions: portability due to small size, batteries, the display, network systems, etc.

The usability of mobile phone applications is considered through three conceptual dimensions of affordances: handling, comprehensibility, and applicability. *Handling* refers to the physical, haptic relationship to the device. *Comprehensibility* is related to how simple the artefacts are to operate. The level of *applicability* refers to the possibility of applying the device for personal tasks.

At all those levels, *mobile phone calls* are intuitive and easy to use. The basic functions are already known from fixed landlines, and the new features that mobile telephones introduced were piggybacked as affordances for new kinds of social actions. The mobile phone can be

called 'an extension of the human' because its features have become personal potentials for social interaction anytime and anywhere. Through mobile phones, people are situated in the sphere of mutual activity even when they are not constantly in actual contact with each other. Everyday arrangements are often made approximately and gradually in a series of several contacts. Accordingly, people are tied to their mobiles and must carry a functioning mobile phone at all times. A person without a mobile has to account for his or her nonconformism.

Short Message Service (SMS) is also used for coordinating everyday practices. Even though SMS has a close relationship both to spoken and to traditional written forms of interaction, it forms a communication mode of its own. The study shows that people have been creative in organising both the sequential order and the content of the text messages with the aim, for instance, of reducing the amount of message exchanges. In addition to quick coordination of everyday activities, SMS also affords a new kind of relationship management that is realised, for example, through 'atmospherings' in which the content of the messages is often intimate and only mutually understood.

In 2002 when the *WAP* data was collected, WAP was marketed as a groundbreaking application: it was said to make available to the mobile handset all of the basic services of the Internet. However, there were problems at the level of comprehensibility. The study shows that the real applicability of early WAP was often blocked because users encountered problems with ambiguous command options and tricky menu structures. Based on hierarchical and textual menu structures, early WAP came to represent an 'incomprehensible machine' for many users, since they could not understand the features of the service. Similar problems can be found in many present-day ICT applications. Detailed analysis of user-device interaction is needed to disclose the features that serve as affordances for users in everyday practical usage.

TIIVISTELMÄ

Väitöskirja tarkastelee matkapuhelimen käyttöä sosiaalisena toimintana. Aineistona ovat todelliset matkapuhelimen käyttötilanteet. Aineisto koostuu nauhoitetusta matkapuhelinkeskustelusta (82 kpl), tekstiviestistä (206 kpl) ja tekstiviestitutkimuksen osanottajien haastatteluista (7 kpl) sekä videoiduista mobiilin internetin käyttötilanteista (12 kpl), joista tarkastellaan yksityiskohtaisesti kahta WAP (Wireless Application Protocol) -sovelluksen käyttötilannetta. Tutkimuksen keskeinen käsite on tarjouma eli affordanssi, jonka avulla tarkastellaan matkapuhelimen käytön tilannekohtaisia toiminnan mahdollisuuksia. Tutkimusta varten otettiin käyttöön lähestymistapa, joka mahdollistaa matkapuhelimen ja muiden informaatioteknologioitten todellisten käyttötilanteiden systemaattisen tarkastelun. Lähestymistavassa ekologisen psykologian näkemys affordansseista yhdistyy etnometodologisen keskustelunanalyysin välineiden kanssa.

Käytettävyyden kannalta katsottuna informaatioteknologiat näyttäytyvät meille joko hyödyllisinä välineinä (tool) tai käsittämättöminä koneina (machine). Käytännön toimintatilanteissa ihmiset ovat vuorovaikutuksessa ympäristönsä ominaisuuksien kanssa. Toiminnan sujumisen kannalta ei ole oleellista, ovatko nuo ominaisuudet 'luonnollisia' vai 'teknologisia', vaan keskeistä on se, kuinka tuttuja ja tunnistettavia omaisuudet ihmisille ovat. Kun teknologisia tarjoumia havaitaan suhteessa toimijan omiin päämääriin, käytetään laitetta välineenä (tool). Jos teknologisen sovelluksen käyttäjä ei pysty erottamaan laitteesta oman toimintansa kannalta hyödyllisiä tarjoumia, se muuttuu käyttäjälle 'koneeksi'. Tällöin käyttäjän huomio siirtyy pois omasta toiminnan päämäärästä koneen toimintalogiikan opettelemiseen.

Kännykkä on esimerkki kulttuurisesti monisyisestä artefaktista, jossa yhdistyvät erilaiset sosiaaliset käytännöt: viestintä, laitteiden ja sovellusten suunnittelu, matkapuhelinverkkojen ylläpito, markkinointi jne. Huolimatta tästä kompleksisuudesta, käyttäjille matkapuhelin mahdollistaa arkipäiväisiä toimintoja. Nuo toiminnot eivät ole seurausta yksittäisistä teknologisista ominaisuuksista, vaan eri ominaisuudet yhdessä muodostavat sosiaalisten toimintojen mahdollisuuksia. Kännykän keskeiset tarjoumat sosiaaliselle toiminnalle ovat 1) laitteen henkilökohtainen luonne ja 2) jatkuvan yhteyden mahdollisuus. Nämä puolestaan ovat mahdollisia tiettyjen teknologisten funktioiden kautta, joista keskeisimmät ovat kannettavuus ja laitteen näytön tarjoama tekstuaalinen informaatio. Nämä funktiot taas mahdollistuvat useiden teknologisten ratkaisujen kautta, esimerkiksi kännykän kannettavuuden mahdollistaa pieni koko, akku, verkkoratkaisut jne.

Matkapuhelinsovellutusten käytettävyyttä tarkastellaan tutkimuksessa kolmen ulottuvuuden – käsiteltävyyden (handling), käsitettävyyden (comprehensibility) ja soveltuvuuden (applicability) – kautta. *Käsiteltävyys* viittaa laitteen fyysiseen ja haptiseen ulottuvuuteen. *Käsitettävyys* liittyy siihen, miten laitteen toimintalogiikka on ymmärrettävissä. *Soveltuvuudella* tarkoitetaan niitä toiminnan mahdollisuuksia, joita käyttäjä huomaa laitteessa olevan suhteessa omiin toiminnan päämääriinsä.

Sekä teknologian käsiteltävyyden, käsitettävyyden että soveltuvuuden tasolla *kännykkäpuhelut* ovat olleet helposti omaksuttava sosiaalisen toiminnan muoto. Puhelimella soittamisen perustoiminnot ovat ihmisille tuttuja jo lankapuhelimista. Suhteessa aiempaan lankapuhelinteknologiaan, matkapuhelimesta voidaan puhua 'kehon jatkeena' – siitä on tullut henkilökohtaisen vuorovaikutuksen mahdollistaja paikasta riippumatta. Ihmisten koordinoidessa yhteistä toimintaa suunnitelmat tarkentuvat ja muuttuvat toisiaan seuraavien yhteydenottojen myötä. Sujuva arjen suunnittelu ja yhteistoiminta kuitenkin edellyttävät, että meillä on aina toimiva kännykkä mukanamme. Ellei meihin saada yhteyttä, olemme siitä yhteydenottajille tilivelvollisia.

Puheluiden lisäksi myös *tekstiviestit* toimivat välineinä arjen koordinoinnissa. Vaikka niillä onkin läheinen suhde sekä puhuttuun keskusteluun että perinteiseen kirjoitettuun vuorovaikutukseen, ne muodostavat sekä rakenteellisesti että sisällöllisesti omanlaisen kommunikoinnin muodon. Ihmiset ovat omaksuneet systemaattisia, tekstiviestien sekventiaalista jäsentymistä organisoivia normeja, joiden avulla viestintää säädellään. Nopean koordinaation lisäksi tekstiviestit mahdollistavat myös uudenlaista sosiaalisten suhteiden ylläpitoa, joka toteutuu muun muassa tekstiviesteille tyypillisten 'tunnelmointien' (atmospherings) kautta.

WAP-aineiston keruuvuonna 2002 WAP-sovelluksen uskottiin tuovan kännykän käyttäjille pääsyn kaikkiin Internetin peruspalveluihin. Sovelluksen käsitettävyys osoittautui kuitenkin ongelmalliseksi. Palveluiden todellista käytettävyyttä rajoitti se, että käyttäjät kohtasivat toistuvia ongelmia monimutkaisten valikkorakenteiden ja moniselitteisten toimintovaihtoehtojen kanssa. Tekstuaalisiin ja hierarkkisiin valikkorakenteisiin perustuva varhaisen vaiheen WAP osoittautui käytössä usein 'käsittämättömäksi koneeksi', jonka ominaisuudet eivät käyttäjän toiminnan kannalta olleet ymmärrettäviä. Käyttäjät kohtaavat samankaltaisia ymmärrettävyyden ongelmia myös monien nykypäivän informaatioteknisten sovellusten käytössä. Tässä tutkimuksessa toteutetun yksityiskohtaisen käyttäjän ja laitteen välisen vuorovaikutuksen tarkastelun avulla voidaan selvittää, millaiset asiat toimivat käyttäjälle affordansseina laitteen todellisessa käytössä.

1. Introduction

> Our world is changing again, this time thanks to mobile. In the midst of technological evolution, the changes can seem gradual because they are ecological and we adapt to the evolving ecosystem… Take a mobile away from many people today and they will begin to grope for its umbilical connection within hours, if not minutes. People notice and report the loss of their mobiles far quicker than the loss of their purses or wallets. It is perhaps not an exaggeration to think that some social mechanisms would falter, or even collapse, without mobile. (Golding 2005, 236.)

In Finland, as well as in many other countries, there are more mobile phones than inhabitants (Ministry of Transport and Communications Finland, 2006). During the last fifteen to twenty years, mobile phones have changed everyday practices[1] of people in different societies all around the world (e.g. Katz 2008; Castells et al. 2007; Katz & Aakhus 2002; Ito et al. 2005). They have had a role in human relations and have changed both domestic as well as work-related social practices. A mobile phone is a personal device which is always carried with you; it has fractured the old social structures and has afforded new contacts and networks that are no longer so controlled by time and place (Brown et al. 2001; Glotz et al. 2005).

This study concentrates on the practical accomplishment of everyday actions mediated by mobile phones. It focuses on the fine details of the organisation of action when calling, text messaging, or using WAP (Wireless Application Proocol). The resources that the mobile handset afford for actions are considered as affordances, and the relation of these device-bound affordances with other action resources in managing social activities are discussed in the following chapters.

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1   In this study, the concept of *practice* refers to practical interactions people engage in in their everyday life. In our everyday affairs we engage with different kinds of *communities of practices* (Wenger 1998) through which we learn to do things, we give meaning to our lives and surroundings, and come to be who we are. Etienne Wenger's (1998, 47) definition of practice illustrates also the way the concept is understood in this study: *"The concept of practice connotes doing, but not just doing in and of itself. It is doing in a historical and social context that gives structure and meaning to what we do. In this sense, practice is always a social practice. Such a concept of practice includes both the explicit and the tacit... The process of engaging in practice always involves the whole person, both acting and knowing at once."* Later in this dissertation, in the chapters concerned with empirical analyses, the concept of practice may also have a more specific meaning, referring to the precise sequential course of action under scrutiny.

When studying the affordances of mobile phones the research subject comprises those action potentials that are actualised in the situational actor-environment systems (cf. Järvilehto 1998a&b; 1999; 2000) where artefacts, users' competence, action environment, and the practical aim of the activity are interconnected. In all, this study develops an affordance approach to apply it for the scrutiny of information and communication technologies.

1.1. THE HISTORY OF THE MOBILE PHONE

> Technologies, all technologies, diffuse only to the extent that they resonate with
> pre-existing social structures and cultural values (Castells et al. 2007, 127).

New technological devices are not designed inside a vacuum in which their characteristics are discovered and then used. They are used on the basis of earlier competence and they are bound to the regularities of social conduct. This is especially true with mobile phones. The use of mobile phones has been quickly surrounded by rules and dilemmas. The movement is two-way: new technologies provide a new place for people to achieve their social aims, while old relations are worked out by new means. However, over time, these interactions create new social practices, a 'culture' of their own (e.g. Kopomaa 2000; Humphreys 2003).

At the basic level, the history of mobile phones can be considered from two different perspectives. On the one hand, there is the development of technological artefacts and their technical components; on the other hand, some device would never become an everyday artefact without the history of practices, that is, without the development of the users' skills to use the device as part of their everyday life. People's use of mobile phones is shaped by the *communities of practice* (Wenger 1998; Lave & Wenger 1991) people are part of. The history of the mobile phone is the interrelated history of both technical artefact and social practises. Practices are always in some respect shaped by the conditions outside the control of its members, but the day-to-day reality is nevertheless produced by participants within the resources and restrictions of the situations. (Cf. Wenger 1998, 79.) The processes of technology and skill development are also entwined with political, economic and cultural factors that affect the development and diffusion of mobile phones and the organisation of communities of practice.

According to John Agar, the history of the mobile phone can be paralleled with the history of personal pocket watch. Both have started as expensive status symbols but over time most people have possessed one. Both the watch and the phone made a leap from being technology found in the home or the street to something that people carry with them. Agar points out that cultural values can be assessed by looking into bags and pockets. Keys, combs and money tell us that property, personal appearance and trade matter. (Agar 2003, 1, 5.) In addition to being value representations, the artefacts in our pockets and bags are part of our everyday practical activities: keys, combs and money, and nowadays mobile phones are always at hand when needed. Thus, they are concerned with matters of practicality rather than being simply signs of values. In our Western world one could only live without a key after certain specific arrange-

ments (e.g. someone constantly at home to open the door or always keeping the door open – meaning you could not possess anything valuable). Without a comb you may survive, but this is hardly the case with money; you would at the least need a plastic card of some sort. The same is true of the mobile phone. If you do not own one, you are accountable for that, and in some sense you are not a full member of society; you do not have all the communication options that others have and are expected to have.

Social scientific technology studies generally agree that technology is a process of three interrelated parts: artefacts (e.g. devices, networks, programs), knowledge, (related to artefacts), and social practices (e.g. use and development) (Vehviläinen 2005). In order for an artefact to be valuable, a person should recognise its potential advantage. The need for the use of a new artefact may be created, for instance, by advertising (Pantzar 2000), but if there is no connection with a person's present activities, the new artefact remains strange to him or her. However, artefacts are not always recognised and used in the way they were intended. On the contrary, the history of the fixed telephone and the mobile phone show that phones and their use were not self-evident at the time of their launching.

1.1.1. The Landline Telephone

When the telephone was invented in the late 19th century, it was first thought that companies would be the main users. In the 1930s less than half of all phones were for the home. In the early days, a phone was a device for short-distance calls (e.g. inside hotels, schools, restaurants, steamboats and factories) and long-distance calls were developed only several decades later. In Finland, which later was one of the first countries – together with Sweden and the United States – where home phones became generally popular, the first users of telephones were wealthy businessmen who wanted, for instance, to connect their homes and offices.

In all, developers perceived the telephone as a utility rather than a device for social interaction. In the United States, at first even telephone companies worried about the 'wrong' uses of phones, particularly women gossiping on the phone (Pantzar 1996, 22–25). It was not until the 1920s that the telephone was advertised as a tool for sociability (Fischer 1992, 75–84). In the 1930s in the US the primary reason for acquiring a home phone was to give women the possibility to talk with family members and with friends and also to set up meetings, order groceries and other goods, as well as to call for help in emergency situations (Flichy 1995, 90–92 in Kopomaa 2000, 32). Also in Finland it was recognised that telephones were especially needed in emergencies in remote areas (Pantzar 1996, 22). The early telephone had perhaps a more profound role in rural communities than in more urban locations (Fischer 1992, 98).

In the beginning it was also considered that the telephone would be a medium for mass communication. The idea of the telephone as a broadcasting medium coexisted with its use as a conversational channel (Marvin 1988). Telephone companies broadcast news, concerts and weather reports but with time this broadcasting disappeared (Lasen 2005, 31). In 1933 in Finland the Helsinki telephone company experimented with 'wired radio' by sending programmes

by the Finnish broadcasting company through the telephone lines. However, the experiment ended rapidly because there was no general call for such a service. (Pantzar 1996, 25.)

In other circumstances it could have been the radio that would have become a medium for interpersonal communication in the same way as the (mobile) telephone is today. After all, before mobile phones, radio technology in the form of radio phones was harnessed to serve interactive communication. The main reason why radio phones did not become mass market items was on account of radio spectrum overcrowing. Commercial and military interests already dominated the airwaves and since each radio phone would have to work on a separate frequency from its neighbours (otherwise calls would have suffered from interference) there was not enough space for common radio phones. (Agar 2003, 18.)

1.1.2. The Mobile Phone

Technological potential for new cellular mobile phones was realised in the United States in the late 1940s by D.H. Ring, but his findings went unpublished and only gained interest two decades later (Agar 2003, 22). In fact, in the United States cellular mobile systems were delayed until 1983, owing, first, to the refusal of the Federal Communication Commission (FCC) to grant spectrum for mobile telephony, and then to delays in processing applications from operators. In the US there were (and still are) several incompatible network standards caused by a policy decision to encourage competition. Several standards have made cross-network communication difficult. (Castells et al. 2007, 14–15.)

Moreover, research into cellular technology was rare throughout the 1960s and 1970s. During this period, video phones appeared to have more appeal and receive more attention than mobile phones. American Telephone and Telegraph (AT&T) predicted that one million picture phones would be used by 1980, and two million by 1985 (Noll 1992 in Carey & Elton 1996, 35). Cellular technology systems were considered a backwater, with little research and attention given to them. Barry Brown (2001, 9–10) calls the progress of mobile telephony an example of 'non-development', as other research areas took away attention and funds.

In Europe, research was not at first heavily invested in either. Later, when mobile technology was in operation, in Europe (unlike in the US) policies were implemented to encourage cooperation in standards formation and competition only in service provision. The search for a common standard started in the early stages of mobile phone development. A breakthrough of sorts occurred in the Nordic countries in 1969 when the Nordic Mobile Telephone (NMT) Group was established. Later, when created, the NMT standard defined how parts of the cellular system would interact, and ensured the same handset would operate efficiently throughout the Nordic countries. The NMT standard was an analogue system and was incompatible with some other standards in Europe (e.g. TACS in United Kingdom, RTMS in Italy, RadioCom in France) and in the late 1980s the European public telephone network operators, in conjunction with the European Community and the European Telecommunications Standards Institute (ETSI) started to develop a new digital network. (Castells et al. 2007, 35; Ling 2004, 9.)

After a number of political trials and tribulations, unified, pan-European system was founded, namely, the GSM standard (initially the Group Spécial Mobile, later the Global System for Mobile Communication). It was seen as a real symbol of the European Union's principle of free movement both of people and finances. GSM was not the only digital standard on offer in the 1990s, but since a number of European countries had adopted it – albeit for political reasons – it was a safer choice. GSM was an immediate success in many European countries and success created its own momentum. The standard network also gave the handset manufacturers grounds for mass production. (Agar 2003, 56–66.)

Wireless technologies were initially marketed to attract the business community (Castells et al. 2007, 40). But even though original expectations were aimed at business markets, mobile phones moved very quickly into the private sphere. Initially, the mobile phone was seen as additional to the landline, complementing and extending the reach of landlines at home and at work (Donner 2005, 39).

Kopomaa (2000, 32–34) points out that in the development of the Finnish 'mobile phone society' the first stage was the 'class markets' stage (1975–1990) when mobile phones were expensive and rare. Travelling salesmen adopted portable phones at an early stage, although at that time handsets were large and heavy (like Nokia's Mobira Talkman and Mobira Cityman) that were best suited for cars. In the late 1980s and early 1990s the mobile phone still had the image of a 'yuppie thing'. However, the adoption of the GSM standard and the development of new, smaller devices aroused the interest of the masses. GSM allowed international roaming and included an ability to send and receive various data-based services, such as Short Message System (SMS) and Wireless Application Protocol (WAP). The mass market period in Finland dates from the years 1990 to 1995. From 1995 onwards the mobile phone markets have become more diversified. Mobile phones are manufactured for different target groups and the price range, and the number of applications and technical accessories has expanded.

In Finland until 2006 most people were using the basic features of their phones, that is phoning and text messaging. The first years of the millennium showed no dramatic changes in the usage. (Ministry of Transport and Communications Finland, 2006; Hyvönen & Repo 2005.) However, a change in the legislation in April 2006 allowed operators to connect the selling of a device with mobile phone subscription so that the price of the handset is lower when a customer commits the phone to the operators' network for at least two years. On account of this change, the selling of 3G phones (i.e. third generation mobile phones with advanced data transfer and content services) has exploded. While at the beginning of 2006 there were 50 000 3G phones in Finland, in March 2007 the number had gone up to 700 000 (http://www.elisa.fi/ir/index.cfm?t=5&o=5120.00&did=13872). Owning a 3G phone does not automatically mean that the user also employs new services. According to FICORA (Finnish Communications Regulatory Authority) in 2007 sixty percent of Finns who had purchased a 3G phone estimated that the way they use communication services had not changed. However, thirty percent had increased their use of the Internet and email. Sixteen percent said that they sent more MMS messages than before. (FICORA/Suomen Kyselytutkimus Oy 2007.)

In a survey conducted in Finland in 2008, people were asked to choose the most critical things when selecting a new mobile phone. For private customers the three most or rather important features were 1) quality of sound, 2) ease of use, and 3) SMS services. Six issues after these in order of importance were: price, MMS services, data services, Internet, email, GPRS. The last important service for private use was considered to be WAP. The order was the same with business clients, expect that MMS services were considered the least important and WAP was considered a slightly more important service than MMS. (Ministry of Transport and Communications 2008, 25–26.)

Alongside the development of 3G phones and better data transferring, the mobile phone is now also a high-quality digital camera with approved video transferring services, and serves as a digital music player with a large memory. However, it seems that rather than moving toward domination by these new media functions, mobiles are becoming increasingly multipurpose phones and work-related activities and personal interaction are still paramount (Castells et al. 2007, 110). People are able to choose and mix the functions they need. Thus, perhaps in the future when seeking to decipher social values we shall look at mobile phones rather than bags and pockets (cf. Ling & Campbell 2008a, 7).

1.2. THE SOCIAL SCIENTIFIC STUDY OF MOBILE PHONE

1.2.1. The Social Construction of Technology

Social sciences have always been interested in studying technologies. Sociology's early interest was focused on the development of machines, factories and the increasing automation of work. The main idea was that it is technologies that determine social structures, and research programmes contained a number of critiques of the effects of technology (increased repression of labour, diminishing work qualifications, mass unemployment due to the automation, etc.) (see e.g. Braveman 1974). In recent decades, the field called 'social studies of science and technology' has changed the way technologies are understood: technological artefacts, in both their form and meaning, are socially shaped (see e.g. MacKenzie & Wajcman 1985). The field investigates how scientific knowledge and technological artefacts are constructed. Neither science nor technology have simple properties that automatically define or lead one to determine social consequences. Both science and technology are shaped by social practices and are thus 'social constructions' (Sismondo 2004).

The term social construction emerged in the science and technology studies of the late 1970s (see e.g. Latour & Woolgar 1979). In studies of technology, the idea of social constructionism means that there are no inherent features of technological artefacts which allow one to determine social effects. Rather, the precise nature of the social dynamics of technologies is regarded as an issue that is open to empirical investigation (Hutchby 2001a, 20).

Social constructionism questions the technical/non-technical dichotomy. One view of social construction is to see technologies as 'texts' which are 'written' in certain ways by their developers, producers and marketers, and are 'read' by the users and consumers. Neither the writing nor the reading of technology texts is determinate, but are instead open, negotiated processes. (Grint & Woolgar 1997.) 'Technology' is the machine's relations with its users and the metaphor of technology as text stresses the contingency of interpretation (Ibid., 93). Diverse readings of technologies show that people can interpret technologies differently. This view is opposite to the deterministic idea that the effects of technologies are directly derived from the inherent features of technologies.

However, the extreme relativism of the approach of technology texts can be criticised. Although the approach focuses attention on the discourses through which technologies 'become' what they are, in avoiding essentialism it also seems to assume that technologies are open to all possible 'readings' (Hutchby 2001a, 2001b, 2003). If taken seriously, social constructionism almost forbids a researcher from studying the materiality of technologies. Any attempt to say something about the 'objective reality' of technologies inescapably moves us to make a division between the essence of technology and its use.

There are, however, material features in technologies but they are not essential as such but rather their essence is relational to their use. This study argues that the reason for the diverse sets of possible readings of technologies is that different technologies possess different action possibilities that can be called affordances (Gibson 1986). As Ian Hutchby states:

> To focus on affordances in the way I suggest is to accept that there are features of artefacts that are not constructed through accounts. In my view, it is these features that provide the very conditions of possibility for competing accounts to be sensibly made. However, this is not to fall back into a form of technological determinism, because it is not to claim that human actors are necessarily caused to react in given ways to technological forms. Rather, it is to stress that the range of possibilities for interpretation and action is nowhere near as open for either 'writers' or 'readers' as the technology-as-text metaphor implies. (Hutchby 2001a, 29.)

The idea of affordances opens up the view of technologies concurrently being both social constructions and constrained by their material existence. Ilkka Arminen and Sanna Raudaskoski (2003) call this kind of approach post-constructionistic. We argue that extreme relativism can obliterate the connection to the material environment of everyday practices (whether linguistic or not) and that through the concept of affordance social practices can be studied along with their material constraints. In this study the social construction of technologies is considered a practical matter. Technical resources are seen to be embedded in human relations and can only be understood within this relational matrix.

1.2.2. The Social Role of the Mobile Phone

The mobile phone's role in social practices is nowadays a widely studied area among social scientists (see e.g. Ling & Campbell 2008b; Castells et al. 2007; Katz 2006, 2008; Glotz et al. 2005; Ito et al. 2005; Ling 2004; Nyíri 2003, 2005a; Kasesniemi 2003; Brown et al. 2001; Katz & Aakhus 2002; Kopomaa 2000). Bruno Latour (2005, 5) defines sociology, not as 'the science of the social', but as tracing of associations. Social does not designate a thing among other things, like a black sheep among white sheep, but a type of connection between things that are not themselves social. Using Latour's concepts, the use of the mobile phone has been studied by tracing associations on the different levels of human activity, on the different levels of 'social structures'. The role of the mobile phone in making connections is examined both in minor-scale interactions as well as in more complex and widescale activities. These different scales of activities are not, however, self-contained but are interrelated. They are linked to each others in communities of practice in which people participate. The everyday practices in which people use mobile phones develop in larger contexts – historical, cultural, and institutional – with specific parameters and constraints. Some of these conditions are explicit; some are implicit but are no less binding (cf. Wenger 1998, 79).

We learn to use mobile phones (like any other artefacts) by engaging in social practices which include both individuals and institutions. The analytical interest in the mobile phone means that it is always studied within the context of the practice it is enabling. However, the focus of such studies may shift, for instance, from cultural structures to individuals (cf. Licoppe 2004). Even though the actual use of mobile phones happens in local practices, social scientific studies have been interested in different factors which shape this use. In order to survey these studies and situate my own study within the field, I shall in what follows characterise the different social scientific studies on the mobile phone in terms of cultural, institutional, domestic, and situational levels.

The Cultural Level

Firstly, by the cultural level I mean those studies that focus either on the cultural or the geographical aspects of the use of mobile telephones. Mobile communication was from the start seen as located in specific social, cultural and historical contexts rather than as a cross-culturally universal solution (Ito 2005, 5). Alongside global use trends, there are also trends that are unique features of certain ethnic, cultural, or national groups. Culture plays a role in how mobile communication technologies are incorporated into the routine lives of users. (Castells et al. 2006, 74.)[2] Regional features and the differences between cultures in the use of mobile phones are, thus, a much studied area of the social role of the mobile phone (see e.g. Katz 2008; Castells et al. 2007; Ito et al. 2005; Katz & Aakhus 2002).

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2   For more detailed analysis of the global diffusion of mobile communication and the patterns of social and cultural differentiation in the diffusion of mobile technology, see e.g. Castells et al. 2007 and Katz 2008.

Unlike the Internet, where the United States has dominated both the development and adoption trends, mobile communication has been driven forward mostly by European and Asian countries. The differential rate and level of diffusion of mobile phones in different areas of the world, as well as in different regions of countries, is the result not only of the features of the device, but derives from the interplay of a number of factors, such as the level of development, the structure and strategies of industry, and government policies (Castells et al. 2007, 38).

Nowadays in some parts of the globe the mobile phone is the first example of telephone technology, so in these cases it represents a brand new technology whose practices of use must be learned. The development in some developing countries is nowadays similar to that found in Europe or in the US when landline phones first arrived. For many the main benefit of a mobile phone is making and receiving calls when desired (Donner 2005, 47; Tenhunen 2006). Thus, the major prize of mobile telephony is to be connected at last, mobility is merely an added bonus (Castells et al. 2007, 218). In rural areas in Bangladesh, for example, women are acquiring loans to buy mobile phones with solar-based battery rechargers to serve as public phones for villagers. This *Grameen Village Phone* project is famous for developing a financial and technological model to empower thousands of women entrepreneurs to act as 'phone ladies' for a village. Telephone contact gives the inhabitants of the village a chance to support their agricultural enterprises, sell commodities and get help in emergencies. (Ling 2004, 3; Donner 2005, 44–45.) Telecommunications in developing countries reduces poverty, but only for those with access to the new technology; there is a growing differentiation between the connected and unconnected; between the 'less poor' and the 'poorest poor' (Overå 2008, 53; Donner 2008).

Local social conventions also affect the use practices. Genevieve Bell (2005, 70) argues that pre-existing patterns of social mobility outside the home, for instance, play a significant role in the uptake of mobile devices and the uses to which the devices are put. Often one mobile phone is used by the whole family, like in some low-income families in Chile (Ureta 2004 in Castells et al 2007, 238). "Mobiles stay at home unless the whole family goes out and, mainly for security reasons, the handset must stay as close as possible to the mother, the central node of the family network" (Castells et al. 2007, 238). The sharing of a mobile phone is not only an economic issue, but is connected to questions of family mores and literacy (Steenson & Donner 2008).

In Asia there has been major growth in mobile communication during the past few decades. Some nations, like Japan and South Korea have been leaders in the field of mobile communications, whereas in some other countries, such as China and India, growth in mobile phones use started later but is now expanding rapidly (Castells et al. 2007, 17–21).

The Institutional Level
Secondly there are studies which focus on the institutional level of the mobile phone's social role. By the institutional level I mean here the role of the mobile phone in changing the structures in administrative and other official organisations, like workplaces. For instance, some

studies argue that the common use of mobile phones has changed the power structures in societies: mobile phones empower informal micro social networks (e.g. Geser 2005; Ling 2004; Fortunati 2006; Gergen 2008).

The institutional power of different organisations is often regulated by bureaucratic administration where communication between different parties is conventional and subject to many rules and restrictions. A landline telephone is seen as a device to connect stationary and supra-individual systems (e.g. offices and households) rather than individual persons. Institutional structures are 'place-to-place' networks and in order to communicate with a specific person, one has to either go somewhere or phone somewhere. Mobile phones are seen to undermine these traditional notions by creating direct links between particular individuals, irrespective of their institutional role or location. Always attainable, mobile phones tend to weaken the control of formal institutions over their members' behaviour. (Geser 2005, 29.)

Through the mobile media, people can also organise, plan, and coordinate direct political actions – elections, demonstrations, insurrections, etc. (Rheingold 2008). For instance, there have been 'ad hoc' political mobilisations in which text messaging has played a major role. Messages about why, when and where to gather have been quickly disseminated, and campaign logistics coordinated. For instance, in the Philippines on January 16th, 2001, thousands of Manila residents gathered to protest the perceived injustices of President Estrada and demanded the immediate removal of the president. Most of them followed the instructions they had received on their mobile phones. (Castells et al. 2007, 186–193; Rheingold 2002, 157–160.) 'Flash mobilisations' (Castells et al. 2007) such as these are caused by person-to-person mass communication. People receive messages from someone they know, and the credibility and political dynamic of the messages are based on mutual interest, not on hierarchical or conventional power structures.

However, mobiles not only free people. Studies also show that despite the fragmentation of traditional institutions, the extent to which people are connected to institutions has not decreased. For instance, in some cases mobile phones keep people in 'perpetual' contact with their work tasks, especially if the device or the subscription is purchased by the employer (Raudaskoski & Arminen 2003; Gant & Kiesler, 2001). Similarly, parents seem to be 'homebound' wherever they are, and relax their attachment to their mobile phones only when they are with their children (Palen & Hughes 2007, 343). While mobile communication can increase an individual's power and freedom vis-à-vis other people and institutions, it also allows others a degree of control over the individual (Katz 2006, 8).

The Domestic Level

The third level of studies on the mobile phone's social role I shall call the domestic. These studies show that although the mobile phone reduces institutional power over individuals, it also affords 'social control' between family members, peers, members of leisure activities, etc. People create mobile networks with those closest to them (Ling 2004; Harper 2005; Fortunati 2002; Geser 2005; Green 2001).

Mobile phone connection has become a 'home base' (Palen & Hughes 2007) embodying a virtual base for the meeting up of family and friends. Through mobile telephony, the private sphere is nowadays allowed to invade even work life in a manner that was not possible before (Harper 2001). In this respect, mobile phones can even break down rigid or traditional gender roles. As a personal device which allows around the clock contact, both parents, in principle, can be seen to be equally responsible for their children. Of course, mobile phones may promote both gendered and non-gendered behaviour, depending on the prevailing cultural practices. (Castells et al. 2007, 54–55.)

One of the most studied areas is the mobile phone use of teenagers (see e.g. Weilenmann & Larsson 2001; Ling & Yttri 2002; Kasesniemi & Rautiainen 2002; Johnsen 2002; Green 2003; Ling 2004; Taylor & Harper 2003; Oksman & Rautiainen 2002; Oksman & Turtiainen 2004; Campbell 2006, 2007; Yoon 2006). Rather than indicates the dangers of 'social control', the studies on teenagers' mobile phone use as well as other studies at the domestic level report of new possibilities. Mobile phones are enablers of new everyday practices.

Beginning in the Nordic countries and spreading to other European countries along with the GSM standard, there seem to be common recognisable features in the role of mobile phones on the domestic level, namely increased particularistic social contacts, coordination of everyday activities, mixing the spheres of work and leisure, and the association of teenagers with the revolution in SMS use, etc. In the US the development has been somewhat parallel to Europe, although not so marked because of the incompatible network standards across the states, and the differences in pricing practices, for instance in some states the receiver pays part of the costs of a call. (Castells et al. 2007, 31, 34; Ling 2004, 15.)

Richard Ling (2004) has introduces a much referred concept of 'micro coordination' by which he means the realm of small groups of people who coordinates their everyday activities. Through the use of mobile phones, when the pervasiveness of primary, particularistic social bonds increases, time-based scheduling and coordination is reduced. Ling has adopted a 'domestication approach' (e.g. Silverstione & Haddon 1996; Berker et al. 2006a) for studying the social role of mobile phones. According to Ling, the domestication approach is a "micro-level approach" that is "focused on everyday life of the individual in a particular context" (Ling 2004, 30). It is often used to examine the adoption of technologies at homes (see e.g. Ward 2006; Russo Lemor 2006; Lim 2006; Peteri 2006). The concept of domestication has been developed to describe and analyse the processes of accepting, rejecting and using technology. It differs from the view of models which assumes that the adoption of new innovations is rational, linear, and monocausal and is technologically determined. Rather, the domestication approach considers the complexity of everyday life and technology's place within its dynamics, rituals, rules, routines and patterns. (Berker et al. 2006b, 1.) The researcher must have an overview of the negotiations and interactions associated with the acquisition of the technology and its ongoing role in the home or in the social group (Ling 2004, 27).

The Situational Level

Most of the studies on the third – domestic – level introduced above are carried out using interviews and questionnaires. In some cases the data are based on ethnographic observation and informant reports. My own thesis focuses on the actual actions taken when using the mobile phone. The approach shall be called situational. On the situational level practices are scrutinised as they occur in the practical context of everyday activities. Data can comprise, for instance, real mobile phone calls (see e.g. Laurier 2001; Weilenmann 2003; Hutchby & Barnett 2005; Arminen 2005a, 2005b, 2006, 2007, 2008; Arminen & Leinonen 2006; Laursen 2006); collected SMS messages (Kasesniemi 2003; Hård af Segerstad 2002; Harper et al. 2005; Ling 2004) – although only some studies of SMS (see e.g. Laursen 2005, 2006; Spagnolli & Gamberini 2007) concentrate on the situational procedures of text message communication; mobile multimedia messaging (Koskinen et al. 2002, Battarbee 2004); or video recordings of situations in which different mobile applications are used (Arminen 2005a; Koskinen 2007; Relieu 2008).

Many of the studies on this level are based on ethnomethodology. Ethnomethodological interaction analysis is applied to study technology use and technology environments (see e.g. Suchman 1987; Frohlich et al. 1994; Whalen 1995; Raudaskoski 1999; Heath & Luff 2000; Luff et al. 2000; Arminen 2005a&b, 2006, 2007, 2008). This kind of analysis directs its attention towards the details of human conduct and coordination, and demonstrates how technologies rely upon the activity procedures and practical reasoning of the members of particular organisations in particular settings. Some researchers talk about 'technomethodology', an approach that combines ethnomethodology with the system design of information technologies (Button & Dourish 1996).

My thesis explicates the action possibilities and restrictions that mobile phones afford in everyday interaction. It analyses 1) audio recordings of naturally occurring mobile phone conversations, 2) SMS messages – in particular chains of messages – and 3) video recordings of WAP use. In examining the everyday use of mobile phones at the situational level, this study connects an affordance perspective with ethnomethodological interaction analysis.

1.2.3. The Mobile Phone's Social Role and the Affordance Approach

Rich Ling (2004, 25–26) has criticised the affordance approach, pointing out that it concentrates only on person-device interaction and leaves out the social context of use and, thus, is not capable of fully analysing the social role of mobile phones. He links the affordance approach with studies on mental representations and argues that it is most appropriate for design issues. Some of Ling's criticisms of the affordance approach are based in misunderstanding. For the father of the affordance theory, James J. Gibson, affordances were not connected with mental representations, but with whole activity systems organised by the actor and the environment.

The common misinterpretation of the idea of affordances is that they do not have anything to do with the socio-cultural competence of using information technologies. This misinterpretation partly derives from the writings of Donald Norman and will be discussed further in Chapter 2.

It is true, though, that the affordance approach, like the one employed in this study, is helpful when dealing with concrete design issues, because it analyses the actual use of information technologies. However, it must also be acknowledged that affordances not only tell us something about the technological potentials and restrictions of actions, they also mirror the social environment of technology use. Both the material existence of features and the socially developed skill to notice them are needed for the realisation of affordances (see Chapter 2).

It is not just the affordance approach, but all the levels introduced above (cultural, institutional, domestic, and situational) which provide us with knowledge of technology use. All this knowledge can be put to use in the design of mobile phones or other technologies. Design questions revolve around the interactions and interdependence of nested environments (Gay & Hembrooke 2004, 9) and thus around the conditions that shape the use of mobile phones in special communities of practice. In fact, many studies into the social role of technologies were originally funded and carried out as part of the design processes (e.g. Suchman 1987). Design is an area that requires understanding of both the social as well as the engineering aspects of technologies, and it mediates the concrete research done in these two fields.

Technology, politics and cultural conventions are all relevant factors when talking about the development of mobile phones. However, the mobile phone would not have been considered worthy of technological innovations, political battles or economic investments if people had not already appreciated the importance of mobile phones in their daily lives. People need not concern themselves with the political battles behind network developments, or even how those networks are technically built up or the technology of the handset. In practice, all one needs to know is how to use the device for one's own purposes.

The different kinds of approaches to the mobile phone's social role which I have introduced above are all interrelated in that focusing on one includes others, even if they are only considered peripherally. When zooming in and out using 'micro-macro' scale, the point of view shifts and this affects both the data and the method applied. This does not mean, however, that when zooming in, one can do research without any conception of the 'whole picture', and vice versa, when looking at the larger structures, one must have some understanding of the organisation of the practices at the 'micro' level.

The relationship between technological change and interactional practices cannot be fully understood without close observation of naturally occurring activities in the context of what the technology in question does or does not make possible. In this study, the social role of mobile phones is a practical matter.

Mobile phones are part of informal communities of practices both inside families and within bureaucratic institutions. These practices consist of concrete activity systems formed by

the participants (be they human or non-human) (cf. Järvilehto 1998a&b, 1999, 2000).[3] Following Leont'ev's (1978) analysis, any activity system can be seen to consist of an activity which has some sort of general motive and meaning; this activity is carried out through actions which are governed by the conscious goals of the subject; actions are then realised through a series of operations, each derived from the conditions and structure of the action. The following table sums up the dynamics of Leont'ev's ideas.

Type of activity	Directed at	Analysis
Activity	Motives	Why something takes place
Action	Goals	What takes place
Operation	Conditions	How it is carried out

Table 1.1. Different aspects of the activity structure (Albrechtesen et al. 2001).

Mobile phones have brought to the fore new affordances – i.e. action potentials – and, hence, have introduced new operations, actions and activities that people can participate. Basically, the affordances of mobile phones are realised on the operational level of everyday communities of practice. However, these practices are intertwined with larger activity systems and, thus, the affordances of mobile phones can be examined combining information from data sources which consider the different roles that mobile phones play in society. Whichever level is placed in the spotlight, there are always other levels that are connected to it. Thus, actual operations ('how it is done') are linked with the actions these operations realise ('what is done') as well as the motive of activity ('why it is done').

Mobile phones can be tools for different kinds of activities, with different kinds of motives. The primary 'source' of motives usually lies elsewhere than in the technological possibilities of the device. But if we study motives without any knowledge of the actual actions taken and the operations the mobile device affords for those actions, we miss the dynamic of the systemic connections of different levels of activity.

People's psychological motivations were not the concern in this study, although it is recognised that motives are usually present in practical actions. When the 'motive' for an action is not immediately observable, also the broader context has to be taken into account and this motivational framework is revealed in the data in several ways. For instance, mobile phone

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3   From my perspective a community of practice may consist of several activity systems. The dynamics of communities of practice can be analysed by considering the systemic organisation of the activities through which the common meanings of the community are established.

calls are analysed as chains of calls which construct the larger context of the activity. In SMS data, the meanings of messages are also analysed by interviewing the participants. In the case of WAP, the participants are motivated for using the device at that specific moment through the researcher's request to demonstrate the services they use. However, beside the 'simulations' of WAP (which are, of course, authentic interactions of a kind), the reasons for the everyday use of such services are discussed with the person operating the video camera.

1.3.   INTRODUCTION TO THE THREE CASE STUDIES

In this study, I am primarily concerned with the detailed structuring of practical actions, and therefore my analysis focuses on the actual use of mobile phones in the situational level of analysis. The uses of mobile phones are connected to other simultaneous and episodic courses of action. When the research interest is specifically to study the actual use of a mobile phone, data must be collected towards that end. What one in fact ends up working with are 'clips' of actual everyday activities that are spotlighted according to the research questions. The analysis starts already in the data collection phase, since the form of the data determines the possible sets of results that can be produced.

The data in this study consist of mobile phone calls, text messages and the use of Wireless Application Protocol, WAP. The data is composed of 82 audio-recorded mobile phone conversations; 206 text messages and the interviews of seven texters; and video recordings of twelve users using various mobile internet applications via a mobile phone, with eight WAP use situations of two participants being scrutinised in detail. Mobile phone calls and text messages are the most frequently used services of mobile phones. WAP was created to form the basis for mobile multimedia, but its use has not increased as rapidly as other more basic services. My interest in investigating calls, SMS, and WAP came from a desire to analyse more deeply the affordances of different types of services of the same device.

The mobile phone calls were audio-recorded. The data is authentic in the sense that it is comprised of actual mobile phone conversations between naturally connected participants. However, because only audio recordings were taken, visual evidence about handling the phone and seeable environment of the participants are missing. However, these 'absences' proved to be interesting elements in the analysis, since when analysing the organisation of the calls, audible actions occurred that were connected both to the handling of the device and to actions in the immediate surroundings.

In the analysis of the text messages, the data comprises the textual content and the form of the messages, but not the actual writing processes of those messages. Hence, because of the character of this data sample, the central issue in the analysis is the organisation of actions established through text messages. The affordances that a mobile phone presents for textual communication are traceable, not from the actual writing occasion, but from the form of the messages. It was decided from the very beginning that the gathered text messages should be supplemented with interviews. People that gave their SMS messages to the study were asked to

report the circumstances in which the messages were sent or received. They talked about these specific messages, not about their text messaging generally, and hence, gave an insight into the activity environment these messages were part of.

When launched, the WAP application lacked active users, and the early forms of WAP services turned out to be a failure. Since many of the problems of WAP seemed to be linked with its actual use, this use was chosen for a closer scrutiny. The data was collected from 'early adopters' who were among the small minority of people using early mobile internet services. The preferred way of collecting the data was to ask people to show those services they normally used and video-record these sessions. This was considered to be enough to gain data, instead of following people around and waiting for the moments when people connected to a WAP (or another mobile internet) service. Thus, the data analysed here is not 'naturally occuring' in the sense that the recordings are not clips from ordinary courses of action. The recordings may be considered 'experiments', although no tasks were asked to be completed by the participants (other than to do something with the application), nor were any measurements (e.g. of reaction times or error rates) made. It was essential here that the video-recorded data from the actual navigation of the services gave an opportunity to concentrate on the organisation of the interaction between the user and the mobile phone, an aspect that is only indirectly present in the cases of mobile phone calls and SMS messages. The data consist of twelve video-recorded use situations of different mobile internet solutions. The use situations from two participants using WAP are chosen for a detailed analysis.

1.4.   OUTLINE OF THE DISSERTATION

Chapter 2, which follows, presents the study's approach. It introduces the theoretical and methodological premises of the study starting from James Jerome Gibson's notion of affordance. In addition to becoming acquainted with the basis of Gibson's ecological psychology and the idea of affordances, Donald Norman's viewpoint on affordances is also introduced, and Gibson's and Norman's theories are compared.

Chapter 2 also presents the distinction between three conceptual dimensions of affordances (handling, comprehensibility, and applicability) in studying information and communications technologies (ICTs). I argue that the functionality and the usability of ICTs are organised through these three aspects. These aspects are used as tools in analysing the data in the following empirical chapters. The idea of affordances is connected with the method of ethnomethodological conversation analysis (CA). CA allows analysing and deciphering affordances in actual action situations.

Typically, in human-computer interaction (HCI) studies a concept affordance refers to those physical properties of the artefacts that afford similar action potentials to all people, without any special learning processes being involved. The underlying assumption of this study is that both material and symbolic resources can work as affordances in human actions, and affordances can be learnt. In Chapter 2, the role of technological affordances in relation to

other affordances involved in human conduct is discussed. The main idea is that from the perspective of the organisation of activities, the origin of the resources does not define 'natural' or 'artificial' affordances (e.g. whether they are part of a built or unbuilt action environment). Whatever the affordances are like (technological, symbolic etc.) the critical question is: what opportunities does a person have to take advantage of them. In the study, a distinction is made between the use of a tool and a machine. This distinction follows social anthropologist Tim Ingold's (2000) notion of *dwelling perspective*, which develops further Gibson's ecological psychology.

Chapter 3 considers the affordances of mobile phone calls. The analysis focuses on the fine interactional details of mobile phone calls and discloses the relevance of the affordances of mobile phone devices both for the organisation and fluency of the calls, as well as for the broader social activities these calls carry out. The practices of making and taking a telephone call are already familiar from fixed landline telephones. When basic functions are already in operation, the new features that mobile telephones introduce can be exploited as affordances for the new kinds of social actions.

Analyses show that in everyday communication the features of mobile phones are regarded as personal interactional resources; in practice they become 'extensions of the body'. People expect personal accessibility from each other. Both personal contact and the possibility of constant contact is afforded: in principle everyone can be reached anytime everywhere. Personal constant contact serves as a foundation for new social practices when connected to the other action possibilities of the situation. I call these interconnected potentials that are realised in activity systems *concurrent affordances*.

Most of the affordances examined in Chapter 3 rest on the level of the social applicability of mobile phones. Even though the key aspects are easy to adopt and can be exploited in social actions, participants must still pay attention to the special characteristics of mobile phone calls in order to be able to speak to each other. This means noticing the affordances at the levels of handling the handset and comprehending the logic of mobile telephony. Chapter 3 also discusses problematic technologies or activity environments that expose some constraints of the practices concerning mobile telephony.

In **Chapter 4** SMS interaction, the mutual communication of intertexters, is analysed. The data consist of real text messages and interviews with texters. SMS has a close relationship both to spoken communication and to traditional written interaction, but it clearly forms a communication mode of its own. The analysis shows that the SMS communication, its organisation and meaning, is constructed by the technological and social affordances of mobile phone devices. Chapter 4 discusses how people are creative in using SMS and in organising interaction especially as SMS-in-interaction. The study reveals that SMS is often used to plan ongoing or future activities. Another important field of social activity made possible by SMS is the maintaining and renewing of social intercourse, namely 'relationship management' (RM). In RM messages both entertaining issues and serious matters are shared. SMS provides an opportunity to take new kinds of affective and amusing social actions in which the time used in keying in the message is not essential. The activity environment is often very intimate; it does not

open up to the outsider. The reason for the usability of SMS can be found from the new kind of sociability it affords. These and other SMS specialities, like the use of emoticons, are discussed further in Chapter 4.

Chapter 5 considers the affordances of WAP application. The data analysis focuses on user-device interaction and especially highlights the role of some conceptual affordances and their part in understanding the logic of the application, focusing on affordances at the level of comprehensibility. The analysis captures the fine elements of real WAP usage revealing detailed knowledge of the organisation and problems involved in user-device interaction.

In their everyday practices people make sense of the world through the documentary method of interpretation (Garfinkel 1967). WAP service is also interpreted and used based on everyday reasoning. The study illustrates how interpretation and sense-making processes in human-device interaction are sequentially organised. It exemplifies that knowledge of the sequential organisation of situated actions, and their affordances, is needed when designing any human-device interaction. In early WAP application, there were inadequacies in the usability of text-based commands and classifications. These problems derived from the culturally shared understanding of textual formulations and led to ambiguous use of control commands.

Chapter 5 shows that people constantly faced problems using early WAP and these problems forced them to concentrate on the logic of the service instead of their own goals. I argue that through these kinds of problematic use situations, WAP came to be thought of as an 'incomprehensible machine' to users and that is why people in general could not, or did not want to learn to, adopt it as a tool for everyday use.

In conclusion, **Chapter 6** sums up the main findings of the earlier chapters and discusses the implementations of the study for the design and development of mobile multimedia, and for the study of social action and interaction and, finally, for the theories and methods of social psychology.

2. An Introduction to the Affordance Approach in Studying Mobile Phones

2.1. INTRODUCTION

This chapter introduces the theoretical and methodological premises of the study starting with James Jerome Gibson's idea of *affordance*. In the study, the main focus is on the organisation of action when mediated by a mobile phone. The idea behind analytical choices is that all human activity is regarded as structured by sequences of actions which are organised by other people, animals, devices, the natural and built physical environment, the symbolic environment, etc. Material and communicative resources systematically enable actions. When actions are taken, there is always interaction between a human being and the surrounding environment. A close look at the structure of an action discloses the form and role of the different resources of that action. The qualities of the environment offer different affordances according to the purposes of the actions and actors involved.

We start by considering the basis of Gibson's ecological psychology and the idea of affordances. Following this, Donald Norman's viewpoint on affordances, especially in human-computer interaction (HCI), is discussed and compared to Gibson's. In HCI studies the concept of affordance often refers to those physical properties of artefacts that afford similar action potentials to all people, without any special learning processes. For instance, the key in a PC keyboard affords pushing, not rotating or pulling (Norman 1999a). Gibson, however, did not consider human conduct to be exceptional (in relation to other life forms) and he avoided distinguishing between the 'natural' and the 'cultural' environment. For this reason it is often mistakenly thought that Gibson's theory considers only 'natural' affordances.

When features of artefacts are specifically designed with specific affordances, learning to perceive and use them proceeds in the same way as learning to perceive so called 'natural' affordances. Affordances are always a part of situated actor-environment systems (cf. Järvilehto 1998a&b, 1999, 2000). The material and symbolic features that enable or restrict an action are made use of locally, though their emergence and the way they are understood are historically determined.

To disclose the affordances of a certain human activity system, one needs a method suitable for analysing the organisation of action sequences. For this reason the principles of ethnomethodological conversation analysis (CA) are employed. CA focuses on the organisation and progress of action sequences, taking into account the things that the actors orientate

to. The CA approach allows one to analyse and decipher technology in action. What people orient to are affordances of that particular activity situation. In this study, conversation analytical techniques used to study 'talk-in-interaction' are also applied to study 'action-in-interaction', and affordances other than spoken ones are also taken into consideration.

Following this a distinction between the use of a tool and a machine is introduced, applying Tim Ingold's (2000) ideas, which develop the premises of Gibson's ecological psychology in the domains of anthropology and sociology. The difference between a tool and a machine is that a tool becomes a tool through the process of practical activity a person engages in. A tool may consist of complex technology, but can still afford 'simple' actions for the user. A machine, on the other hand, works on its own premises, and does not give the user additional means to act in the environment, but in fact forces the user to concentrate on the operation of the machine.

The chapter concludes by considering the relation between usability and affordances. The distinction between three conceptual dimensions of affordances – handling, comprehensibility, and applicability – in studying information and communications technologies (ICTs) is introduced. The functionality and usability of ICTs are organised through these three aspects. These aspects are used as a tool in analysing the data in the empirical chapters which follows.

2.2. AFFORDANCES

2.2.1. Gibson and the Theory of Ecological Psychology

The concept *affordance* was developed by James Jerome Gibson, and formed a significant part of his theory of ecological psychology. The verb 'afford' can be found in the dictionary, but not the noun 'affordance', for Gibson coined the term. By affordance he meant something that refers both to the environment and the human being (or animal); it implies complementarity between humans and the environment. In Gibson's theory, all parts of the environment afford some kind of behaviour, e.g. holding, sitting, eating, and so on. We perceive these possible functions directly. When we look at objects, we perceive their affordances, not their qualities. Gibson says that affordances cannot be measured in the same way as we measure in physics (Gibson 1986, 127–128). The physical qualities of an object may stay the same, but affordances can be different in relation to different actors and actions.

The central element in the ecological theory of perception is *information pick-up*. The term information does not mean the knowledge communicated to a receiver. Gibson asserts that the perception of the environment is direct, not mediated by retinal, neural or mental pictures (ibid., 147). Perception is a mode of action and what we perceive is a direct function of how we act. Depending on the kind of activity in which we are engaged, we will be attuned to picking up a certain kind of information. The knowledge obtained through direct perception is thus

practical.[1] It is knowledge about what an environment offers for the pursuance of an action in which the perceiver is currently engaged. (Ingold 2000, 166.)

Thus, the perception of an affordance is not a process of perceiving a value-free physical object, to which meaning is somehow added, but is a process of perceiving a value-rich ecological object. Gibson says that physics may be value-free, but ecology is not (Gibson 1986, 140). From a Gibsonian perspective, it is apparent that the world becomes a meaningful place for people through being lived in, rather than having been constructed along the lines of some formal representations (Ingold 2000, 168). This involves a keeping-in-touch with the world, an experiencing of things rather than having experiences (Gibson 1986, 239).

Information about the environment accompanies information about the self, the two being inseparable. As one perceives the environment, he or she simultaneously perceives oneself. This is inconsistent with dualism of any kind, either mind-matter dualism or mind-body dualism. The awareness of the world and one's relations to the world are not separable. (Ibid., 126, 141.) All parts of the relevant environment are in some relation to the observer. Gibson says that an important fact about affordances is that in a sense they are neither objective nor subjective properties; or they are both. An affordance cuts across the dichotomy of subjective-objective. It is equally a fact of the environment and a fact of behaviour. An affordance points both to the actor and to the environment. It is both physical and psychical, yet neither. Even though affordances are relational, they are not imagined. They are there, but cannot be measured as we measure physical qualities (Gibson 1986, 129).

2.2.2. Norman and Affordances

In his book *The Psychology of Everyday Things*, Donald A. Norman (1988) brought the concept of affordance into the field of artefact design. Norman's impact on the design of information and communications technology has shaped the way affordances are understood inside the human-computer interaction (HCI) community. Norman says that the concept of affordance "refers to the perceived and actual properties of the thing, primarily those fundamental properties that determine just how the thing could possibly be used... When affordances are taken advantage of, the user knows what to do just by looking: no picture, label, or instruction is required." (Norman 1988, 9.)

Norman employs the concept of affordance but abandons Gibson's ecological psychological framework within which the concept was originally developed. Norman distinguishes between real and perceived affordances. This distinction is, however, somewhat misleading. For Gibson, affordances and perception are interlinked: affordances are *always* perceived

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1   The term 'knowledge' in this context is used to indicate the practical means people employ to take situated actions, i.e. people are not expected to reflect or justify their knowledge when conducting actions (cf. Pirttilä-Backman 1993; Pirttilä-Backman & Kajanne 2001).

because things become affordances only when engaged with in action. Thus, there is no difference between 'real' and 'perceived' affordances. However, what Norman wants to argue with this division is that in the use of artefacts those designed action potentials (which he calls 'real affordances') may not be the same as those that users will perceive. Perceived affordances tell the user what actions can be performed on an object (Norman 1999b, 123).

Norman does not accept Gibson's idea of direct perception. He considers environmental – physical – affordances to be different from the mental representations people have of their environment. According to Norman, in everyday situations behaviour is determined by a combination of internal knowledge and external information and constraints (Norman 1988, 55). He makes a distinction between conventions – i.e. cultural constraints – and affordances, seeing affordances as natural constraints and potentials which belong to the sphere of external knowledge. Cultural constraints, on the other hand, are something that is learnt and are in this sense matters of memory. Thus, for Norman, only those things that can be perceived without learning processes are affordances. He talks about two psychological spheres: the psychology of everyday things (which includes affordances) and the psychology of cognitive processes. There are thus two Worlds, one inside and one outside the head. The socio-cultural world is placed outside the domain of affordances.

This duality of inside-outside or of natural-cultural worlds leads to a misreading of Gibson's idea of affordances. For Gibson, an affordance is something that holds the observer and the environment together. It is neither subjective, nor objective. There is in fact only one acting system and perceptions are collaborative ends of the activity of the different parts of this system (Järvilehto 1998a).

There is a problem with Gibson's theory, however, in that he mainly speaks about the natural environment when talking about affordances. Thus, he leaves room for a Normanian kind of interpretation in which affordances concern only the physical environment and in which direct perception is only about non-conscious information pick-up. What follows from this kind of interpretation is the idea that the basis of perception is different when perceiving the natural environment from when observing the socio-cultural environment (and that these two can in fact be separated), and, further, that learnt skills have nothing to do with the process of perception.

However, Gibson has argued that it is a mistake to separate the natural environment from the artificial environment, as if there were two environments. It is also, according to him, erroneous to see the world of mental products as distinct from the world of material products (Gibson 1986, 130). From the ecological viewpoint, 'natural resources' and 'culturally constructed resources' both serve as affordances. In the process of perception, these two worlds exist together.

Gibson did not say that human beings could not learn to perceive affordances, but instead speaks about the *education of attention*. For him, learning means the improvement of perceiving with practice. A person perceives more because he or she can differentiate more affordances. (Ibid., 253–254.) People from different backgrounds may orient themselves in different ways,

not because they are interpreting the same sensory experience in terms of alternative cultural models or cognitive schemata, but because, due to the previous practices, their senses are differentially attuned to the environment (Ingold 2000, 162; Partanen 1995).

Often when the theory of affordances is criticised, it is actually the Normanian interpretation of Gibson's ideas that is in fact under attack, although the critics may not be aware of that. Take, for instance, Rich Ling's (2004) arguments on the drawbacks of the affordance theory in studying information technology uses. He considers that the affordance approach focuses on the design of objects, and does not pay attention to issues such as culture, age, and experience. It is as if affordances were the same for everyone in every situation. He takes the example of a mouse attached to PC. For millions of users every day, a mouse affords the possibility to move the cursor around the screen. However, for his 3-year-old daughter it does not afford that, because she has not yet learned to use the mouse; when doodling with the drawing program she is frustrated because the cursor has been moved away from the drawing area to the menus and is replaced with the button-pushing function. Her father tells her to "lift it up", meaning the cursor on the screen. However, his daughter interprets the instructions differently and physically lifts the mouse up from the desk. Ling says that the "unschooled approach" of his daughter was a logical, but incorrect solution. Ling's argument is that according to the affordance approach, objects simply radiate their possible functions for everyone. For him, the affordance approach studies the mental processes carried out by an individual. Ling argues that in reality objects do not radiate their possible functions to everyone, and objects have to be placed within a larger context and understood from that perspective. (Ling 2004, 25, 27.)

2.2.3. Activity Systems and Man-Made Affordances

However, according to ecological psychology not all human beings can perceive all the possible functions objects may have. For instance, the use of artefacts is not based on some innate 'technology acquisition device'[2] but on systems of apprenticeship that are constituted by the relationship between more and less experienced practitioners in hands-on contexts of activity. It is on the reproduction of these relationships, not on the genetic replication, that the continuity of a technical tradition depends. The novice is led to develop a sophisticated perpetual awareness of the surroundings and their affordances for action. (Ingold 2000, 36–37; see also Goodwin 2007.) This is also the case when a child learns to use a mouse correctly with her father. It is a process of *understanding in practice* (Chaiklin & Lave 1993; Lave 1988), in which learning is inseparable from doing, and in which both are embedded in the context of a practical engagement with the world (cf. Ingold 2000, 414–416).

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2   Cf. Noam Chomsky's (1975) 'language acquisition device'.

In human activity the emphasis must put on the discovery of *relationships* among affordances, not just on isolated affordances themselves. As Edward S. Reed has said: "It is one thing to know that a needle is sharp and affords poking a hole; it is quite another thing altogether to know how to use it to sew anything" (Reed 1996, 123). It is *courses of actions* we must look at when interested in the affordances that humans perceive. Every particular object can have several affordances. Yet when we combine objects in a course of action, we do not get a combinatoric explosion of possibilities: we do not find ourselves trying out all the different affordances of each object. Instead, our task helps us to select what we do with given objects. (Ibid.)

The use of artefacts, like all human activity, consists of specific actions which are taken in order to achieve a certain goal. A human being and his or her environment form an operative system[3] which is organised by this goal. Moreover, affordances are perceived in relation to the purpose of the activity. A special characteristic of human activity is that the goal can be either tangible or ideal and imagined. As discussed earlier in Chapter 1 (see Table 1.1), according to Leont'ev (1978), human activity can be analysed using a three-level hierarchy: activity, action and operation. Activity aims to satisfy a need through material or ideal objects. This activity is carried out through actions which are governed by the conscious goals of the subject. Actions are realised through a series of operations, each derived from the conditions and structure of the action. Operations are often performed without conscious thought.

Leont'ev states that the investigation of an activity requires a specific analysis specifically of its internal systemic connections, for an activity represents a process that is characterised by progressive transformations. To consider a tool in isolation from a goal or to isolate an operation from the action that it realises is to deal in abstractions.

In technology studies, many researchers – for instance in fields like CSCW (Computer Supported Cooperative Work) and Workplace Studies – investigate technologies as part of the real work practices (see e.g. Luff et al. 2000; Button & Dourish 1996; Randall et al. 1994; Crabtree et al. 2005). Nowadays in HCI studies an increasing number of researchers also argue that cognitive psychological assumptions about input and output processes are not an adequate basis for inquiry. Instead, a more fruitful starting point is to analyse human behaviour as part of activity systems, in which several aspects of an activity are taken into consideration (see e.g. Kaptelinin & Nardi 2006; Gay & Hembrooke 2004; Nardi 1995; Bødker 1991; Albrechtsen et al. 2001; Bærentsen & Trettvik 2002; Ylä-Kotola & Arai 2000). For example, if we think of human-computer interaction as a system, it changes along with changes in the purpose of the activity. A human being and his or her body, a keyboard, a mouse, a display, a main module, a table, a chair, headphones, networks, etc. constitute resources for a user interface. During an ongoing action, there are many possible connecting points in the user interface. An important

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3 The interconnection of a human being and the environment as one operative system is a main principle of several theorists. Timo Järvilehto (1998a, 1998b, 1999, 2000) calls this system the "organism-environment system", Tim Ingold (2000) the "developmental system", activity theorists refer to "activity systems" (see Leont'ev 1978, Engeström et al. 1999). Bruno Latour's (e.g. 2005) and Michel Callon's (1986) idea of the "actor-network system" (ANT) is also derived from the idea of the interrelation of an actor and his/her environment.

part of the system can in the very next moment become unimportant. A personal computer is used as a tool for further actions and the user interface is organised according to the action at any one specific moment.

The features of artefacts are specifically designed with specific affordances in mind, but learning to perceive the affordances of cultural products is a process that proceeds in the same way as learning to perceive so-called 'natural' affordances. Education of attention takes place in social settings and culturally-historically modified environments and includes man-made objects, including symbols (cf. Bærentsen & Trettvik 2002, 58). Our perception is embedded in courses of actions which are themselves patterned, learned and shared. Our environment is structured so that feeling, hearing and seeing is possible. In these senses, the possibility of perception can be said to be culturally provided. Knowing how to look is like knowing how to speak – it involves knowing the practices embedded in any environment. (Anderson & Scharrock 1993, 146.)

With mobile phones, pre-existing patterns of social mobility outside the home play an enormous role in the uptake of mobile devices and the uses to which such devices are put. What it means to be 'mobile', i.e. away from home, is different in different cultures. Mobile devices are tools for different kinds of social practices in diverse cultures, which means that the affordances of mobile phones are seen differently according to the practices which people are constantly involved in their own surroundings. For instance, in Korea many mobile phone users organise their address book into separate folders, assigning each folder a different ring tone. This is done an account of the cultural use of formal and informal predicates and pronouns: in order to avoid giving offence, one uses formal pronouns for those more senior to you (by rank, age, birth order, career, or university graduation). Making address book folders and attaching distinctive ring tones helps one know the 'status' of the caller right from the beginning and prepares one for the appropriate way of responding to the call. (Bell 2005, 70, 74.)

2.3.   AFFORDANCES AND THE STUDY OF ACTION-IN-INTERACTION

Actions taken in mobile communication (as well as all other actions) are organised by human-environment organisation system (cf. Järvilehto 1998a&b, 1999, 2000). Affordances of such a system are always situationally specified in the sequentially proceeding activity. In this study, affordances are approached by applying conversation analysis (CA) methods. CA analyses the sequential organisation of an activity and, thus, reveals what kinds of affordances are available for participants.

2.3.1. Ethnomethodology and Conversation Analysis

Conversation analysis originated in studying talk-in-interaction, the systematic analysis of the kinds of talk produced in everyday situations of social interaction. Traditionally the focus has been on the description and explication of the competences that ordinary speakers use and rely

on when participating in conversation. An assumption throughout CA is that human activities are accomplished as the accountable products of common sets of procedures. The primary units of analysis are sequences. This is based on the recognition that the production of current conversational actions proposes a here-and-now definition of the situation, to which subsequent talk will be oriented. (Atkinson & Heritage 1984.)

The roots of CA lie in the theory of ethnomethodology created by Harold Garfinkel (1967). Ethnomethodology (EM) established a new territory for social sciences: the study of properties of practical commonsense reasoning in mundane situations. The issue that EM made empirically relevant was the fact that in social situations the actors somehow know what they are doing and share this knowledge. Thus, in order to provide for the stable organisation of some set of social activities, detailed consideration had to be given to the participants' understandings of their empirical circumstances. (Heritage 1984, 1987.)

The ethnomethodological concern of the members' methods (how the mundane world and a commonsense understanding of it is produced) is combined with the observations of natural occurrences of conduct in conversation analysis. CA grew out of Harvey Sacks' contemplation of the idea of the science of social life. Sacks' focus was on how the recognisably detailed ordinary world of activities is produced. His aim was to develop an approach that could handle the actual and most basic details of actions, in order to be able to scrutinise the mechanism of various phenomena in society. Though at first generated for studying telephone conversations, it was not in Sacks' interest to restrict the analysis to conversations alone. In the late 1960's and early 1970's, tape-recorded telephone conversations were one of the easiest ways to acquire data about everyday human encounters. The basis of his approach was that through the reproducibility of the actual details of actual events the science of social life became possible. (Sacks 1992; Arminen 2005b.) Hence, Sacks did not search to give an explanation of some great 'social order' as such, neither was he interested in spoken encounters only, but his interest was rather in producing accounts of any courses of human action which were recordable and thus analysable. Emanuel Schegloff and Gail Jefferson worked with Sacks (e.g. Sacks et al. 1974) and after Sacks' sudden death in 1975 they continued to develop the method of conversation analysis on its own, concentrating on spoken encounters.

2.3.2. Action in Interaction

The study at hand rejoins Sacks' original idea of studying any social phenomenon using the premises of ethnomethodology. Because of today's advanced data recording systems, many social activities can be captured in detail. Conversation analysis provides a systematic tool for analysing action sequences and action resources, and is in this study applied also to analyse other than the spoken resources of action.

The theoretical background both of affordance theory as well as CA leans on the understanding of human activity as systems of sequentially organised actions structured by situational resources. At the basic level, activity in all its forms means interaction between the

different components of a certain activity system. What in CA is considered 'interaction' can from the perspective of affordance theory be seen as the 'co-operation' of different parts of the activity system. In both cases, the principle behind the concept is the same, namely, to look at the organisation of *one* activity system (cf. Järvilehto 1998a). The initial idea of CA was to scrutinise the co-operative mechanism of conversation. This means that conversation is not simply seen as a distinction between a speaker and a hearer, but rather the meanings during conversation are established through the co-ordination of the participants (Hakulinen 1997, 15). Conversation analysis scrutinises *co*-operation, not the inside worlds of individuals (Peräkylä 1992, 273). Hence, in my own approach, the use of the concept of 'interaction' does not refer to some separate and self-contained entities that happen to act together, but rather to the 'co-action' of different components of the same activity system inside which these components become defined.

Interactions can be considered to be made up of action pairs or 'adjacency pairs' as they are called in CA. In studying conversations, an 'adjacency pair' comprises a sequence which contains two utterances produced by two different speakers, the utterances being adjacently positioned. An adjacency pair contains the first part of the pair, i.e. the 'first pair part' and a 'second pair part', and these form 'pair types' e.g. 'question-answer', 'greeting-greeting', 'offer-acceptance/refusal', 'summon-answer', etc. (Schegloff & Sacks, 1973, 295–297). The first speaker can use his or her action as a presumptive basis on which to interpret what the next speaker says. So, for example, a questioner may assume that the question will be met with an answer or an explanation concerning the lack of an answer (Heritage 1984, 254). Adjacency pairs do not have to be absolutely adjacent; they can be separated by intervening talk. What is important is that they belong together as action pairs and form the basis for a sequential organisation of action (Schegloff 2007).

In my approach, user-device interaction is analysed from the point of view of action pairs. In fact, sequential, alternate taken actions are a main feature that organises all everyday activity. It is a characteristic of interactions that almost all co-operative actions happen at different points in time: simultaneousness is, in fact, exceptional and often very hard to produce (Järvilehto 2000, 46).

To emphasise the role of CA as a study of action sequences (which are mediated by talk) CA researchers refer to 'talk-in-interaction' rather than 'conversation' (e.g. Schegloff 1991, 152). Talk-in-interaction means that conversation is both interaction between participants and, concurrently, activity with some aim: participants take certain actions by talking. Compared with Leont'ev's three levels of activity (see Sections 1.2.3 and 2.2.3 earlier), the action pair parts (the first pair part and the second pair part) are acts taken at the operational level (answering the 'how' question). Actions, for their part, happen when operational acts work together as action pairs (answering the 'what' question). Activity, then, is formed by several, sequentially structured actions that are organised according to the purpose of the activity (answering the 'why' question).

Analytically one can make a distinction between 'how' and 'what' questions, but in practice they are always tied together. 'How' questions indicate the structure of the interaction

(the 'sequence structure') and 'what' questions indicate what actions people are taking by this ongoing interaction (the 'sequential order').[4] CA scholars usually say that they do not ask 'why' questions because the intentions people have in their minds do not belong to the sphere of the analysis. Yet, when studying the affordances of things, understanding the purpose of the activity is crucial and may sometimes require 'why' questions. However, there is no need to always go 'inside a person's head' to see what his or her intentions are or how he or she interprets the state of the world. Intentionality is not seen as a matter of an isolated mind, but is revealed in the action itself. In activity, intention can be seen in the perceivable effort made to achieve some result.[5]

How, what, and why questions are all needed in studying technology uses. For this reason it is useful to talk about *action-in-interaction* (see also Arminen 2005b): in such interaction the use of technologies is at the same time both goal-oriented activity and situated interaction with the device, the application and the rest of the environment. The analyses of the diverse cases of my study (CALLS: Chapter 3, SMS: Chapter 4, WAP: Chapter 5) are based on recognising action pairs. Action pairs are scrutinised at two levels: interactions at the level of sequence structure (e.g. summon-answer pairs in calls or question-answer pairs in WAP or in text messages), and actions at the level of sequential organisation (e.g. social actions realised through sequences, e.g. real-time arrangements through mobile phone calls and text messages).

2.3.3. CA and Affordances

Even though CA is mainly used in analysing human conversations, it is nowadays also applied to the study of technology use and technology environments (e.g. Suchman 1987; Frohlich et al. 1994; Whalen 1995; Raudaskoski 1999; Heath & Luff 2000; Arminen 2008). One research field is Workplace Studies – a synthesis combining methods of ethnomethodology, CA, and ethnography – which explores how new information-technological tools feature in everyday organisational conduct. When used in Workplace Studies, CA directs attention towards the details of human conduct and coordination, and demonstrates how technologies rely upon the working procedures and practical reasoning of the members of particular settings and organisations. Workplace studies are concerned with tacit and 'seen but unnoticed' resources through which organisational activities are accomplished by means of technological tools. (Luff et al. 2000.) Some of the studies that can be discussed under the title Workplace Studies may also be linked to 'technomethodology', an approach that combines ethnomethodology with the system design of information technologies (Button & Dourish 1996).

It is important to remember that affordances are not the same as physical properties of the environmental objects. An affordance is a relation between an actor and invariants (i.e. any

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4   For more about the division between sequence and sequential order, see Arminen 2005b; Schegloff 2007.
5   However, the analysis of interaction could be widened from the strict CA method by asking people about their motives. This allows one to look at the wider activity system inside which the situational interaction takes place.

aspects of the object) in his or her environment. Time and place are the dimensions of the system formed by the actor and the environment (cf. Gay & Hembrooke 2004, 10). The purpose of an activity organises the activity system.

The fact that time and place are the dimensions of the activity system has two consequences for the methodology: 1) affordances are related to the sequential progress of the activity and 2) affordances are situated.

Affordances are 'indexical features' of our environment and are related to the action context. According to ecological psychology, in order to understand human (or any other animal) agency and affordances, three important aspects must be studied, namely prospectivity, ret-
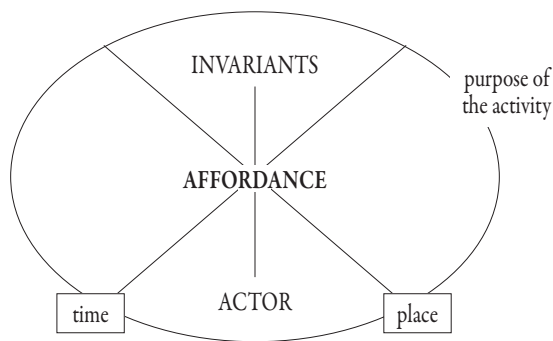
Figure 2.1. An affordance is a relationship.

rospectivity, and flexibility. *Prospectivity* is the forward-looking character of agency. Actions are usually directed not at an existing state of affairs but toward producing a novel state of affairs. Prospectivity directs action and attention towards the emerging features of situations. *Retrospectivity* is the backward-looking character of action. Our behaviour is often directed at present or emerging circumstances only insofar as those circumstances are made salient and meaningful by past experience. Retrospectivity enables agents to coordinate past experiences with present ones. However, we show considerable *flexibility* in the control of our actions, in the sense that more than one means to a given end are possible. Thus, we show interchangeability of means to achieve the ends of action. (Cf. Gibson 1994; Reed 1995, 12–19.)

In ethnomethodology, the aspects of prospectivity, retrospectivity, and flexibility are all considered when doing analysis (cf. Garfinkel 1967, 41). Ethnomethodological CA analyses the resources of real world actions, which are never treated as isolated, self-contained artefacts. Studying real world elicits the interchangeability of means of actions. In addition, each action is treated as both displaying an understanding of prior actions (retrospectivity) and projecting subsequent actions (prospectivity). Every action is simultaneously context shaped (in that the

framework of action from which it emerges provides a primary organisation for its production and interpretation) and context renewing (in that it now helps constitute the frame of relevance that will shape subsequent action). (Cf. Heritage 1984; Goodwin & Heritage 1990.)

Like affordances in ecological psychology, communicative resources in CA are never seen as abstract or separate from their context. Communicative resources as well as other affordances are made use of in taking actions, and equally, those resources acquire their precise meaning inside the frame of the ongoing action. For instance, expressions are always approximate; they never pinpoint a definite property. Rather than standing in a straightforward correspondence with a state of affairs, they serve as affordances locating the fields of possibilities (cf. Heritage 1984, 142–147). For instance, a question can be an affordance which affords first and foremost answering. Even not-answering acquires its meaning in relation to the common understanding that one should answer the question; it is an act done in respect to this expectation. (Cf. Hutchby 2001a, 28–29.) When one of these actions (answering or not answering) is realised, the choice directs the ongoing activity. In conversation it is words in particular that seem to be affordances. They are concrete; they are 'material' properties in our environment. Pronouncing words causes sound waves, which our ears receive. In contrast, pauses, which are silence, do not produce any stimulus to our senses. And yet, in conversation pauses also offer places for action (e.g. for turn-taking). This is understandable in light of the theory of ecological psychology and affordances, as well as of ethnomethodology. Because perception does not rely on the reactions the stimuli cause, but is a process of an active perceiver, it is possible to perceive 'something meaningful' without any 'real' stimulus. In the sequential order of activity, a silence is an action taken in respect of the common end of the activity, and is related to preceding actions as well as those to come. For example, sometimes when people wait for a call the silence before the ringing *is heard* as the 'silence before ringing', though usually when the phone rings unexpectedly we do not hear the 'silence' at all. (Rawls 2002, 37–38.) Similarly, we can see the 'absence' of something in a visual field if we have expected to perceive something which is no longer or not yet there.

2.4.   TOOL OR MACHINE? 'NATURAL' VS. 'ARTIFICIAL' AFFORDANCES

Many artefacts composed of information and communications technologies and established during the past twenty years are nowadays part of our mundane activities. The features of these artefacts and how they are deployed and used have transformed the conduct of everyday actions.

In the analysis of information and communications technology use we may think that a 'normal basis' of action can be found which other – e.g. technologically mediated – actions can be compared to. We may consider face-to-face interaction as 'natural' in the sense that no technical device mediates it. Another activity, for instance using a mobile phone, is then a variant of this natural face-to-face interaction, which has been adapted to new technological demands.

However, in face-to-face interaction 'devices' can also be found that mediate the interaction, namely, human bodies. The sounds, expressions, gestures, postures etc. of a human body are the basis for reciprocal actions. They are central in accomplishing meaningful actions in human-human interaction. In creating ICT applications, for example in designing embodied conversational agents, these affordances of the human body are taken into consideration by the designers. For instance, speech produced by a speech synthesiser is heard as 'robotlike' because the prosodic nuances which are characteristic to human talk are missing. Various 'physiological devices' like the muscles of the face and vocal cords mediate human talk and the affordances that these devices set up have an essential status in taking the interaction forward and making it meaningful. By modelling these affordances there has been an attempt to create virtual agents that correspond to human conversationalists as closely as possible. This is based on the idea that these human-like virtual agents would make the use of ICTs more enjoyable. (Cassell et al. 2000; 2001.) The problem is, however, that in real life interactions embodied expressions are indexical: even identical expressions can have various meanings according to the situation where they are used, and this make the simulated production of these expressions difficult.

What I argue here is that the borderline between 'natural' and 'artificial' affordances does not follow the division of bodily and technical resources. The borderline between the technological and the human is ambiguous. Are my glasses, for instance, part of me or part of my technical environment (cf. Järvilehto 1998a, 328)? In fact, they seem to be both. When I wear my glasses, I am looking *through* them and they are part of me and my abilities to act in my environment. When I take them off (which happens rarely, only when I go to bed and on some other occasions like when washing my face etc.), I usually need to look *for* them (since without my glasses I become visually handicapped and cannot see properly). Sometimes I also look *at* them, for instance when cleaning them or tightening the screws. On these occasions when I am looking *for* or *at* my glasses, they are a technological artefact which is distinct from me.

When wearing my glasses, they allow me to take more actions than I could without them. They increase my social abilities, since with them I can see and share the items of the environment with others. Information and communications technologies have similar effects. For instance, mobile phones help improve people's sociability. For the deaf the SMS function has drastically advanced their long-distance communication both with other deaf people and also with those without hearing difficulties (see e.g. Bakken 2005; Power & Power 2004; Power et al. 2007). However, it is not only the deaf, but people in general who have acquired mobiles to communicate with and contact each other and have thus introduced a wide range of new social practices.

Mobile phones are embedded into our daily lives but the computational technology they contain is rendered "invisible" (Norman 1999b). Devices are carried close to our bodies and are thus become "part of ourselves" (Peters 2004, 5), "extensions of our bodies" (see e.g. Contarello et al. 2003; Kopomaa 2000, 36). In fact, the Finnish word for a mobile phone, *kännykkä* means "something that is an extension of the hand". Similarly, the Japanese word for a mobile phone, *keitai*, means "something you carry with you" (Ito 2005, 1). In Indonesia people talk about *ha-pe* which comes from the English expression "hand phone", which is at first shortened to

the initials HP and then reinterpreted through more Bahasa sounds (Bell 2005, 71). In China in the mid to late 1990s, a colloquial Chinese expression still referred to the mobile phone as *dageda*, meaning literally "big-brother-big". The phrase had come from Hong Kong movies and indicated the exceptional wealth and power associated with the owner of the device at the time. (Castells et al. 2007, 55.) However, today in China (Cantonese) people refer to the mobile phone as *sau gei* or *sau tai*, meaning "hand machine" or "hand carry" (Bell 2005, 71; Yung 2005, 354). Thus, the device has become common and has acquired a cosier name.

Similarly, in English-speaking countries mobile telephones were at first called *cellular* telephones, and still people in the U.S. talk about *cell* phones. The shift in English-speaking countries from cellular to *mobile* coincided with the mass diffusion of mobile handsets (Townsend 2001, 69). The term cellular indicates the call transmission technology. The term mobile phone, on the contrary, points to the users' mode of activity.

These differently accentuated namings of the same artefact mean that the artefact can be seen from different perspectives. Thus, terms like *kännykkä, keitai, sau gei* and *hape* can be seen to refer to personal means of communication, while *cell phone* indicates technological solutions. Of course, a mobile phone is both: on the one hand it is a tool that extends our 'bodies' by giving us more means for mutual communication, on the other hand it is a machine, a technological device that operates under technical rules and processes of its own.

I argue that this distinction between a tool and a machine is a crucial one for understanding technological affordances. *A tool*, following Tim Ingold's argument, is an object that extends the capacity of an agent to operate within a given environment. *A machine* does not represent a more advanced substitute for a tool, but means a completely different way of seeing the role of technology in human practices.

According to Ingold,

> 'Being a tool' is not at all the same as, say, 'being a stone' or 'being a piece of wood'. For whereas the latter refers to intrinsic properties of the object itself, the former refers to what it affords for a user. An object – it could be a stone or a piece of wood – *becomes* a tool through becoming conjoined to a technique, and techniques as we have seen, are the properties of skilled subjects. (Ingold 2000, 319, emphasis original.)

Persons become bearers of techniques through their experiences of dealing with the various affordances of the environment, developing specific aptitudes and sensibilities. Reciprocally, the deployment of technical skills actively constitutes peoples' environment. (Ibid., 321.)

What we call 'human nature' never exists absolutely independently of artificial tools. 'Cognitive evolution' is also the evolution of tools, and our perception functions in relation to external artefacts (Vygotsky 1978). For instance, mobile phones today are what books, handwriting, and cave paintings were earlier. As Kristof Nyíri poits out: "The thinking individual has always

thought with and through his tools; nowadays more and more through network communications and the tools of the Internet" (Nyíri 2005b, 167–168).

Our connectedness to the mobile phone means that when we lose it, we also lose a self-evident, embodied ability to be in constant contact with others. At the same time we lose a meaningful part of our 'practical memory' (e.g. address book, store of messages, etc.) on which many of our daily practices are based. James E. Katz (2006, 11) writes: "Losing one's mobile is in some ways like losing one's mind". This is the foundation for our strong emotional attachment to mobile phones. Losing one often causes disruption and even panic. We are not worried about losing a machine, but a personal tool; a device which is an inseparable part of managing our everyday activities. The mobile phone carries within it our actions resources – 'our mind'.

A machine is not an advanced tool, but constitutes a different kind of relation between a human being and technology. With machines, the manual operation of mechanical functions replaces the skill of acting. People are operators of machines which are indifferent to their subjective aptitudes and sensibilities. (Ingold 2000, 319.) A machine follows a designed plan (Suchman 1987) and the 'technique' is seen to reside outside the user, inside the machine, and comes 'packaged' – like instruction manuals – along with the machine itself (Ingold 2000, 315).

Thus, the difference between a tool and a machine is that a tool becomes a tool through the process of practical activity of a person. A tool may consist of complex technology, but can still afford 'simple' actions for the user. A machine, on the other hand, works on its own premises, and does not give the user more means to act in the environment, but in fact forces the user to concentrate on the operations of the machine.

Ingold says that what is usually represented as a process of complexification, a development of technology from the simple to the complex, would be better seen as a process of externalisation, a progressive cutting out of the technical from social relations. Technology has been removed from the sphere of practitioners' personal experience and competence and the machine has come to signify the independence of technical operations from human sensibility. (Ibid., 314, 316.)

However, I consider that many of the ICTs nowadays are learnt to be used as tools by at first familiarising oneself with the functioning of the technology as a machine, and after that applying the technology for one's own use. So, even complex artefacts do not necessarily have to remain machines for users; it is the way they are used that matters, not their structure as such.

Hence, the distinction between 'natural' and 'artificial' affordances does not rest on the means of the activity (e.g. whether one uses a tool or not; or whether the potential tool is simple or complex) or on the structure of the environment (e.g. natural or built components of activity), but rather on what is the person's possibility to use his or her skill, or personal 'technique', in order to take advantage of affordances in an activity situation. Thus, what can be called 'artificial' affordances for a person are those that are strange to him or her, towards which he or she is not attuned; those affordances that follow not the logic of a person's skills, but the

logic of a machine's own procedure or program. If we do not identify the affordances of technological artefacts, these artefacts appear to us as machines and our attention is turned to the operation of their system and logic. When technological artefacts are used as tools, affordances are recognised and made use of in accordance with our own aims.

2.5. FUNCTIONALITY AND USABILITY

Our capacity to act in our environment develops during our lifetime when new skills meet old ones. Techniques used for human interactive actions are applied to the use of ICTs (see Chapter 5). When we learn to use a technological device as a tool and we use it on a daily basis, it becomes an ordinary part of our activity systems, a 'part of us'. Only when a device remains a 'machine' that runs according to its own logic, outside and independently of our practical means, do we treat it as 'technological' and as strange to us.

Considering this in terms of the usability of information technologies, we can make a distinction between the usability and functionality of artefacts. Functionality refers to what artefacts can do, to their technical solutions (i.e. the machine-side of artefacts), whereas usability refers to how people work with the product (i.e. the tool-side of artefacts). The technological device may have high functionality, i.e. it works as it is designed to work, but it still can have low usability, i.e. people cannot use it as smoothly as they would like to (cf. Dumas & Redish 1999, 4–5).

With information and communications technologies, the use of devices consists of at least three different aspects: the material resources of the device, the logic of the software (and how it is connected to the hardware), and the types of applications these allow (Raudaskoski 2008). To aid my analysis, I have made a distinction between the three conceptual levels of activities through which the dimensions of affordances can be studied. The functionality and usability of ICTs are organised through these three aspects which are summed up in the following table.[6]

There seem to be two different phases through which information and communications technologies become tools for users. Firstly, people are faced with the functionality of a device. In this phase, both the issues of handling and comprehensibility are considered. *Handling* refers to the physical, haptic relationship to the device. There are operational actions that are basically physical in nature and the user has a practical and non-discursive relation to them. The affordances related to handling become especially emphasised in situations where one learns to use a device or a new application, or where routine operational acts cause unwanted results.

Comprehensibility is related to the issue of artefacts being simply to operate. Affordances should be discoverable from information provided on or through the artefacts themselves without extensive training. There should be a detectable relationship between actions taken

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6   Susanne Bødker (1991, 40) has made a comparable distinction between different aspects of user interfaces: the physical aspect, the handling aspect and the subject/object-directed aspect.

FUNCTIONALITY	⟶	USABILITY
HANDLING	COMPREHENSIBILITY	APPLICABILITY
What do physical forms afford?	How can affordances be recognised?	What do artefacts allow one to do? Possible action results.
When learned, often operational, non-conscious actions are involved.	Understanding the logic of the device and the application.	Understanding the relationships among affordances. → *Concurrent Affordances*

Table 2.2. The conceptual dimensions of affordances at the levels of activities.

and subsequent results. Designers talk about 'intuitive interfaces' (e.g. Bærentsen 2000, 32), i.e. one can figure out how an application works if its implications are intuitive.

During this first phase, people learn to know the device 'as a machine'. People familiarise themselves with the device and learn its basic functions. Rarely are interfaces so intuitive that they are adopted without any background knowledge. Usually at this point the user is somehow guided (by other people or by written manuals) to see the affordances of the device. If people are already familiar with some other information technologies, the affordances of the new device or application are often perceived in relation to the already known practices (which in some cases may result in misunderstanding the features of this new technology. Examples of this is given in Chapter 5).

In the second phase, after people have gained acquaintance with the functions of the device, they can turn their attention away from the 'logic of the machine' and begin to see the device's functions as part of *concurrent affordances*[7]: learnt functions afford new actions when connected to other possible affordances that are noticed in the organisation of the user's activity. Concurrent affordances are organised by the purpose of an activity and they organise courses of actions realising that activity. Technological and social action potentials converge in mobile phones. For instance, in some Finnish schools vending machines supply 'free' soft drinks for some pupils, since the machines can be used by sending a text message (costing about 1.5 to 2 Euros) to a certain number. It is often the pupils' parents who pay the mobile phone bill.

The affordances of ICTs are perceived in relation to the preexisting social practices. Yet when ICTs become tools for personal use, they are always modified to suit personal tasks. This level is called the *applicability* of affordances, as it defines the real usability of the device. The

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7   Mike Michael (2000) uses the concept of *cascades of affordances* and William Gaver (1991) the concept of *sequential* and *nested affordances* to describe a similar kind of relationship between affordances.

applicability of ICTs can consist of the concurrent affordances of several artefacts and social practices.

Marketing and advertising are means to make people see affordances at the level of applicability even before people get to know the device or application itself. There is a risk, however, that people may not know – or even may not learn to know – the functionality of the device. Thus, once provided, the problems at the level of handling or comprehensibility may still hinder the applicability of the device.

2.6.   AFFORDANCES OF MOBILE PHONES

Mobile phones are good examples of complex cultural artefacts through which different kinds of social practices are connected: communication, device and application design, maintenance of mobile networks, marketing, etc. Despite this complexity, for users they afford actions. Mobile phones have introduced new affordances and, hence, new actions for people to take. The following Figure 2.2 illustrates the different levels of the properties of mobile phones and how their affordances collectively make various social practices possible.[8]

Technical Solutions	AFFORD	*Functional Features*	AFFORD	*Social Affordances*
E.g. Display		E.g. Textual Information		E.g. Caller Identification
These levels together afford various social actions				

Figure 2.2. *The relation of technical solutions, functional features, and social practices.*

There are three levels of affordances which work simultaneously: technical solutions afford functional features that provide affordances for social actions. For the user, functional features and their affordances are recognised as practical parts of a mobile-phone-as-a-tool. If technical properties are disconnected from the practical aims of the use of the mobile phone, they represent the mobile-phone-as-a-machine part of the device. Technical solutions are designed to be

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8   Figure 3.1 in Chapter 3 enlarges this figure and makes a more specific distinction between the different elements included at the different levels.

the enablers of certain actions, but they are not the ones that the individual user notices when using her mobile. For instance, network systems are not detectable for the user as such, but are visible, for example, via the portability of the device.

When using an everyday device like a mobile phone, the user is not concentrated on the device itself, but rather on the action he or she is taking. Or more precisely, the user experiences a heightened sense of awareness, but that awareness is not *of* the action, it *is* the action. When a mobile phone is used as a tool, its functional features are joined with other affordances organised by the purpose of the activity. Characteristic of a good tool is that it vanishes as an object of attention to the user. The action is itself a process of attention (Ingold 2000, 407, 413; Gibson 1986, 239). In the ideal situation, when calling, texting, etc., we do not pay conscious attention to the device as such.

Nowadays, even inside the most basic of mobiles there is more computer power than in the average home computer of the 1980s (Brown 2001, 5). However, we do not think of our personal phone as a computer, since computers are often associated with 'machines' that are hard to use. A mobile phone is simply a tool for taking some actions. If we do pay conscious attention to the mobile phone, it is usually because we are learning to use the device or we have faced some sudden problems.[9]

Take, for instance, the SMS ability of mobile phones. The success of SMS surprised virtually everyone in the mobile industry. There was hardly any promotion of SMS by network operators until after SMS started to be a success. It was considered to be a service that was too hard to use for it to take off. Indeed, the text entry via telephone keypads is time-consuming and clumsy, at least for beginners. However, difficulties with using mobile phones' keypads does not mean that SMS is problematic to operate in general. SMS has good comprehensibility, i.e. its logical structure is easy to understand: a message is simply written and sent. When the functionality is learnt, the concurrent affordances open up special advantages at the level of applicability (these will be discussed in more detail in Chapter 4). SMS can be used to conduct many of the same communicative functions as phone calls and yet it has a communicational flavour of its own. On the one hand, it affords quick coordination of everyday activities in situations where talk is not possible. The shortness of the messages reduces problems of text entry. On the other hand, as the results of this study will show, SMS allows new kinds of intimate actions that are freed from the immanent threat of loss of face that is part of face-to-face or 'voice-to-voice' communication. In these actions the time used to key in the message is not a crucial factor and the reason for the usability of SMS can be found in the new kind of sociability it affords. When examined from different conceptual levels of affordances (handling, comprehensibility, and applicability), the popularity of SMS, despite its poor handling, is not a mystery.

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9   Of course, especially with mobile phones, there are activities in which attention is deliberately turned to the device itself, for instance, when sharing some content with friends or when presenting the device and its features to others (see e.g. Weilenman & Larsson 2001). These activities differ from the tool-use which is the focus in the present study in that their aim is from the beginning to look more closely at the device itself.

2.7.   DISCUSSION

If we employ the division between naturally and technologically mediated interactions, it easily misleads us into thinking that these interactions are completely different and should be studied using different methods. However, in principle the question is always about affordances. It is not their 'origin' (i.e. whether they are related to 'natural' or 'technological' features) that matters, but rather how affordances are perceived in relation to the relevant activity of people. Information and communications technologies and their affordances are entwined with our everyday practical activities and they should be studied in that light.

Some critics say that the concept of *affordance* is of no use and could easily be replaced with some other concept, such as the concept of *resource* (see e.g. Oliver 2005). Surely in many instances these concepts are nicely interchangeable in explaining the dynamics of activities. But the reason why I prefer to use the term 'affordance' in specific contexts is more fundamental; it is because 'affordance' – unlike, say, the term 'resource' – includes the ecological psychological perspective of the world. Affordances are relations between actors and resources provided by the environment. They exist in systems of activities that are organised situationally by the purpose of the activity. Fundamentally, the concept of affordance is not interchangeable with any physicalistic concepts since from the point of view of the individual action, affordances always serve as situational and meaningful environmental features (Heft 2001, 384).

Conversation analysis, based on the analysis of everyday communication, gives methodological tools to analyse the sequential and situated organisation of action. Only through the activity of the user do the designed features of the device come to be real affordances of the user-device system. Bringing together conversation analysis and the theory of affordances makes it apparent that both the material and symbolic features of devices play a significant part in understanding the use of devices.

The approach has its restrictions. On the one hand, it does not allow making such generalisations that are often drawn from the quantitative analysis of numerous data. The concept of affordance could be moulded to different research frames, for instance to experimental studies that measure some standardised features (Gibson 1986), but this study focuses on the orderliness of actions as they emerge. On the other hand, affordances are sometimes seen to mirror only the micro level of actions and it is thought that they can not be used in explaining larger structural changes in social practices (see e.g. Ling 2004). However, even though the systematic analyses in this study focus on the sequential aspects of real mobile phone actions, the results not only establish the interactional nature of mobile communication but also elaborate the ways in which the technologies are consequential for the social practices which they afford (cf. Shove et al. 2007; Arminen 2008). The relationship between interactional practices and technological change is better understood when the possibilities, conditions, and limitations of new applications are studied in the context of existing affordances.

Because of their relational nature, affordances tell us something both about the 'action potentials' of the objects as well as the 'action potentials' of the actors. People may deploy designed artefacts for uses for which these artefacts were not at first intended, such as the inno-

vative use of SMS. It reveals that against the background of present communities of practice in which people are involved, or against the communities of practice they would like to accomplish, people come to see affordances that were not intentionally designed for the artefact. When we come to know about the affordances people utilise, we also find out a great deal about the people themselves and about the dynamics of social practices.

There is a difference between the tool-use and the machine-use of mobile phones. Mobile phones consist of networks of complex technologies, but they usually afford 'simple' actions for the user. If people are not able to exploit technical properties for their purposes, the technological features of mobile phones will make mobiles 'incomprehensible machines'. In the following chapters, we will at first get acquainted with the most used mobile phone tools, namely phone calls and text messages. After that we will take a look at an application which was originally designed to be a highly-usable information seeking tool contained in mobile handsets, but which in its early forms turned out to be a perplexing machine for many of its users, namely WAP application.

3. Calls: The Social Applicability of Mobile Phones

3.1. INTRODUCTION

Mobile phones quickly turned into everyday tools for Finnish people and especially calls and text messages proved to be – and still are – the most popular applications. This chapter considers the affordances of mobile phone calls, using data from 82 audio-recorded mobile phone conversations.

The analysis focuses on the interactional details of mobile phone calls and looks at the consequences the affordances of mobile phones have both for the organisation of calls, as well as for the broader social actions these calls carry out. The practices of making and taking a telephone call are already familiar from fixed landline telephones. The basic functions are already in place, and the new features that mobile telephones introduce are exploited as affordances in new kinds of social actions. Therefore, most of the affordances examined in this chapter are found on the level of applicability, although some aspects of handling and comprehensibility are also considered.

At first (in Section 3.2) we shall consider the personal nature of mobile phone calls. People expect personal accessibility from each other. Analyses show that personal contact is afforded by technical affordances – the portable handset and caller ID – and by the social norm of the individual number/handset. In everyday communication the features of mobile phones are regarded as personal interactional resources and in practice they become 'extensions of the body'.

At the same time as portability affords personal contact it also affords constant contact, or at least the possibility of constant contact. The possibility of perpetual contact means that in principle everyone can be reached anytime everywhere. Personal contactability serves as the foundation for various social practices when connected to other action possibilities as concurrent affordances. In relation to the affordances of mobile phones, location, for instance, has become a meaningful element of organising ongoing and future activities. These affordances of mobile phone calls at the level of social applicability are considered in Section 3.3.

Mobile phone calls form activity systems of their own kind. Even though the key aspects are easy to adopt, participants must pay attention to the special characteristics of calls in order to speak to each other. It is typical of activities that include mobile phone use that actions are not only chronologically connected, but that several actions aimed at the purpose of the activity may happen simultaneously. Mobile phone users need to maintain harmony between here-and-now circumstances and the telephonic activity. In Section 3.4 we look at the prob-

lems of interactions that expose some constraints on the practices of mobile telephony. These constraints can be twofold: on the one hand there are technological problems related to mobile phone technologies (device/network etc.), on the other hand there are problems related to the action environment (social/physical).

3.1.1. Data

This study on mobile phone calls is a part of a project entitled 'Emerging new forms of mobile communication' directed by Professor Ilkka Arminen. The data is collected during the project and some aspects have also been analysed by the other researchers of the project (Arminen 2005b; 2006; 2007; 2008; Arminen & Leinonen 2006). The data I analyse here is composed of 82 phone conversations, which were audio recorded in summer and autumn 2002. In addition to mobile-to-mobile calls, there are also mobile to landline calls and vice versa. Four people (two women and two men aged 23–38) used, for one week each, a mobile phone with inbuilt digital recording devices. This meant that the participants could use the phone in a normal manner without any additional devices. The only disadvantage of this method was that people had to give up using their own mobile phone and use this recording device instead. The phone stored recordings directly into mp3 format and these files were then transferred to a computer so that they could be listened to and transcribed. The participants could decide which conversations they gave to the study and they were also told to ask permission from the third parties (who were never met by the researchers).[1] All references to the identities of the participants have been modified.

3.2.   THE MOBILE PHONE AS A PERSONAL DEVICE

3.2.1. Tailored Openings

Ilkka Arminen and Minna Leinonen (2006) have found out that the openings of Finnish mobile conversations differ systemically from the openings of Finnish landline phone conversations. In Finnish landline calls the answerer usually opens the call (after a summons) with a self-identification (first name, family name, whole name or household identification), and the caller predominantly reciprocates this self-identification. After that they exchange greetings, which is followed by a topic initiation or a 'How are you?' type of question. (Hakulinen 1993.) This form of landline opening is the same, for instance, in Dutch (Houtkoop-Steenstra 1991) and in Swedish (Lindström 1994) landline calls.

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1   Actually, asking for the other telephonist's permission to use the calls for the study and the positive answer was often present in the recordings, since the permission-asking sequences were often part of the first phone call between parties in question.

In Finnish mobile phone calls, however, greetings have become the most common way to answer the phone and the answerer does not usually identify him or herself. Callers, too, have almost totally withdrawn from identifying themselves. Arminen and Leinonen claim that a new type of opening represents a new type of summons-answer sequence, in which the answerer orients him or herself to a personalised summons.[2] The reason for these new types of openings is linked to features of the mobile phones themselves. The caller ID (usually the name that is stored in the address book) on the display as well as personalised ring tones tell the answerer who is calling. So the answers to the calls are no longer answers to neutral summons. (Arminen & Leinonen, 2006.)

The call-taker tailors the answer with regard to the information that the mobile phone offers. Also, the caller orients him or herself to the fact that the answerer will identify the caller with the help of the information the device conveys.

Extract 3.1[3] (Transcription conventions in Appendix 1)
Leaving question[4] (Receiver = Sanna/R, Caller = Timo/C)
[Transcribed by Minna Leinonen][5]
2002-06-21_10-44-47

```
1  R: No moi,              R: Hello there,
2     (0.3)                   (0.3)
3  C: No mo:i,             C: { }⁶ hel:lo,
4     (.)                     (.)
5  C: Ooks sää lähössä,    C: Are you leavin,
6     (.)                     (.)
7  R: E,                   R: No,
8     (0.3)                   (0.3)
```

Extract 3.1 is an example of a common opening of a Finnish mobile phone conversation. Neither of the participants, neither the caller nor the answerer, identify themselves, but instead the conversation begins with greetings. Both greetings start with the Finnish particle *no*, which does not have a translation equivalent in English. The meaningful translation of *"No moi"/"No moi"* sequence is something like "Hello there"/"Oh Hello". Auli Hakulinen (1993) has studied the openings of Finnish landline calls and in two-thirds of the calls the greeting was preceded

---

2   The term 'hello' is and has been used in answering the landline telephone, particularly in the U.S. However, 'hello' is not said or treated as a greeting, because the answerer has not yet had the opportunity to identify the caller. Thus, when 'hello' is used to provide an answer to a summons it is not a greeting directed to a known caller. (Schegloff 1986, 121-125; Arminen and Leinonen, 2006.)

3   The first number (3) refers to Chapter 3, and the second number (1) expresses the extract number within the chapter.

4   Identification information in every data extract includes the name of the call (every instance has been given a name when transcribed), the time of the call, the recipient (R) of the call and the caller (C).

5   All extracts are transcribed by Minna Leinonen, unless otherwise stated.

6   The 'missing' translation of the *no* particle in this chapter is indicated with curly brackets. Sometimes it is translated as 'oh' which sounds similar to *no* in prosody and rhythm.

by an initial particle, which in almost all cases was the particle *no*. Elsewhere in conversation the particle *no* marks off a topical transition or a topical shift within a longer stretch of talk, for example, a narrative, or it projects the dispreferred nature of the turn. (Hakulinen 1993, 164.)[7] In the openings of calls, *no* works, however, differently than in the middle of a conversation: it is produced quickly, the speech sound is short and it signals intimacy. This turn-initial *no* is commonly used to initiate a response in mobile phone calls. The turn-initial *no* shows that the answer is not just an answer to any summons but to a summons that indicates the caller. The answer is, though, a responsive action to an already ongoing and recognisable interaction. The particle *no* attaches the greeting to a certain person identified with the help of the caller ID. *No* works as a confirmation of recognition, *moi* as a greeting to this recognised person. Thus, an answer to a summons has been tailored through recipient-design, unlike the analogue telephone system, when the summonses were uniform. (Arminen and Leinonen 2006.)

When my mobile rings, it rings to me. Even the ring tone can reveal who is calling. It may orient me to the conversation, for example with my partner. Should the ring tone not be informative enough, a glance at the caller ID will prime me for a conversation which will supposedly be with a known person. The caller ID affords tailoring the answer. So the interaction is personified even before the actual spoken interaction begins. This is true even when the call comes from an unknown or a blocked number; it is then significantly a call from 'an unknown caller'. The notion of an unknown caller gives us a chance to change the way one answers the phone. Even though the usual way of answering the mobile phone is to begin with a greeting or saying the first name, sometimes more conventional ways of answering are adopted, as we can see in Extract 3.2.

Extract 3.2
Swimming course (Receiver=Jarmo/R, Caller=Pirjo/C)
2002-10-22_18-39-26

```
1  R: Ja:r�ꜛmo Nie�ꜛminen,      R: Ja:r�ꜛmo Nie�ꜛminen,
2     (0.7)                     (0.7)
3  C: .hh No täällä on Pirjo   C: .hh { } it is Pirjo
4     tässä hei.                  here hi.
5  R: (�ꜛTer[ve) terve,        R: (⌈Hel[lo) hello,
6  C:      [Mä:                C:      [I:
7  C: Jee mä soitan siitä      C: Yeah I'm calling about
8     <uimakurssista> että,       the <swimming course> that,
9     (0.4)                       (0.4)
```

7   In this study, in the case of topical shift and the like, the particle *no* is translated to 'well'. When *no* works as a go ahead, it is translated as 'huh'.

In this opening Jarmo answers the phone by using his whole name. This may be because the call is coming from an unidentified number or Jarmo recognises the call as institutional since it is about a swimming course he is going to have. There are few work related or other institutional calls in our data. They are mainly calls between friends or family members. Extract 3.2 shows, however, that mobile openings vary.

In fact, mobile phones have changed the 'social identity' of call takers. Before mobile phones identity was generally location based; i.e. the identity that was portrayed at any particular point in time depended largely on the specific environment in which the individual was placed. The landline telephone was still place located; work and home fields were separated and the identity of the answerer was usually clear to both parties. With the introduction of mobile phones, however, the boundaries between separate spaces and fields have become fluid and, at the same time, social identity boundaries have become more flexible. Thus, when a mobile rings, it is not so clear for the receiver which of his or her identities is called upon, since theoretically, anyone from any area of one's life can contact him or her at any time, despite the location of the person. (Hulme & Truch 2005, 143–144.) Selected ring tones are one way of preparing oneself for establishing a suitable identity (Bell 2005; Licoppe 2008). Usually, the caller ID reveals the caller, but if not, a full self-identification is on some occasions employed.

Teenagers, however, are not afflicted with this kind of 'identity burden' when answering mobile phones. In Eija-Liisa Kasesniemi's study teenage boys and girls said that at home they answer the landline phone by giving their whole name. But this is not the case with mobile phone calls. Teenagers answer the calls from unknown or blocked numbers by saying their first name only. The caller may be unrecognised but the underlying assumption is that whoever calls you on your mobile is trying to reach you personally, even if you do not know who they are. (Kasesniemi 2003, 145–147.)

In fact, teenagers may also avoid answering calls from unknown numbers. Richard Harper has discussed modes of eliminating individuals from the mobile phone's address book. When, for instance, a girl breaks up with a boy, his name is ceremoniously deleted from the address book. This does not stop the boy calling the girl's mobile but when he calls, no name appears on the screen. What follows is that teenagers avoid answering calls without caller ID, because that caller may be someone who has been deleted from the address book. Thus, in fact, instead of being available to anyone at any time, in practice teenagers restrict their social worlds to those who have a 'right' to contact them and exclude those who do not. People who have the right to call are those who are in the address book. (Harper 2005, 110.) In this sense, a mobile telephone is an especially private medium because the network consists of a core of people who already know each other or who are connected by strong personal relationships. The mobile enables people to find and be found by a limited social network. (Höflich 2005, 124; Fortunati 2002, 524, Harper 2003.)

With adults the work life or other institutional roles usually compel them to answer the phone and sometimes use traditional ways of answering. The self-identification opening which was canonical in Finnish landline calls seems to be used in answering mobile phone calls whose

caller is not known. Most young people do not have official positions, indeed within young people's own communication culture the way of answering a mobile phone may offer an opportunity to rebel against the 'good manners' that adults expect of them.

Outside of institutional settings, the methods of opening a call seem to be the same among both adults and teenagers. The caller ID and the mobile's status as a personal device afford specific ways of answering. In the openings of mobile phone conversations the call-taker utilises the information of the caller ID in formulating the answer (i.e. no self-identification, just a greeting). Answering a mobile phone is no longer a response to a neutral summons. The call-taker orients him or herself to a personalised summons and, correspondingly, the answers are diversified in comparison with those given using a landline telephone.

3.2.2. Individuality of Mobile Phone Number

The reason why the answerer of a mobile phone does not identify himself or herself, as is usually the custom with landline calls, is because the mobile phone is a personal artefact. The private nature of the mobile phone means that the caller presumes that the holder of the phone number will answer the call. Thus, there is no need for self-identification, as the caller knows to whom he or she is calling. One practical consequence of this personal character is seen in the following data extract. Answering someone else's mobile phone requires an explanation. Thus, when someone answers someone else's phone, the way of answering changes, as can be seen in Extract 3.3A and 3.3B.

Extract 3.3A
Meeting place (Receiver=Pirjo/R, Caller=Jonna/C)
2002-06-08_21-03-27

```
1 R: <Tiinan puhelimessa Pirjo> hei,    R: <Tiina's phone Pirjo speaking> hi,
2    (0.3)                                  (0.3)
3 C: No Jonna täällä moih.               C: { } Jonna here hih.
4 R: Joo hei hei,                        R: Yeah hi hi,
```

When 'a stranger' answers the phone, he or she does two things differently: firstly the call-taker says whose phone he or she is answering and, secondly, self-identifies him or herself. In Extract 3.3A Pirjo's opening turn also includes the greeting "hi" and thus it is possible that the call-taker has identified the caller with the help of the caller ID. We can get more background knowledge if we look at this call as part of a chain of calls. In the call that preceded this call, Jonna and Tiina had agreed that Jonna would call back in five minutes so that she "can talk directly to [Tiina's] mother". Tiina is going to travel in her parent's car to meet Jonna and asks Jonna to give the driving instructions directly to her mother (who presumably will drive the car). With this background information we know that Pirjo, Tiina's mother, is not answering

the phone because Tiina is not present but because the call is meant for her. So, Pirjo knows that the caller is Jonna and Jonna may guess that the answerer is Pirjo. Even in a situation like this, the norm of the mobile phone as a personal artefact affects the manner of the conversation opening.

When one answers to a call to someone else's phone and formulates the opening one must take into consideration that usually the caller thinks that he or she is calling someone else. Answering a mobile phone other than one's own collides with the conventions of personified interactions and requires an explanation. The participants acknowledge this 'rule breaking' by a coherent opening sequence even if this rule contravention happens according to an earlier agreement. In the first line of Extract 3.3A, Pirjo at first says whose phone received the call and, secondly, who is talking. She does this in a distinct manner, enunciating the opening words slowly. She also greets the caller; she knows she is speaking to Jonna because of the agreement and the caller ID. Jonna reciprocally self-identifies herself too, and greets Pirjo (line 3), instead of just saying '*No moi*' (Hi).

Because of Pirjo's full account in the opening turn, Jonna may feel obliged to identify herself, even though both know who is who. Although Pirjo has already greeted Jonna in the first turn, Jonna's self-identification provokes Pirjo to greet her again (line 4). However, in Pirjo's second turn the particle "Yeah" (*Joo*)[8] serves as a referent to the fact that Jonna's call was expected and Pirjo has already identified her. Pirjo also emphasises intensively the first "hi" (*hei*) in line four, which together with "Yeah" may indicate repetition of greeting and identification. The fact that Jonna's call was anticipated is also confirmed by what follows.

Extract 3.3B

```
1 R: <Tiinan puhelimessa Pirjo> hei,    R: <Tiina's phone Pirjo speaking> hi,
2    (0.3)                                  (0.3)
3 C: No Jonna täällä moih.                C: { } Jonna here hih.
4 R: Joo hei hei,                         R: Yeah hi hi,
5    .hhh no tota [Tiina                     .hhh well y'know [Tiina
```

In line five after she has greeted Jonna for the second time, it is Pirjo who rushes into the topic. She inhales loudly immediately after saying "hi hi" (*hei hei*) to Jonna and starts the topic. Thus, the call-taker, not the caller, initiates the topic; she knows the topic since the call is a follow-up to an earlier agreement. Both parties know who is calling whom and what the call is about. However, the procedure at the beginning of the call is needed because "answering someone else's mobile is comparable to checking on the contents of their wallet" (Laurier 2003, 5). The caller ID, when combined with the assumption that only one person has the right to answer a mobile phone, creates what Richard Harper (2005, 109) calls "a tight coupling of social systems of propriety and technology".

---

8   Used instead of the Finnish particle *no*, for instance, which would have worked as the first confirmation of recognition.

Studying landline calls, Harvey Sacks argued that there are at least three basic categories of identity involved in telephone conversations: 1) the caller (any person who makes a call); 2) the answerer (the person who picks the phone up); and 3) the called (the person to whom the caller intended to speak). The category of answerer can be broken down into sub-categories, each of which is related to the social dynamics of telephone conversation. Not everyone in the proximity of a ringing phone may be a possible answerer; not everyone who is a possible answerer will answer the phone, and, not everyone who does answer the telephone will turn out to be the called. Sacks uses the category 'answerer-not-called' when the answerer is merely asked to fetch the called to the phone and 'answerer-not-called-but-spoken-to' when at least a few words are exchanged before the intended called is brought to the phone. (Sacks 1992, Vol.2, 542–553.) Where still used, the landline connection is the telephone for the whole family or a common connection for the sharers of an office. Because the call can be intended to anyone in the family or in an office, the telephone is usually answered in a way that the answerer may be the called one in a group of possible answerers.

In Sacks' analysis the categories of the answerer were defined from the perspective of the caller, investigating the role of the call-taker with regard to the intention of the caller. In mobile phone calls, if someone answers someone else's mobile, the role of the call-taker from the caller's point of view is what Sacks calls 'answerer-not-called'. But in mobile phone calls an 'answerer-not-called' is totally against the orientation of the caller, since the answerer and the called are considered to be the same person. Thus, in mobile phone calls there are basically only two identities who take part in a conversation: 1) the caller, and 2) the called.[9] The mobile phone callers orient themselves to there being only one potential called and that is the person who holds the mobile phone number. Because this orientation is generally known, the call-taker must also do 'identity work' when answering someone else's phone. As Extracts 3.3A and 3.3B showed, answering other person's mobile phone is a delicate business, and the role of the call-taker from his or her own point of view is something like 'answerer-not-called-but-answers-with-explanations'. In fact, the situation in Extract 3.3A and 3.3B is even more complicated: the answerer is the called one, but because she is answering someone else's mobile, the call-taker must make this norm-breaking evident at the beginning of the call.

3.2.3. Extension of Personal Communication Resources

In the opening turns of mobile phone calls we can see that a technological affordance – the caller ID – makes it possible to change the conventional ways of answering the phone (see also

---

9   This is generally the case in industrialised countries, like in Finland. However, Molly Steenson and Jonathan Donner (2008) write about the practice they found in India: approxi-calling. This means that a person calls to someone trying to catch another person, who hopefully is somewhere near the call-taker and the call-taker passes his/her phone to the actual target of the call. Thus, here, the situation is reminiscent of traditional landline calls except now it is not the physical place (like home) that defines the individuals that can be reached but instead the specific person (who owns the mobile phone) and her/his social bonds. The category of the call-taker is also here what Sacks calls 'answerer-not-called'.

Hutchby and Barnett 2005; Arminen and Leinonen, 2006). However, these changes do not depend solely on technological affordances. Other resources are also needed, for instance, a diffusion of mobile phone devices so that everyone has a personal device and one's own mobile phone number. And even if all these resources are present, there may be social reasons for not adopting the usual way of answering, such as using more conventional and 'landlinelike' manners when representing one's official status or paying tribute to seniors or those of higher rank.

Richard Harper has observed that young people like to use their family phone (in families that have a landline subscription) when calling to their friends. However, they do not call to another landline phone, but directly a friend's mobile even when they know that the friend is at home. By calling the mobile, they wish to ensure they will reach the desired person. They do not want to talk to other members of the family, a risk they would take if the call was to a fixed line. (Harper 2005, 109.) The phoning method teenagers adopt tells, firstly, of course, that by using the family phone they can avoid big mobile phone bills of their own. However, the fact that they call to the friend's mobile highlights also the difference between a fixed and a mobile phone: a fixed phone summons anyone within the space it rings, a mobile phone is for personal contact.

Studies have shown that nowadays sedentary uses of the mobile phone take precedence over its mobile uses. Thus, users of mobile telephony have privileged connectivity over mobility. The personal nature of the device has modified the mobile phone so that it has become an individualised tool of communication, used in all spatial contexts. (Castells et al. 2007, 173–174.) The people of the era of mobile phones are thus not so much 'mobile humans' as they are 'reachable humans'.

In conclusion, in everyday communication the features of the mobile phones are regarded as personal interactional resources. Personal contact is afforded by technical affordances – the portable handset and the caller ID – and by the social norm of the individual number/handset. In the tool-like use of handsets, the interactional affordances of mobile phones are not distinct from other communicational resources. On the contrary, various action resources join together as *concurrent affordances* (see Chapter 2) and afford increased applicability of the device. The opening turns of mobile phone calls reveal that at least for Finnish people the mobile phone is 'an extension of the body'.[10] In other words, the affordances of the mobile phone are thought to be part of all the interaction possibilities that a person has. So, this 'extension' characteristic is a practical one. From the perspective of interactive actions, the mobile phone truly expands the personal resources for communication, and thus, for other actions, too. In the following, the elements of mobile phone calls that afford social actions in concert with personal contactability are considered.

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10   In some parts of the world, especially in some low-income families, a mobile phone is used by the whole family, and it can even serve a whole village (Castells et al. 2007).

3.3.   SOCIAL APPLICABILITY OF MOBILE PHONES

As noted above, a portable handset affords (among other things) personal contact. Together with battery and network technologies, portability also affords constant contact, or rather, the possibility of constant contact. In principle, the handset can be reached anytime anywhere, and because the device is carried by a particular individual, this constant contact is also personalised. Personal contactability, for its part, serves as a social affordance in allowing further social actions.

The first section below (3.3.1) discusses the fact that in managing mobile phone conversations participants work under an economy principle: they intersubjectively carry on a conversation unless some interference occurs. Contrary to what is usually assumed, only in some special circumstances does a caller enquire the interactional availability of a called. The frequently heard phrase in mobile conversations 'Where are you?' usually does not ensure whether a called can talk, but is rather asked for the purpose of mutual arrangements.

The analysis shows that in the era of mobile phones, ex tempore, approximate, and step-by-step arranged encounters are common. We will look at the special manner of making arrangements by mobile in Section 3.3.2.

In Section 3.3.3, we will look at the phenomenon which data analysis also revealed, namely weather telling. In the mobile phone context weather telling is similar to location telling. Even though weather conditions may be a safe issue to talk about when there is not much else to say, in the data weather discussions had another kind of meaning. Weather inquiries and expressions in the calls were not conversational strategies to avoid silence but rather were intended to coordinate actions. There were several occasions where participants did not just note the weather, but instead weather expressions were part of the mutual activity. People adjusted their ongoing or planned activities to the real-time weather conditions.

Because of the possibility of personal and constant contact, a mobile phone call can be a functional component of broader co-operation, in which the chronologically proceeding calls are directed to the same purposeful activity goal. These chains of calls are dealt with in Section 3.3.4.

One consequence of personal and constant contact is that even though we are free from fixed location, we seem to be tethered to our handsets: if we are not always accessible on our mobile, we are accountable for that to other people. This issue is considered in Section 3.3.5.

The features of the mobile phone create both direct and indirect affordances for action-in-interaction. Direct affordances are those features that afford instant actions by means of the mobile phone, like calling and sending text messages and, consequently, further social actions. In the indirect manner, however, the mobile phone's features are used as explicit contentwise resources of conversational actions. Section 3.3.6 discusses how a jointly shared knowledge of 'what kind of devices mobile phones are' works as a resource for situated actions.

3.3.1. Intersubjective Management of Calls

Location Inquires: Reactions to Exceptions
It is generally thought that at the beginning of a mobile phone conversation the caller usually asks about the location of the called. This is thought to be because the caller cannot be sure where the called is, and the opportunity to talk must first be ascertained. Alexandra Weilenmann (2003, 1602) writes

> One can be 'forced' into answering when in the middle of an activity – which is difficult, or impossible, to continue at the same time as having a mobile-phone conversation ... The caller has to find out if the answerer is available to have a conversation.

The studies on landline calls have shown that the place for demonstrating interactional availability or possible problems is in the opening, before the reason for the call is dealt with (Schegloff 1986). In mobile phone calls the particular way of ensuring the interactional availability is thought to be an inquiry or an expression of location in the opening of the call (Schegloff 2002, 297).

In the data there are twenty-five 'location-telling' sequences, which come immediately after the greetings. In twenty of those sequences, *the caller* asks a question which could be interpreted as an inquiry about the possibility of talking. In the remaining five calls, *the called* expresses the location soon after the greetings.

Three caller questions are about the time: the caller inquires if she/he has called at a bad time, too early or too late and possibly woken the answerer up. These 'bad time inquires' are not mobile phone specific, similar inquires are also made with landline calls. Thus, in addition to these bad time inquires, there are twenty-two location-related turns in the opening – produced either by the caller or the called – that could be interpreted as enquiries about availability. However, in seventeen calls the location topic in the opening is linked to either ongoing or future mutual activity, not to the possibility of talking. Hence, only in five calls do the conversationalists discuss their availability to talking. The following Extract 3.4 most clearly fulfils the characteristics of ensuring interactional availability in our data.

Extract 3.4
Lunch hour (Receiver= Tiina/R, Caller= Pirita/C)
2002-06-06_14-53-05

```
1  R: hhhh                         R: hhhh
2  C: Pirita tässä.                C: Pirita here.
3  R: No MOIhh [no nihh,           R: { } HIhh  [hm yeahh,
4  C:           [( )               C:           [( )
5  C: Sä oot jossain pahas paikassa. C: You are in a difficult place.
6  R: No e::i ku Marko tuli        R: Well no:: Marko just came
7     justiinsa me ruvetaan           and we're starting
8     lounastunnilleh,                our lunch hourh,
9     (0.2)                           (0.2)
```

Pirita's "You are in a difficult place" (*Sä oot jossain pahas paikassa*) (line 5) is a declaratory 'question' in a form of a statement which comes after the greeting and before the reason for the call is dealt with. The question is not, however, routinely asked but is a reaction to the 'hints of problems', which the caller can hear at the beginning of the call. The answerer, Tiina, does not answer with her name or a greeting, for the first thing the caller hears is the sound of Tiina breathing out loudly (line 1). Moreover, in Tiina's reciprocal greeting to Pirita one can still hear breathiness (line 3). These hints prompt Pirita to inquire about Tiina's location by the declaratory statement.

In the next extract the answerer, Tiina, takes Pirjo's question "whereabouts are you" (*missäspäin sä olet*) (line 3) as a question of interactional availability. But for the caller this question has a different meaning.

Extract 3.5
In train's toilet (Receiver= Tiina/R, Caller= Pirjo/C)
2002-06-07_17-09-17

```
1 R: Tiina?                      R: Tiina?
2    (0.5)                          (0.5)
3 C: No ↑hei missäspäin sä olet,  C: { } ↑hey whereabouts are you,
4 R: ↓Tyypillistä (.) junan       R: ↓Typical (.) in the train's
5    vessassa,                       toilet,
6    (1.0)                           (1.0)
7 C: Aha missäpäin juna o.         C: I see whereabout is the train.
```

The question "whereabouts are you" allows the called to tell about her problematic location in the train's toilet. The continuation of the call shows, however, that the caller, Pirjo, is specifically interested in where the train is at the moment. And during the following discussion (not given here) Pirjo's interest turns out to be the time when Tiina, who is on her way to visit Pirjo, is at her destination.

In Extract 3.6, the called tells about her tricky situation in a fitting room.

Extract 3.6
In the fitting room (Receiver= Tiina/R, Caller= Jonna/C)
2002-06-08_20-53-35

```
1 R: Tiinah?                      R: Tiinah?
2 C: No terve.                    C: Hello there.
3 R: No terve tervehhh.           R: { } hello hellohhh.
4 C: Nohhehe,                     C: Huhhehe,
5 R: Mä on justiinsa sovittamassa R: I'm just trying
6    tota y- yhtä mekkoa päälleni     y'now a- a dress on
7    jah ja j[a pukemassa,            andh and a[nd putting it on,
8 C:        [Aha,                  C:          [I see,
```

```
9  R: Mutta tota noin nii #iö#        R: But well yeh #uh#
10     huomisesta ilmeisestikkih.        about tomorrow I guessh.
11     (0.2)                             (0.2)
```

There are two indicators of exceptionality in the called's opening: she answers using her first name and there is breathiness in her voice. Probably it is these aspects that cause the caller to speak in a questioning manner and by laughing "Huhhehe" (*Nohehe*) (line 4). At least the called considers this a 'go ahead' that seeks an explanation (and thus inquires about interactional availability). The called gives an explanation (lines 5 to 7). Thus, parallel to Extract 3.4, here, too, the caller orients herself to the exceptional characteristic of the interaction (breathiness); she wonders whether there is something exceptional in the answerer's situation and receives an explanation (trying a dress on).

Alexandra Weilenmann (2003) analyses a similar case in her study of mobile phone conversations in which the answerer gets a call while in a fitting room. In her excerpt the called tries hard to extricate herself from the conversation which the caller wishes to continue. Weilenmann argues that by saying "I can't talk now cause I am in a fitting room", the called both shows that she wants to end the call and that she does not consider the fitting room an appropriate place in which to talk. Also in Extract 3.6 the conversation continues (not given in the extract) so that the called, Tiina, asks the caller to ring again in five minutes. However, she does not relate this request to the appropriateness of talking in the fitting room, but explains "you can talk directly to mum cause I don't (know) anything about those things" (meaning driving instructions) (see also Extracts 3.3A and 3.3B in Section 3.2).

Weilenmann argues that even though the mobile phone allows people to be reached anywhere, people maintain a sense of what is appropriate; talking on a mobile phone in a fitting room does not seem to be thought of as appropriate (Weilenmann 2003). However, reasons for ending a mobile phone call in a fitting room may be motivated more by practicality than propriety, namely difficulties in coordinating one's actions: fitting the clothes on, handling the mobile phone, and talking into it (simultaneous actions are considered more closely later in Section 3.4.4). In Extract 3.6, what catches the caller's attention is the breathiness of the called. Breathiness indicates some other activity than just answering the phone and causes the caller to inquire about interactional availability.

As a result, in our data there is actually no call in which the location is enquired without a reason, that is, only to be sure of the interactional availability without any hints of some disturbing factors. So, it seems that there is no norm which makes the caller always and automatically inquire about the possibility of interaction. If the caller asks the called a question concerning availability, it is on account of the exceptional sounds in the background, or unusual features of the answering, or the caller has some foreknowledge of the answerer's problematic situation at that time. The norm in this data is that when the phone is answered, the conversationalists continue talking unless some hindrances occur.

Bad Time Calls

So, people do not automatically inquire about or indicate the interactional availability at the beginning of a mobile phone call (see also Arminen 2006). This does not mean, however, that they are impolite, for the question is more about the economy of interaction. Mobile phone calls are often short[11], and linked to an ongoing action. The assumption that the caller must always inquire about the possibility of talking would slow the interaction down. For the sake of practicality, unless some disturbing factors are evident, people simply carry on the conversation.

However, there is an exception to this rule: a caller has to ask about interactional availability when calling at exceptional times. Early in the morning or late at night the caller usually asks if the time is suitable for a conversation. An example of this can be seen in Extract 3.7 where Piia is calling her friend Sanna.

Extract 3.7
Midsummer plans (Receiver= Sanna/R, Caller= Piia/C)
2002-06-18_22-00-24

```
1   R:  Moi,                              R:  Hi,
2       (0.5)                                 (0.5)
3   C:  Moi,                              C:  Hi,
4       (0.2)                                 (0.2)
5   C:  Soitaks mä pahaa aikaa,           C:  Am I calling at a bad time,
6       (.)                                   (.)
7   R:  E:t,                              R:  N:o,
8       (0.3)                                 (0.3)
9   C:  Et ollu nukkumas,                 C:  You weren't in bed,
10      (0.3)                                 (0.3)
11  R:  Ei mä kattelin kymppiuutisiah     R:  No I was watching ten o'clock
12      täs thoisel khorval.                  newsh here with half an ear.
13  C:  Just,                             C:  Okay,
14      (0.2)                                 (0.2)
```

Piia asks Sanna if she has called "at a bad time" (*Soitaks mä pahaa aikaa*) (line 5). She is not totally satisfied with Sanna's answer "no" (line 7) and specifies in her follow-up question the lateness (line 9). In addition to being polite, Piia may have another reason for this new inquiry: she wants to 'chat' with Sanna, which would be inappropriate if the answerer is already in bed (cf. Licoppe 2004, 148). In fact, we do not know how long the girls talk to each other, since

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11   In 2002, the average length of mobile phone calls in Finland was 2.3 minutes. However, the call lengths have regularly become longer and in 2008 the average length was 3.0 minutes. Until 2004 people made longer calls from landline connections than from mobile phones, but nowadays the majority of the calls are made from mobile phones which in August 2009 were the only telephone connection to 72 percent of Finnish households. (Statistics Finland 2009a, 2009b.)

the recording stopped after seven minutes. In any case, even though the initial reason for the call (not given here) turns out to be midsummer plans, they also discuss many other matters during the call.

Call taker's Suitability for Conversation

In conclusion, even though the caller has no obligation to regularly ensure the call taker's availability to talk, the caller orients to the detected disturbing features in the answerer's environment. The portability of the mobile phone makes the answerer's surroundings unforeseeable and increases opportunities for various disruptions. However, people work under the economy principle: they intersubjectively carry on a conversation unless some interference occurs.

Thus, contrary to what is usually assumed, it is not the caller but the called who seems to be responsible for the 'suitability' of phone conversation. It is the called who decides to answer/not-answer the call and, thus, the caller does not always have to enquire about the interactional availability. When mobile phones first appeared, the summons of the mobile phone was usually always reacted to. Nowadays people may leave the phone ringing for various reasons: they are in a problematic situation or they just do not want to talk to the caller etc., and callers orient themselves to that possibility. Thus, when answered, the call can presumably be continued. For the sake of economy of actions, the caller is only obliged to react to those things perceived during the ongoing call that may complicate the conversation.

The mobile phone affords personal contact and the called has the responsibility for accepting incoming calls or not. Accordingly, 'answering' practices have changed: the ringing phone can be answered (as with landline phones) or the call can be returned later. Both the caller ID and the mobile phone's register of non-answered calls allow for the organising of incoming calls. A reply to a call can be expected even if the caller does not leave a message on the answering machine. Hence, contacted persons become accountable for managing the connection in many ways.

3.3.2. Mobile Arrangements

Questions such as "Where are you?", "Where are you going?" at the beginning of the mobile phone calls are usually not part of the sequence that enquires about the availability for conversation, but are rather linked to some other mutual action or to the possibility to getting together in the near future. Extract 3.8 shows that Tiina's inquiry about location at the beginning of the call is linked to the possibility to call the landline telephone instead of the mobile phone. [12]

---

12 In Finland in 2002 mobile-to-landline or landline-to-mobile calls were more expensive than mobile-to-mobile or landline-to-landline calls. It was also cheaper to call landline-to-landline calls than mobile-to-mobile calls.

Extract 3.8
Location (Caller= Tiina/C, Receiver= Pirjo/R)
2002-06-06_10-25-48

```
1  C:  Moi moi,                      C:  Hi hi,
2      (0.5)                             (0.5)
3  R:  >Haloo<,                      R:  >Hallo<,
4  C:  #iöö::# >Siis< no ↑missä te   C:  #uuh::# >So< well ↑where
5      oikein ootte.                     exactly are you.
6      (0.3)                             (0.3)
7  R:  #öö::# Tammikadullah.         R:  #uh::# On Tammikatu
                                             ((name of the street))
8      (1.5)                             (1.5)
9  C:  Jaa::?                        C:  Yea::?
10     (.)                               (.)
11 C:  >No niin< (.) no mut hei      C:  >Okay< (.) well but hey
12     mä soitan siinä                   in that case I'll call
13     tapauksessa lank#aan#.            the landl#ine#.
```

Most location enquiries during the openings of mobile phone calls do not clarify the availability of talking but the possibility of doing something with the caller. Also location expressions elsewhere in the calls usually have the same function: they are somehow linked to an ongoing or planned activity. The formulation of the location is tied to the business that needs to be done, and the description of the place is more than just formulating place (see also Arminen 2006; Hutchby & Barnett 2005; Weilenmann 2003; Laurier 2001).

In our data, in most of the calls the participants make some arrangements. This is not an activity which is specific to mobile phones as such, but the ways of making arrangements seem to have changed with the use of the mobile phones. Mobile culture is most distinctively seen in how people arrange to meet each other. In addition to other kinds of arrangements, the data include 37 mobile special arrangement sequences in which participants agree to do something together here and now or they decide to call later when the time of the appointment is at hand. Characteristically, these arrangements are linked to location.

Some decades ago, at least in the countryside and small villages there used to be a kind of pop-in culture, where people came to visit others without any advance notice. In agriculture environments people were relatively location bound; they were expected to be found at home surroundings and could thus be easily visited. This custom continued in rural areas even after the arrival of landline telephones, which nevertheless are said to be cutting down casual pop-in visits to some degree (Fisher 1992, 253). However, in the recent times the most significant constraint on sudden drop-ins is that in modern urban settings both work and leisure activities move people away from home; hence, without 'warning' visits may prove pointless. However, mobile phones seem to have brought back the pop-in culture: people arrange spontaneous

encounters by making a mobile phone call. The call establishes the location of the other party and instant arrangements can be made. Ex tempore encounters no longer need to be in homes; through mobile phones any public places, such as coffeehouses, serve as a space for social interaction. In the following extract Tarmo uses his mobile to set up a 'are you nearby?' get togerher (cf. Kopomaa 2000, 116). He calls Pekka and asks his location in order to find out whether Pekka could join him during the lunch hour.

Extract 3.9
Coffee break (Caller= Tarmo/C, Receiver= Pekka/R)
2002-07-08_11-08-08

```
1   C:  Oot sä himassa.              C:  Are you at home.
2       (0.2)                            (0.2)
3   R:  Ei ku töissä,                R:  No I'm at work,
4       (0.6)                            (0.6)
5   C:  Ai sä oot ↑töissä,           C:  Oh you're ↑at work
6   R:  Niin tietenkin.=             R:  Yes of course.=
7   C:  =Jaa,                        C:  =I see,
8       (1.0)                            (1.0)
9   C:  Mä oon tässä näin meinaan    C:  I'm here working at the
        Terästornilla töissä,            Steeltower y'know,
10      (0.2)                            (0.2)
11  R:  ↑Aijaa,                      R:  ↑I see,
12      (0.6)                            (0.6)
13  C:  Ihan sun naapuris ajattelin  C:  Just close by I thought
14      et (se) on ruokatunti mä oon     that (it) is lunch hour I'm
15      menos kahavilla käymään, (0.3)   going to have coffee, (0.3)
16      aattelin et jos oot kotona       I thought that if you're at home
17      ni, (0.5) olisit tullu messii.   so, (0.5) you could've joined me.
```

In addition to ex tempore arrangements, mobile phone calls are used to make 'approximate' arrangements where a rough time and/or place for a meeting is made and a later confirmation call is made when the time of the appointment is nearer. Extract 3.10 is an example of these kinds of approximate encounters, a common way of arranging a meeting in mobile phone conversations. Also here the location is expressed, but this time it is relevant in relation to future actions. Pirkko's expression of location (lines 16–18) helps to coordinate timing as well: Sanna can figure out how long it will still take them to get there on Saturday if Pirkko calls her from "the Helsinki area" in "the centre".

Extract 3.10
Missing text message (Caller= Sanna/C, Receiver= Pirkko/R)
2002-07-13_22-16-34

```
1   R: Mutta tota noin, (.) kyllä      R: But you know, (.) yes
2      me ol- meil olis suunnitelma       we ar- we are planning
3      et me tultais lauantaina           to come over there
4      sinneppäi?                         on Saturday?
5      (0.2)                              (0.2)
6   C: JOO,                           C: YES,
7      (0.9)                              (0.9)
8   R: Että tota, (.)                 R: So that, (.)
9      mä[ä mää (otan) (   )              I'[ll I'll (take) (   )
10  C:   [SÄÄ (.) soittelet mulle,   C:   [YOU (.) call me,
11     (0.3)                              (0.3)
12  R: Joo:.                          R: Yeah:.
13     (0.7)                              (0.7)
14  C: [Jo,                           C: [Yeh,
15  R: [Niin, (.) m mää paan rimpauttaen R: [So, (.) I I'll give you a buzz
16     kum me päästään Helsinkiin päin    when we get to the Helsinki area
17     keskustaan että, (0.4)             to the centre that, (0.4)
18     missä mennään.                     where we are.
```

This excerpt shows that successful outcome is taken for granted when participants make arrangements. Only minimum coordinates for later updating are agreed upon. Approximate appointments are specified gradually, call by call. Vague coordinates of time and place – like "on Saturday" and "when we get to the Helsinki area to the centre" – are precise enough when they are connected to the possibility of situational specification by using the mobile phone. In the data, common examples of last minute situational specifying are recurrent real-time driving instructions and 'Where are you?' inquiries when participants are looking for each other at an agreed meeting place.

The assumption that imprecise arrangements can usually be made is also evident in the next extract, Extract 3.11, where technical troubles with the mobile phone make approximate decisions impractical, causing the speakers to resort to more traditional ways of making arrangements.

Extract 3.11
Near the cold storage room (Receiver= Tiina/R, Caller= Liisa/C)
2002-06-10_09-13-07

```
1   R: Tiina?                         R: Tiina?
2      (0.7)                              (0.7)
3   C: .hh No niin,                   C: .hh { } yeah,
4   R: [No ni,                        R: [{ } yeh,
```

```
 5  C: [Minä täällä taas,          C: [It's me here again,
 6  R: Katotaan riittääkö          R: Let's see if there is
 7     virta, he he                   enough charge, he he
 8  C: He he ( ) (   ) (   )       C: He he ( ) (   ) (   )
 9     (1.0)                          (1.0)
10  R: .hh S[ovitaan #joku aika    R: .hh L[et's decide a #certain
11  C:      [( ) (   )             C:       [ ( ) (   )
12  R: tai jotain# jos tää         R: time or something# if this
13     #loppuu äkkii tää virtah#,     suddenly #runs out of charge#,
14     (.)                            (.)
15  C: Ö juu,                      C: Uh yes,
16  R: Nii,                        R: Yea,
17     (0.6)                          (0.6)
```

Liisa's "It's me here again" (line 5) shows that there has been a call between Tiina and Liisa before this particular call (not part of the data). Tiina's reference to a possible power break and the following laughter indicates that there have been problems with the battery running low during the preceding call. In any case, there is jointly shared conception that the battery might run out of charge. Liisa and Tiina must decide on a specific time and place for their meeting since there may not be a chance to make further contact. Later in their conversation (not given in the extract) they decide to meet at one o'clock at a lunchroom "near the cold storage room" instead of just deciding to meet "in the afternoon".

As Rich Ling remarks, the loose and spontaneous coordination of meetings arranged by mobile phone is easy if only a few people are involved, but becomes complicated if several parties are trying to fix their timetables (Ling 2004, 77). In our data there is one occasion where several men are trying to find time to plan a stag party for a friend. The issue has already been discussed between the parties before it is recorded in the data. In the first call related to this issue Pekka rings Sami while sitting in a cafeteria. He asks if Sami has already phoned people to get them together. Sami replies that he has just come home from work and has not yet had time to make any calls, but he will start calling immediately. Pekka suggests that they could "start to meet" in the café he is in because "as I am here at the Café it would be pointless to go home". When Sami asks what would be a suitable time for a meeting, Pekka answers: "Well for me y'know as soon as possible". However, on the following day, after Pekka has made about ten calls (and possibly even more though these are not included in the data) as well as after several other participants' calls (which we have no access to), these men are still trying to gather together. The following is an extract from Pekka's and Jouko's call. Notice, that also in this conversation a 'Where are you?' question is made at the beginning, but it is not treated as an inquiry concerning availability, but rather refers to the get-together.

Extract 3.12

Ernesto or Boozer? (Caller=Pekka/C Receiver=Jouko/R)

2002-07-03_20-01-54

```
1  R: MORO,                            R: HOWDY,
2  C: MOI mis meet,                    C: HI where are you,
3     (0.7)                               (0.7)
4  R: Mä oon täällä Ernestossa jo,     R: I'm here at Ernesto already,
5     (0.8)                               (0.8)
6  C: Ernestossa,                      C: At Ernesto,
7     (0.2)                               (0.2)
8  R: Mä oon täällä jo,                R: I'm here already,
9     (1.3)                               (1.3)
10 C: Kapakassa.                       C: At the Boozer.
11    (0.8)                               (0.8)
12 R: Ernestossa,                      R: At Ernesto,
13    (1.3)                               (1.3)
14 C: Ei kun Kapakassa.                C: No at the Boozer.
15    (0.3)                               (0.3)
16 R: Ernestosta oli puhe              R: We talked about Ernesto
17    alunperi,                           initially,
18    (0.3)                               (0.3)
19 C: Eipäs ollu ku Kapakasta. (.)     C: No about the Boozer. (.)
20    Erne[stoon just sen takia ei ei     No not to Ern[esto just
21 R:      [Äh                         R:              [Uh
22 C: kun siä (.) tulee porukkaa       C: because ther'll (.) come so
23    nii paljon.                         many people.
24    (1.1)                               (1.1)
25 R: ↑Jaa eilen eilen                 R: ↑Oh yesterday yesterday
26    Juniori puhu Ernestosta,            Junior talked about Ernesto,
27    ja (  ) puhu                        and (  ) talked about
28    Ernestosta,                         Ernesto,
29    (1.2)                               (1.2)
30 C: Tänään (.) puhuttiin             C: Today (.) we talked about
31    Kapakasta,                          Boozer,
32    (0.2)                               (0.2)
33 R: Ei mulle tänää kukaa puhunu      R: No one talked today to me
34    mitää.                              about anything.
35    (0.3)                               (0.3)
```

So, at first Pekka believed that they could get people together at a moment's notice at the café where he was sitting. However, on the following day they are still working things out. Jouko, for example, is waiting at the wrong place, and gets a reminder from Pekka. Plans have changed since yesterday, although no-one has told them to Jouko. This extract shows that approximately and gradually specified mobile arrangements typically turn out to be problem-

atic in many-party interaction. On the other hand, also here the always available mobile phone saves the situation: Pekka can figure out where Jouko is at that very moment and asks him to come to the right place (this happens at the end of the call, and is not given in Extract 3.12).

3.3.3. How's the Weather?

Another phenomenon parallel to location telling, which also affords coordination of instant or near future activities is revealed by the data. This is 'weather telling'. To talk about the weather is not, of course, a mobile-specific phenomenon. However, in our data there were nine weather expressions which were part of the ongoing or planned activity. Participants did not just note the weather, instead these expressions were part of the mutual activity. People adjust their activities to the real-time circumstances by using their mobiles. In many events weather has an important significance, as can be seen in Extract 3.13. Pekka has been watching the hotrod races and it is now the morning of the second day of the race. Timo calls him to check the weather at the competition site to see if the race is worth visiting.

Extract 3.13
Excellent weather (Receiver= Pekka/R, Caller= Timo/C)
2002-07-06_08-07-05

```
1  R: Moi,                        R: Hello,
2     (0.4)                          (0.4)
3  C: No huomenta p#äivää,#       C: Well good morning m#orning#,
4  R: >Huomenta,<                 R: >Good morning,<
5     (0.9)                          (0.9)
6  C: Millain ilm[a siäl o,       C: How's the weath[er out there,
7  R:           [@Aurinko paistaa.@  R:            [@The sun is shining.@
8     (0.5)                          (0.5)
9  C: Aurinko paistaa s[iälä,     C: The sun is shining t[here,
10 R:                [Joo.         R:                   [Yeh.
11 C: Tääl tulee vettä ku Esterin C: Here it's pissing
12    takalisto[sta.                 with r[ain.
13 R:        [Tääl on aivan       R:      [Here it's absolutely
14    loistava keli.                 excellent weather.
15    (0.9)                          (0.9)
16 C: Eli kannattaa lähtee,       C: So it's worth going,
17 R: Kannattaa lähtee.           R: It's worth going.
18    (0.9)                          (0.9)
```

Timo asks Pekka about the weather, to see if the conditions for the race, or watching the race are good. A day earlier, Timo called Pekka and heard that the race was rained off. So, the question about the weather is at the same time a question about the race: are there going to

be any races today. On account of constant accessibility, it is characteristic that an individual mobile phone call is often one sequence in an intersubjective activity which is composed of several calls. Let us look at these connected calls a little closer.

3.3.4. Chain of Calls

As mentioned earlier, arrangements are often made gradually with the help of several mobile phone calls and/or text messages. In phone conversations, arrangement-related items often organise the next encounter (e.g. "I'll give you a buzz when we get to the Helsinki") and make *this* conversation one in a number of possible conversations or encounters between the participants. This is what Graham Button (1991, 270) calls *conversation-in-a-series*.

People are connected in a sphere of mutual activity even when they are not in immediate contact with each other. Changes in circumstances can be quickly reacted to. For instance, before the next data example (Extract 3.14), another call between Pekka and Jouko has taken place. Pekka has promised to pick up some CD records before he leaves town and Jouko is wondering where Pekka is. The question – though it comes at the beginning of the call – does not concern the possibility to talk, but the fact that Pekka has not arrived.

Extract 3.14
Missing (Receiver= Pekka/R, Caller= Jouko/C)
2002-07-05_09-17-48

```
1  R: Morje,                      R: Howdy,
2     (0.3)                          (0.3)
3  C: Mo:, missä äijä vaikuttaa,   C: Hi:, where's the old man,
4     (0.2)                          (0.2)
5  R: Äää (.) MÄÄ (.) jätin väliin R: Uuh (.) I:: (.) gave it a miss
6     ku rupes meneen ni             when it started to be so
7     myöhäseks ni täyty lähtee.     late that I had to go.
8     (0.7)                          (0.7)
9  C: Aijjaa,                       C: I see,
10    (0.7)                          (0.7)
```

Structurally, an individual call is a separate unit. Each call has an opening and an ending, and somewhere between these two moves is a conversation which reveals the reason for the call. This structure holds true even when the call is part of a number of interconnected calls. In our data participants always mark the opening of the call – usually by greeting – even if the call is a continuation of a previous conversation and/or is linked to an ongoing activity. Usually the answerer greets the caller, but the caller sometimes moves on to the topic without a reciprocal greeting. Constant accessibility is always possible, but every time when a reconnection is made, participants mark the conversation as being opened afresh. So, a mobile connection differs

from a "continuing state of incipient talk" (Schegloff and Sacks 1973), i.e. an interactional circumstance which involves, for instance, family members in a living room or passengers sitting together on a plane or a train. In these situations, gaps of silence in talk are not taken as a closing of the conversation. There is no formal opening every time one starts to speak, but talk can start up again whenever, even after a long pause. (Schegloff & Sacks 1973; Schegloff 2002, 284–285.)

Contrary to our data, Ian Hutchby and Simone Barnett (2005) report a case where the caller goes straight to the reason for the call without any opening sequences:

> Hutchby & Barnett (2005, 160)
> ((summons))
> Kisha: >Wha' time you finishin' uni<
> SB: °Ummmh wots wrong.°
> Kisha: ↑Huhh?
> SB: °Why <u>whats</u> wrong°

In this call the caller, Kisha, on hearing that the connection has been opened, immediately embarks on the first topic. So the caller does not wait for the called to say something, for instance to identify herself or to greet the caller, neither does Kisha identify herself or greet the called. Thus, in this case it seems that the affordances of the mobile phone – the caller ID and the personal nature of the device – can move the conversation between intimates in the direction of a continuing state of incipient talk and break the conventional rules of telephone conversation openings (leaving out both identification/recognition as well as greetings). However, even if in this situation Kisha takes the technological affordances of the mobile phone as a possibility for unmarked and direct contact, we can see that the called, SB, considers Kisha's rushing into the topic a sign of some kind of emergency.[13] SB repeatedly asks "what's wrong?". At least for SB, this is not a standard and convenient practice, but it is accountable. Even in Hutchby's and Barnett's data this call is an individual case among other calls and it is considered deviant by the called. Nevertheless, it tells us something about the mobile phone's potential impact on the practices of telephone conversations.

In the data we collected, every new opening is somehow marked as a new start.[14] Normally there are greetings, with the exception of those conversations that are cut off by some technical problem before the conversationalists have ended the call. There are five calls in the data that are reopened after some technical problems. In four of them, the call is opened by a reciprocal *no niin* ("{ } yes"/"Oh yes") turns. (In the fifth call, there are still some hearing problems and

---

13   In our data there are no examples of the kinds of calls where participants go straight to the topic. However, there are cases where the caller goes straight to the topic without returning the call-taker's greeting. This procedure usually indicates some kind of urgency, as in a case where the person in the car ahead warns the car behind: "On the left side of the road, look at the deer!" (cf. Arminen 2008, 94).

14   This differs from the continuous state of text message exchanging in which salutations are not necessarily needed (see Section 4.4.1).

it begins with "hallo" clearances.) These 'reopenings' look similar to the normal openings of Finnish mobile phone calls which are usually opened with the particle *no* as a confirmation of recognition and *hei* ("hi/hello") as a greeting to this recognised person (as we saw in Section 3.2). In the '*no niin*' reopenings *no* pulls together things before the break and marks a new opening and *niin* invites continuation.

In Extract 3.15 the earlier call has been cut off by some technical problems in a situation in which Jarmo has been giving Ville driving instructions. The following call does not begin with greetings but with reciprocal *no niin* expressions.

Extract 3.15
No left-turn sign [Transcribed by Sanna Raudaskoski]
(Caller= Jarmo/C, Receiver= Ville/R)
2002-10-28_23-15-20

```
1  R:  No ni,                        R:  { } yeh,
2  C:  No niin. (.) Niin siitä mistä  C:  Oh yes. (.) Yeah where
3      on vasemmalle kääntyminen          turning left is
4      kielletty >niin sinne suuntaan<.   forbidden >so that direction<.
5  R:  Niin sinne suuntaan justiinsa.  R:  Yes that direction exactly.
6      (0.3)                              (0.3)
7  C:  Sinne kieltomerkin             C:  In the direction of the
8      suuntaan joo.                      no-left traffic sign yes.
9  R:  Joo.=                          R:  Yeah.=
```

These *no niin* turns serve as a confirmation of the continuation of the mutual activity, i.e. giving driving instructions. Even in this kind of call where the participants jump into the topic, the conversation does not begin without first ensuring that the network in functioning, and that conversation can be continued. These clarifications are done by quick *no niin* turns. These expressions also ensure the identities of the speakers. By these means the conversationalists confirm that the technical problem that cut off the preceding call no longer exists.

Even though several calls may functionally be connected to each other, each phone conversation forms an activity system of its own, a common space for mutual activity. The conditions for maintaining this space must somehow be ensured at the beginning of the call. Because there is no visual feedback, the means by which this mutual space is marked are also conversational. With some kind of an opening the conversationalists make sure that they are speaking with the right person and that the conversation can be carried on. Thus, both the initial greeting *no moi* and also the *no niin* opening has a functional purpose. Openings and endings are the means by which the mutual space for co-operation is marked so that both of the conversationalists know 'where they are' and what is happening.

Mobile phone conversations form only one communication channel between people. They are part of a chain of encounters, where face-to-face interactions, landline and mobile phone calls, SMS messages, emails, etc. are interlaced. Persons who are friends and family interact in

many other ways than just on the phone. Since the call can be part of a conversation-in-a-series, the reason for the call may not be completely evident in the ongoing conversation, but may have been introduced earlier at some other point in the mutual interaction. Thus, also in this sense mobile phone calls come close to the idea of a 'continuing state of incipient talk', since the reason for the call may be a direct continuation of the preceding conversation and it is not framed by a separate introduction or account at the beginning of the call. One example of this kind of 'direct continuation of the topic' is found in Extract 3.16, where the participants continue talking about a suitable place for their friend's stag party.

Extract 3.16
By the way (Receiver=Timo/R, Caller=Pekka/C) [Transcribed by Sanna Raudaskoski]
2002-07-02_21-04-58

```
1  R: Morjensta.                  R: Howdy.
2  C: .mthhhhhh Morjens hei (.)   C: .tchhhhhh Hello hey (.)
3     mitä se s- oliks niinku (.)    what it s- was that y'now (.)
4     oliks se (.) Verona niinkö si's  was that (.) Verona y'now so
5     (.) oliks se joku rakennus     (.) was it some kind of a building
6     (.) paa- (.) vai mikä se oli.  (.) paa- (.) or what was it.
7  R: y' Se luki vaan yhen rakennuksen  R: u' It just said that on the front
8     edessä sillai isolla.           of a building in big letters.
9  C: Että Verona.                 C: You mean Verona.
10    (0.6)                          (0.6)
11 R: Ni.                           R: Yeh.
```

3.3.5. Tethered to the Mobile, Tethered to Others?

Most of the calls in the data are concerned with organising some other activity, and this means that usually they are brief. 'Babble calls' are few, though there may be, of course, some selectivity in the data set. The number of participants is too small to ascertain whether this is a general rule. The people who took part in the study have also had an opportunity to select the calls, but only a few calls were not selected. In any case, our data set shows that as well as being a tool for constantly coordinating activities, the mobile phone seems to be a tool for bringing people together. Via the mobile phone, individuals engage in a kind of instant coordination. The mobile phone interrupts the time-based coordination of activities required for scheduling from fixed locations. Individuals can organise their activities in spite of physical distance. Parties in communication do not necessarily orient to objective time, but rather share their own immediate space-time, which is comprised of the social – rather than geographical – proximity of relationships. (Green 2002; Arminen 2008.) The mobile phone creates but also stands for a community of practice. The mobile contact as such requires no comparison of times or schedules, nor advance knowledge of the time or place for contacting, instead the call can serve

as an advance arrangement in itself (Kopomaa 2000, 59). The notion of time is more flexible with easily-made calls and appointments (Castells et al. 2007, 177). Time is said to be "softened" (Ling 2004; Rheingold 2002) as a consequence of mobile phones. "The systematic use of time is replaced by systematic accessibility" (Kopomaa 2000, 59). On the other hand, shared time-spaces are not always softer; they may be more hectic and unpredictable, and open to the increased likelihood of social control (Arminen 2008, 98, 101).

As discussed in the introduction, the history of the telephone is parallel to the history of pocket watch. Both have started as status symbols and made a leap from public spaces to bags and pockets (Agar 2003). Another kind of connection can also be made between the clock and the mobile phone. Whereas the clock shows and represents objective time, the mobile phone has become a coordinative tool for subjective timekeeping. But they are both still found 'in the pocket', in fact they are usually converged in the same device. They are intrerrelated in mobile phones as the mobile phone is often used to display the objective clock time that is also used to organise subjective time. Mobile time is still anchored to clock time and the interrelation of these two may even accelerate the pressure of constant social coordination.

In an experiment where students were asked to refrain from using the mobile phone for forty-eight hours, only twelve out eighty-two finished the experiment. One of the reasons that students gave for failing was that other people got angry with them. (Katz 2006, 92–93.) This experiment reported by James E. Katz is reminiscent of Harold Garfinkel's 'breaching experiments', in which participants deliberately act abnormally in concerted actions. Garfinkel's idea was that "the operations that one would have to perform in order to produce and sustain anomic features of perceived environments and disorganised interaction should tell us something about how social structures are ordinarily and routinely being maintained" (Garfinkel 1963, 187). Breaching experiments revealed that in everyday social activities we act under the tacit rules of behaviour and if someone deviates from normal procedures and acts differently, these deviations are usually interpreted as 'motivated', and they often cause anger (Heritage 1984, 78–84).

The results of Katz's experiment back up the conclusion that constant contact with the people close to us is nowadays an unstated rule of social activity, and this contact is maintained by mobile phones. We also know this through personal experience. A friend of mine recently complained that her mobile phone only works sporadically and as she has not had time to buy a new one she gets angry messages from people who have tried to contact her. Similarly, another friend who often turns off the phone when she wants to be undisturbed, e.g. the whole weekend, reported that on a number of occasions she was told to check her mobile phone because contact could not be made. The people concerned were astounded when they learned that switching off the phone had been her choice.

Personal styles of using the phone are no longer tolerated. If someone gives up using a mobile phone for several days, it makes the everyday coordination of activities difficult for others and they may get furious. This is something Mizuko Ito and Daisuke Okabe have also noticed when studying Japanese teenagers' mobile phone use: there is a need to be continuously available for friends and lovers, and thus, a functioning mobile device must be available

(Ito & Okabe 2005a, 139). Those who try to be without a mobile experience pressure and disapproval. In Katz's experiment the explanations given why mobiles were not switched off included such statements as "It was too hard, urgent issues arose, responsibilities required me to use my phone" (Katz 2006, 92).

In families and especially with couples in love, the shared virtual space is often supposed to be available all the time, so that even taking a bath – which cuts off the availability for contact – is announced via SMS (Ito & Okabe 2005a, 139).[15] As Sherry Turkle says, we are *tethered to* our 'always-on/always-on-us' communication devices; "I'll be on my cell" means that you can reach me, my mobile phone is on. These kinds of new phrases – *on* my cell, *on*line, etc. – denote continuous availability and a tethered self. (Turkle 2008, 122.)

Thus, to ensure constant contact individuals are required to carry a mobile phone at all times, and because social practices nowadays depend upon mobile phones, it is hard to try to manage without one. A person without a mobile must account for his or her behaviour. The question 'Why don't you have a mobile?" means in practice "Why don't you offer all those interactional resources that people are expected to have in present-day society?" Young lovers, for instance, do not make arrangements for the next date at the end of a romantic get-together. Instead they say "call me later" (Kim 2002, 73). These kinds of loose arrangements rest on the possibility of constant accessibility, and thus, mean that a functioning device must always be at one's side. In this respect these practices are fragile: when encounters are based on last-minute mobile phone contacts, only one lost or broken device in the social network means considerable trouble in managing meetings.

Having said this, it must however be noted that there are situations where continuous availability is not the case. Even though the mobile phone means that the spheres of work and home can overlap, some types of occupations may restrict constant availability. Familiar in many households is the practice in which one member of the family makes a mobile phone call when off work, for instance when driving home from work, just to make a connection available: the called may use this occasion, for instance, for recapping day's events or for making some request. Thus, the caller's reason for the call is not necessarily topical, but rather functional: to indicate that the connection (that was not available before) is open again and possible urgent issues can be dealt with.

Eric Laurier (2001) has found a similar kind of procedure in his study of 'nomadic workers', who spend most of their time travelling and use the mobile phone to coordinate their work. He discusses the case of Penelope, the personnel officer of a transportation company, who travels a great deal, and her personal assistant, Sharon, who stays permanently in the office. Unless meeting Sharon at the office, Penelope calls Sharon every morning when she sets off by car to her first destination. Although Sharon is the one called, she does not have to wait for

---

15   In fact, it was reported in March 2008 that nowadays almost half of the Japanese population have at least once taken their mobile phones with them while taking a bath. Thus, having a bath no longer cuts off the connection. The poll of 16 250 people was carried out by video-game maker Sega. The results did not come as a surprise to Japanese mobile phone makers, some of which having already advertised that their handsets are safe for bathroom use (http://afp.google.com/article/ALeqM5hlu3-dl0Z9tEkJwtQfaM2MRNVFRA).

Penelope to provide the reason for the call: the call allows room for both of them to coordinate the day's activities.

Thus, it may not be the caller who introduces the reason for the call, for the called can also start the topic. A 'virtual office' or a 'virtual living room' can be constructed via the mobile phone: the caller calls someone in order to indicate 'presence' and availability if the other participant has something important to say. This procedure also highlights the importance of constant contact and our tetheredness to mobiles: when some limitations are placed on the 'always on' mode of accessibility, the connection is made available as soon as possible, even if the caller has no topical reason for the call (or for the text message). Seamless mobile communication affords "extended accountability" (Arminen 2008, 101–102) in which not only past actions but also actions here-and-now or still forthcoming come under the norm of social accounting. Correspondingly, the mobile connection itself, and keeping it open, becomes the key issue under the norm of extended accountability. Presence and absence, availability and unavailability are regulated in a game of expectations, obligations, and social/physical constraints (Licoppe 2004, 153).

3.3.6. The Mobile Phone's Features as Indirect Affordances

In Finland, the features of the mobile phone are generally known and they are commonly used as resources for interaction. During phone calls, the mobile phone's features are sometimes used to explain behaviour. Then, the jointly shared knowledge of 'what kind of devices mobile phones are' serves as an affordance for situated action, as shown in the next extract. It illustrates that mobile communication is controlled by a cultural rule: the call that is not responded to or the text message that is not immediately answered or not answered at all are acts that require explanation, though in SMS there are some exceptions (see Chapter 4, Section 4.3.3).

Extract 3.17
Missing text message (Caller= Sanna/C, Receiver= Pirkko/R)
2002-07-13_22-16-34

```
1   C: Ei kum mä vaan aattelin et ooks      C: I was just thinking if you
2      sää suuttunu mulle                       are angry with me £because
3      £jostai tai jotai ku sä et               of something or somethin like that
4      vastannu mun                             'cause you didn't answer
5      tekstiviestiini,£=                       my text message,£=

Lines removed[16]
```

---

16   One sequence has been removed in which R starts to explain that she was at work and busy when she got the message and she thought that she would answer it later. The transcription (in Extract 3.17) continues from the point where she says that because she had to remove the message, she forgot to answer it.

```
 6  R: hh he he he .hhh Ei, (0.3)      R: hh he he he .hhh No, (0.3)
 7     ei kuule kun, (.) sit mun          no listen, (.) in my
 8     kato puhelimes on niin hirveesti   phone y'see there are so many
 9     viestejä, (0.3) et kaikki          messages, (0.3) that all
10     tilat on täynnä,                   the spaces are full,
11  C: Jooh,                          C: Yeahh,
12  R: Että vilkutti kato koko        R: It was blinking all the time
13     ajan niiku että liikaa viestejä    y'now that too many messages
14     että poista poista poista ja,      that delete delete delete and,
15     .hh et perkele kylä mää            .hh that damn yes I'll
16     sem muistan että mää ny            remember that I now
17     poistan tän tästä                  delete this here and
18     näin et mää muistan lähettää       I'll remember to send
19     töitten jälkeen viestiä,           the message after work
20     (0.6) joo. No, (.)                 (0.6) yes. Well, (.)
21     paskan vit- mä                     shit fuc- I
22     mitään muistanu                    I didn't remember to send
23     l(h)ähett(h)ää, ha ha ha hah       a(h)nyt(h)hing, ha ha ha hah
```

In this extract we can see both the normative expectation that one should answer a text message, and that the features of the mobile phone – in this case the filled storage space for text messages – can be used to explain the behaviour and actions against the norm. The device works as an extension of human capacities. The kept text messages support the recollection of items of information and what is not in the device's memory any more is gone from 'human memory' too, because it is not there to remind the individual what should be done.

3.4.   THE JAZZ OF GOING MOBILE

Mobile phone users need to maintain harmony between what is here-and-now, and what is not physically present but still demands attention. This very mixing requires skilful harmonising and improvisation in a manner that John Sherry and Tony Salvator (2001) call "the jazz of going mobile". A mobile phone conversation forms one activity system, which is shaped by technical and social elements, as well as elements of possible overlapping actions. Thus, during the call, parties perceive both technical as well as social affordances. They are all needed for carrying out the desired action.

As mentioned in earlier chapters, according to Leont'ev (1978) human activity can be analysed using a three-level hierarchy: activity, action and operation. Activity has an aim that is reached by acting with material or ideal objects. It is carried out through actions, which again are realised through a series of operations, each derived from the conditions and structure of the action.

It is characteristic of activities that include mobile phone use that actions organising the activity are not only chronologically connected, but several actions aimed at the purpose of the

activity may occur simultaneously. Take, for instance, the situation when you are going to meet a friend in a place you have never been to before. Thus, meeting a friend is the aim of your activity and this aim organises the actions needed in conducting the activity. These actions can be, for example, driving a car and asking real-time driving instructions by means of a mobile phone call. Actions, for their part, are carried out through various operations; when you drive a car you operate a wheel, a clutch, an accelerator pedal, gears and so on. Similarly, a mobile phone conversation is carried out through different stages: opening, topic discussion, ending, etc., and these are connected to the simultaneous handling of the device. Operational sequences of actions are often unconscious: people drive a car or make a mobile phone call almost automatically, even though they follow the tacit rules that regulate these operations.

This does not mean that people do not notice the different aspects of the activity. The analysis of the data shows that the awareness of different elements becomes apparent when people encounter problems during their mobile phone calls. These problems can be of two sorts: on the one hand there are technological problems related to mobile phone technologies (device/network, etc.), on the other hand there are problems associated with the action environment (social/physical). Facing troubles shows that the 'automatic' operations people conduct are not automatic in the sense of robotism; they are not always done similarly whatever the other conditions of the activity. Operations may be performed without a reflection, but when divergences occur, the conscious mind becomes aware of them.

In the first two parts of this section we shall consider mobile phone calls as activity systems in which key aspects must be understood by the participants in order to manage to speak to each other. People have to understand the 'system logic' both of the mobile phone technologies as well as mobile phone conversations. In the two following subsections we take a look at the problems stemming from the nature of the portable mobile phone as part of coincident actions and thus part of several activity environments.

3.4.1. Understanding the Logic of Mobile Phone Calls

In Chapter 2 the three-aspect model of affordances – handling, comprehensibility, and applicability – was introduced. In this chapter we have so far mainly talked about the affordances of mobile phone calls that could be placed at the level of applicability, that is, affordances for different kinds of social actions. Managing to accomplish these actions, however, also demands an understanding of the mobile phone's features and system logic. Technological affordances set the boundary conditions for making mobile phone calls. The technical features both afford new kinds of acts, for instance, new ways of making arrangements, but at the same time they can restrict the action, such as when the battery runs out unexpectedly.

The conversationalists' interest or concern is not in the phone call *per se*, but in the activity and its goal. However, in order to be able to speak to each other, the conversationalists must

have an understanding of the main features of the device, and in our mobile phone conversation data this can be seen as fluent communication. So, unproblematic activity shows that the participants understand the logic of the mobile phone, at least as far as their needs are concerned. They can utilise the affordances at the level of comprehensibility. However, not all features of the mobile phone are intuitive, some need to be learned in order to become understandable and be used. In the next extract the adjustment of the sound level comes through as a matter that needs guidance.

Extract 3.18
Thai spices (Caller= Sanna/C, Receiver= Erja/R)
2002-07-11_15-23-09

```
1   R: Kauhee hilijaa kuuluu,          R: The volume is awful quiet,
2   C: No, (.) mun täytyy säästää       C: Well, (.) I must adjudge
3      sitä tai säätää sitä puhelinta      it or adjust the phone
4      se johtuu varmaan siitä.            it depends on that I think.
5   R: Nii, joo,=                       R: Well, yes,=
6   C: =Tota noin ni yhrm nin nin,      C: =Y'know so uhrm so so,
7      (0.8)                               (0.8)
8   C: Tai sitten laitat kato          C: Or you put y'know
9      siitä omasta puhelismestas sitä     the volume louder on your
10     ääntä kovemmalle sillai             own phone the way I
11     niinku mä oon neuvonu,(.) siitä     have told you, (.) with
12     nualinäppäimestä,                   the arrow key,
13     (0.3)                               (0.3)
```

In the data there is some kind of a problem connected to the technical characteristics of the mobile phone in twenty-five calls. These situations are cases which the conversationalists themselves treat as a problem. For instance, hearing problems which are apparent when listening to the recording but which the participants themselves do not treat as trouble sources are not included. The situations that are treated problematic are, for instance, different kind of check-ups, that is, expressions like "hallo" and "are you there?", other hearing problems, suddenly cut-off calls due to batteries running low, expressions that the battery may run out, etc. All these mean some kind of hindrance in the ongoing activity and shift the participants' awareness from the conversation to the mobile phone as a machine that operates under rules of its own (see Chapter 2: machine/tool). In eleven cases the question especially concerns problems with the recording handset. One example of these cases is Extract 3.19.

Extract 3.19
Midsummer plans (S= Sanna/R, P= Piia/C)
2002-06-18_22-00-24

```
1  R: Ai ai ai,(.)ootas taas      R: Oy oy oy, (.) wait one
2     iha hetkih.=                   moment again.=
3  C: =JOo,                       C: =YEah,
4     (2.6)                          (2.6)
5  R: Eihän tää sun korvaas piippaile, R: This is not beeping in your ear or,
6     (0.2)                          (0.2)
7  C: Kyl mä kuulen sen ku         C: Well I can hear it when
8     ei se ni pahasti (.)            it doesn't so badly (.)
9     ainaka mut kyl mä sen kuulen,   at least but yea I hear it,
10 R: Just,                        R: Yeah,
11    (0.2)                           (0.2)
```

3.4.2. Doing Talking on the Mobile Phone

Emanuel Schegloff writes that when he and Harvey Sacks started to study telephone calls in the mid-1960s, they at first dealt with the data only as interactions, and did not consider the telephonic medium in which they were being conducted. However, later Schegloff became interested in the summons/answer sequences and realised that the first sequence in the data was ringing/answering. He found himself studying the telephone – "or rather studying interaction in ways that accepted the relevance to the conduct of the interaction of the fact that it was being conducted over the telephone, because the participants' conduct was oriented to this being a conversation on the telephone. They were doing 'talking on the telephone'". (Schegloff 2002, 289–290.)

It is the same with mobile phone conversations. The participants orient to the situation as doing 'talking on the mobile phone'. They share the understanding of those possibilities and restrictions that the device affords for the interaction. For instance, we talked earlier about location and that the caller realises the fact that the called can be anywhere, and that possible hindrances must be taken into account. Another example of doing 'talking on the mobile phone' is, for instance, how people react to silence during mobile phone conversations. People do have an understanding of the normal proceeding of conversation. Too long a pause, for example, means divergence from the normal conduct of conversation. There can be social reasons for silence, but in phone conversations people also have a notion of the logic of the mobile phone: significant changes in the normal progression raise a question of technical problems or problems due to location instead of social problems.

In Extract 3.20 the long pause (line 14) in the transition relevance place[17] causes the speaker to doubt whether the other participant can hear at all, and in fact he cannot, for the connec-

---

17   I.e. the point in a normally proceeding conversation which would serve as a place for turn-taking.

tion has been cut off without warning. The connection is cut in line nine, but Jarmo interprets Ville's turn at that point to mean either a problem of hearing or understanding and rephrases what he expressed earlier. Not until the long break does he understand that the connection has been cut. Extract 3.20 is part of the first call in a two-call chain, where Jarkko is giving driving instructions to Ville. Extract 3.15 that we discussed earlier occurs immediately after this extract (when Jarmo calls Ville again).

Extract 3.20
Direction (Receiver= Jarmo/R, Caller=Ville/C)
2002-10-28_23-11-58

```
1  R:  No sit tuota nii seuraava (.)    R:  Well then y'know next (.)
2      silta ku tulee nii se r:autatie      bridge that comes so the r:ailway
3      että siinä menee rautatie            that there is the railway
4      päällä ni sit siis sen sillan        above so then after that
5      jälkee vaik siin on kääntyminen      bridge even if there is
6      vasempaan kielletty ni               a no-left turn so turn
7      käänny siltiv vasempaan.             left anyway.
8      (0.8)                                (0.8)
9  C:  @(Ja mi-)@ ((kumahdus))          C:  @(And wh-)@ ((a dull sound))
10     (0.5)                                (0.5)
11 R:  Mitä eh- (.) he- heti sen        R:  What uh- (.) st- straight after
12     tuota ni rautatiesillan (0.2)        that y'know railway bridge (0.2)
13     jälkeen ni (.) samantien vasuriin.   so (.) immediately left.
14     (4.5)                                (4.5)
15 C:  Kuulek sää mitää (.)             C:  Can you hear anything (.)
16     katkes.                              it cut off.
```

Telephone conversations lack face-to-face contact and people receive no visual feedback from each other. For this reason, the common arena for activity is constructed by talking. One important way of organising the cooperation is pauses. In fact, as discussed in Chapter 2, pauses are essential aspects of any activity construction. Even though pauses do not cause any stimulus to our senses, they can serve as affordances. Conversationalists orient to some common end and the pauses either afford or restrict actions towards that end; 'silence' becomes meaningful according to what we are doing and what the silence in this context can mean. According to my findings, the silence in mobile phone calls is regarded either as 1) turn-taking, 2) a technical disruption (loss of power, deficient network, etc.) or 3) hanging up, depending on other aspects of the situation. Thus, although silences are essential in managing turn-taking in conversations, in phone calls silence can also mean a technical breakdown. That is why pauses are especially noticed.

In the next extract (Extract 3.21) a half-second pause during which the other participant does not start a turn is already enough to wake the other's suspicion of technical problems, particularly when there has just been problems with the recording handset.

Extract 3.21
Library (T= Tiina/R?, H= Hilkka/C?)[18]
2002-06-05_16-32-13

```
1  T: Katotaas onnistunko mä saamaan     T: Let's see if I can manage
2     tän nauhottamaan uudestaan mä         to get this to record again
3     vahingos painoin kaks kertaah.        I pushed twice by mistake.
4     (0.5)                                 (0.5)
5  T: [Ootsä siellä,                     T: [Are you there,
6  H: [Joo.                              H: [Yes.
7  H: ↑Oon oon,                          H: ↑I'm here I'm here,
```

One specific aspect of phone conversations connected to meaningful pauses and maintaining connection is the recurrent use of 'hallo' phrases. They are repair initiators (see e.g. Schegloff et al. 1977) characteristic to phone. They express the special kinds of hearing problems that are linked to breakdowns in the speaking connection. In this respect, they are more specified than open repair initiators, such as 'what'. 'Hallo' expressions show that people orient to 'doing talking on the phone' instead of face-to-face interaction. Even if people are oriented to the goal of their activity, they are nevertheless aware of what the possible technical restrictions that must be taken into consideration. 'Hallo' expressions indicate an understanding of the role of technical devices and network solutions as part of the ongoing activity. In the following extract the previous call has been suddenly cut off. The call begins with a "Hallo? Are you there?" clearance.

Extract 3.22
Power (Caller= Tiina/C, Receiver= Marko/R)
2002-06-05_13-44-05

```
1  C: Haloo? Ooksä siellä,           C: Hallo? Are you there,
2  R: Hei. Joo.                      R: Hi. Yes.
3  C: Siis katkesko sult äsken       C: So did your charge run out
4     taas virtah,                      again,
5     (4.0)                             (4.0)
6  C: [Huhuu?                        C: [Hollo:?
7  R: [Joo.                          R: [Yes.
8  R: >Joo< joo.                     R: >Yes< yes.
9  C: Siis katkes,                   C: So it did run out,
10    (0.6)                             (0.6)
11 R: Katkes.                        R: It did.
12 C: Ahah. Okei no elikä se voi     C: I see. Okay well so it can
13    katketa nytkin koska vaan.        run out anytime now.
```

---

18   The recording stars from this sequence and it is unclear which one of the participants had made the call in the first instance.

```
14 R: Nii, nin ei puhuta          R: Yea, so let's not talk
15    (pitempään).                   (any longer).
```

Here it seems to be essential to find the reason for the earlier sudden cut-off. This may be because the sudden cut-off might mean that one of the callers has hung up. In the data there are calls where the possible cut-off is anticipated by the announcement that the charge may run out soon.[19] This is done by taking at least two social aspects into consideration: firstly the announcement tells the other party that the reason for the possible cut-off is technical, not personal and, secondly, that they must 'hurry' with the ongoing interaction, there is no time to chat at length.

3.4.3. Action Environments Overlap

In most of the calls in the data contextual elements are noticeable. During calls people are often doing something else at the same time as they are talking: driving a car, sitting on a bus, riding a bicycle, walking, putting on clothes, reading, etc. People either tell the other party what they are doing, or it can be inferred, for instance from the purpose of activity (e.g. giving driving instructions). Sometimes the parallel activity 'disturbs' the actual conversation and becomes a new topic of the conversation, as is the case in the next extract. Notice that this extract is not from the beginning of the call; the participants have already discussed the primary topic, which was about the burning of CD records.

Extract 3.23
Burning (Receiver= Pekka/R, Caller= Hannu/C)
2002-07-04_17-36-49

```
1  R:  .hhh hhhh .hhhh hhh        R:  .hhh hhhh .hhhh hhh
2      .hhh Joohhhh,                  .hhh Yeshhhhh,
3  C:  Joku tommone.              C:  Something like that.
4      Misä sää oot,                  Where are you,
5  R:  Mää (.) poljen pyörällä    R:  I'm: (.) riding a bike
6      >porukoille päih<, .hhhh       >to the folks at home<, .hhhh
7  C:  Aijaa,                     C:  I see,
8  R:  hhhhhhh                    R:  hhhhhhh
9  C:  Hirvee läähätys vaan       C:  All I can hear is a terrible
10     kuuluu,                        puffing sound,
11 R:  .hhhh Menin ylämäkee       R:  .hhhh I went uphill
12     tossa just äsk(h)(h)e hh       just a mom(h)ent a(h)go hh
13 C:  Just,                      C:  I see,
14     (1.3)                          (1.3)
```

---

19   Also in Extract 3.22 the possibility of the charge running out is mentioned. However, in this case the speaker worries that the other party's charge is low, and the worry arises from the preceding problems with the other caller's battery.

Concurrent actions – speaking on the phone and simultaneously doing something else – is clear in this extract from the receiver's breathiness, which attracts the caller's attention and makes him ask "Where are you". This is analogous to 'Where are you' questions in the openings of the calls. The participants pay attention to the exceptional features of the conversation, which cause one party to require about the location of the other person.

As discussed earlier, the portability of the mobile phone and its status as a personal device afford 'here-and-now' conversation, and by that means other real time activities such as organising engagements can be arranged. The mobile phone is a device in which several action environments overlap, creating "mobile multi-tasking" (Srivastava 2005, 204). A ringing phone makes us move from our physical surroundings into the action environment of a mobile conversation. In public it means that all people involved (the telephonist and others, be they acquaintances or strangers) must adjust themselves to the situation. Call takers often apologise if they are with acquaintances, and they may step away, etc. Others give space for the telephonist by making different postural and spatial movements. In fact, what non-conversationalists often do is start reaching for their own mobiles (cf. Katz 2006, 59). Call takers or receivers of SMS messages may also actively involve others in their mobile phone activities (Weilenmann & Larsson 2001; Relieu 2008). Many people also choose musical ringtones which is an indicator of the fact that mobile phones are expected to be used in public and the ringtones will be heard by co-present parties; ringtones are assessed with respect to the effect they may have on bystanders (Licoppe 2008, 150). However, shortening a conversation seems to be the rule when speaking on the phone in company; in some cases being in company is even a reason for switching the phone off (Lasen 2003).

People in urban settings talking on mobile phones create a new use for urban spaces. The forecourts of big stores, underground entrances, street corners, all constitute improvised 'open-air phone booths'. In these places several people may be phoning, apparently unaware of others doing the same. Streets are no longer merely for transit, they are also places to stop and talk. (Lasen 2005, 48.)

A person having a mobile phone conversation is both on the phone and somewhere else at the same time. Usually people speaking on the mobile phone in public places avoid looking at other people nearby. Eye contact shows interest and desire for potential participation in other people's activities. Avoiding eye contact is a way of marking the borders of one's own space, both for mobile phone talkers and for those who overhear the call (e.g. Murtagh 2001, 84–85). Eye contact is avoided especially when stepping aside is not possible, as when sitting on a bus or train. People adopt practices to make space for mobile phone calls, while others use strategies to 'block overhearing phone conversations'. Fellow passengers are often faced with "forced eavesdropping" (Ling 2004, 140). Emanuel Schegloff tells an anecdote of a train traveller in New York. A young woman is talking loudly on the mobile phone, apparently to her boyfriend, with whom she seems to be in some kind of a crisis. Most of the passengers try not to pay atten-

tion to her by doing things that Schegloff calls "busy doing not overhearing this conversation",[20] except for one passenger. This fellow-passenger gazes at the young woman who calls out in outraged protest: "Do you mind?! This is a private conversation!" Even if there is nothing in the settings of this episode which would support her reading of the situation, Schegloff says that the young woman is not simply shameless. She is almost literally in two places at the same time – in the train car and on the phone. And she may think that 'being on the phone' is indeed a private place. The mobile phone can set off these kinds of intersections of worlds, the transportation of one social setting into the middle of another. (Schegloff 2002, 285–286.)

Richard Harper has argued that mobile phones are changing our co-proximate behaviours in ways that perhaps make the world a lonelier place than before. Mobile phones are changing interactions between people who are physically near one another. For instance, when people are lost they do not ask a nearby stranger to help them, instead they call their friend on the mobile. Or at the bus stop waiting for a bus they do not talk to the stranger beside them, they call a friend. Harper argues that small-scale interactions with strangers are important in sustaining society, creating social connectivity. When call volumes go up, social connectivity may go down. And this is not happy situation for society as a whole. (Harper 2001, 212.)

However, people in general feel that mobiles make the world a safer rather than lonelier place to live (Ling 2004, 35–55). Thus, it is easier and even safer to ask help from a friend using a mobile phone, than face-to-face from a nearby unknown person whose behaviour cannot be predicted. Talking on the mobile phone may, in fact, be intentionally a public performance; it constructs a public image of self-assurance or even of self-defence in anonymous crowds or in threatening emptiness (Fortunati 2005a, 156–157).

The virtual social community overlaps the community of physically present people. To contact the virtual community is a question of practicality, not necessarily a new kind of social helplessness. In some instances mobile phones can make people even bolder in face-to-face encounters with strangers. The existence of the 'always on' virtual network, which can be quickly turned to, may in some instances make people feel safer in contacts with strangers.

Basically, what we call 'society' is composed of interactions that are parts of different kinds of communities of practice, in which people take purposeful actions. If the mobile phone puts on end to some practices, it also helps to create new ones. Timo Kopomaa (2000, 111, 117) writes that the mobile phone can be seen as a kind of virtual place, where people can meet each other. The mobile phone is an excellent tool for nurturing and maintaining the social cohesion of groups. It is a popular place to spend time. He draws an analogy between the idea of mobile place and Ray Oldenburg's (1989) concept of "third place", by which Oldenburg means physical places such as coffeehouses or other meeting places. "Third places" are designed for pleasure and have a low profile. Similarly, Kopomaa argues, the mobile phone as a third place also has

---

20 This is similar to Erving Goffman's "civil inattention" (Goffman 1963), i.e. acting as if others are of no interest, for instance in an elevator we struggle to avoid eye contact.

a low threshold for making contact. People select from a range of options the person who best corresponds to their preferences, and both parties of the conversation are willing participants.

When talking on a mobile phone, a person to some extent becomes disconnected from the immanent surroundings. However, it is not only mobile phone calls which shift the attention away from public spaces: mobile handsets are also used for SMS, playing games, listening to music, navigating the Internet, and even for watching videos and television. There are and have been other means and devices than mobile phones that detach us from the immanent environment. People listening to their 'walkmans' have been familiar sights in public places for years, or people reading books and magazines. What is common to all these people – mobile phone users, music listeners, and readers – is that they are all present in their physical surroundings, but they are also somewhere else. They have 'cocooned' themselves from the outside world (Ito et al. 2008).

It is characteristic of mobile phone calls that they give people an efficient way of engaging with the 'own' social community in urban surroundings which are crowded with anonymous faces. In a way, mobile phones bring back some of the features of pre-modernity. Living in small towns and villages, people had a tight network of social connections: they knew how things were going, where others were, and so on. Nowadays, courtesy of the mobile phone, similar kinds of social intercourse take place, although these connections are no longer bound to a fixed locality (Roos 2001).

The individual landscape that opens up through music players or written texts is hidden from others, unlike the private world of mobile phone calls which intrude into the public space. As a consequence, the use of mobile phones in public places is organised by special social rules. There are some locations where the use of mobile phones is perceived to be an especial nuisance, for instance cinemas, museums, churches, lectures, etc. Mobile phones are more obtrusive in situations where their use is perceived by the third parties present to be an infraction of a mutually expected commitment. (Höflich 2005, 129.) Phone use is made available to others and encourages them to treat particular phone customs as accountable, (un)acceptable, intrusive, and so on. Identifying these matters within a specific context is dependent upon individuals' commonsense knowledge of the features of the mobile phone itself and their knowledge of the settings within which the usage takes place. (Murtagh 2001, 90.)

3.4.4. Are Hands Free or Occupied?

Mobile phone calls often involve overlapping action environments and this can cause social difficulties as was discussed above. Overlapping actions may also incur practical problems to do with handling the mobile phone device. Even though the analysis in this chapter is based on audio-recorded data in which one cannot see how the participants handle the phone, one can, however, discern the affordances of handling.

For instance, when driving a car parallel actions, such as speaking on the phone while driving, may be problematic, even dangerous. That is why many countries have introduced legis-

lation on this matter. In Finland the legislation that prohibits talking on the mobile phone without a hands free device while driving came into force at the beginning of 2003. Our data was collected in 2002 before this legislation, so one cannot assume that the conversationalists are using hands free sets, although some of them may. In any case, this information is unattainable for analysis.

Hands free devices are designed to overcome the problems that the two overlapping physical activities – e.g. driving a car and handling the phone – may cause. However, synchronising two parallel activities may be difficult even when one is not actually holding the device. Even having a conversation and doing something else at the same time may be problematic, especially if these actions are part of the same activity, as in the following extract. The complete 18-seconds call is given here.

Extract 3.24
Driving instructions 2 (P= Pekka/Receiver, T= Timo/Caller)
2002-07-06_10-26-55

```
1   P: Moro,                        P: Howdy,
2      (0.5)                           (0.5)
3   T: Oo: kumpi Tykkimäki         T: Uh: which one Tykkimäki
                                          ((name of the place))
4      vai moottoriurheilukeskus,     or motor sport center,
5   P: Siihe.                       P: There.
6      (0.6)                           (0.6)
7   T: HÄH,                         T: WHAT,
8   P: Siitä,                       P: From there,
9      (0.7)                           (0.7)
10  T: No kumpaa (.) Tykkimäki.     T: Well which one (.) Tykkimäki.
11     (0.4)                           (0.4)
12  P: Tykkimäen m' moottoriurheilu P: Tykkimäki's m' motor sport
13     keskus sinne.                   center there.
14     (0.5)                           (0.5)
15  T: Siis siin oli kaks           T: Well there were two
16     ↑Tykkimäkeen vai                ↑to Tykkimäki or
17     moottoriurheilukeskukseen.      to motor sport center.
18  P: Moottoriurheilukeskuksee.   P: To motor sport center.
19  T: No vittu just väärä.         T: Oh shit the wrong one.
20     >Okei katotaa moro<,            >Okay let's see bye<,
21  P: Moro.                        P: Bye.
```

In this call the caller, Timo, goes straight to the topic, which is understandable considering the action context: quick driving instructions are needed while at the wheel, and Pekka knows the situation. However, the rapid initiation of the topic may confuse Pekka to interpret wrongly what Timo is actually asking. In lines three and four Timo inquires: "Uh: which one Tykkimäki or motor sport center". Timo is asking for guidance when two possible roads present

themselves, but Pekka answers as if there was only one. The conversation proceeds according to the rules of talk-in-interaction, and the confusion is solved after several turns. At the same time, however, Timo is driving and makes a decision to turn. Timo must act fast, he is edgy in the situation, and he makes a wrong turning. Even if he were not holding the handset, the parallel actions (talking and driving) would seem to be problematic, even dangerous, on the road.

We do not know whether Timo had his mobile phone in his hand or not. There are, though, situations in the data where holding the phone and maintaining interaction is clearly problematic. These situations arise when one should grasp some other object or do something else with one's hands, for instance put on clothes. In Extract 3.25 the receiver, Riku, has said that he has just left his apartment and there is an echo effect as if he is on a stairway. During the call a situation occurs where he must pick up a list which contains names that are needed in the ongoing conversation. As we can see in the extract, much interactional work is required before the list can be read. The problem clearly occurs because Riku has to hold the mobile phone and the list at the same time.

Extract 3.25
Leaving (P= Pekka/Caller, R= Riku/Receiver)
2002-07-02_17-08-50

```
1  R: Öy öy öy hh .hh siis se on      R: Uh uh uh hh .hh well it is
2     hh ↑tiäk sää tunnek sä >venaa ku<   hh ↑do you know >waita moment<
3     mää sanon tästä listasta         I'll give you from this
4     jotai nimiä, .h[h joita sää voit  list some names, .h[h you may
5  P:              [Joo.            P:              [Yes.
6  R: ehkä tuntea (paremmin) ku määh.  R: perhaps know (better) than meh.
7  P: No,                           P: Huh,
8  R: .hh #O:# ootas ny vittuh.       R: .hh #Uh:# wait a moment fuckh.
9     (0.8)                            (0.8)
10 R: Vuittu,                        R: Fuck,
11    (0.7)                            (0.7)
12 R: Venaas ny,                     R: Wait now,
13    (0.4)                            (0.4)
14 R: .hh öy öö ööhh,                R: .hh uh uh uhhh,
15    (0.6)                            (0.6)
16 R: .hh tämmönen kuh,              R: .hh like this oneh,
17    (1.2)                            (1.2)
18 R: hh ööhh                       R: hh uuhh
19    (0.4)                            (0.4)
20 R: Laitinen Eero tunnekkoh.       R: Laitinen Eero do you knowh.
                                        ((name of the person))
21 P: Ei sano kyllä yhtää mitää,     P: Doesn't ring any bell,
22    (0.2)                            (0.2)
23 R: Entäs tota Nieminen Eeroh,     R: What about Nieminen Eeroh,
24 P: Ei,                           P: No,
25    (0.6)                            (0.6)
```

In the lines 3 to 4 Riku asks Pekka to "wait a moment" so that Riku can read him some names "from this list". So, Riku reserves himself a little time to pick up the list. In line seven Pekka expresses his readiness to listen to Riku by the emphasised go-ahead *no.*[21] However, this is too soon for Riku, who has not yet got the list. From line eight onwards Riku works hard to maintain the interaction while he picks up the list. Riku's turns "wait a moment" and "wait now" are accompanied by swear words and hesitations markers, asking for more time to deal with the list and, concurrently, informing Pekka that he is doing something which Pekka cannot see but which is part of the ongoing interaction. The swear words and expressions of hesitation show Riku's understanding that delaying the phone conversation is not in line with the norm. But, simultaneously, they fill the 'conversational silence' which arises from the parallel action, that is, handling the list. Complete silence would make Pekka wonder 'what's going on'. Now, when Riku's expressions bring the action forth as a problematic issue, Pekka gives him time to pick up the list and read the first name. Pekka does not come back to the interaction until after Riku's question in line twenty. Riku's expressions suggest that he probably has problems in simultaneously handling the mobile phone and the list. Also in this extract the phenomenon of breathiness (lines 14, 16, 18, 20, and 23) takes place when there are simultaneous actions attached to talking on the mobile phone.

Extract 3.26 comes from the same call as Extract 3.5 in section 3.3.1. Tiina has earlier told the caller that she is in the toilet of the train. Like Riku in the previous extract, Tiina here tries to make room for some parallel actions outside the conversation.

Extract 3.26
In the train's toilet (T= Tiina/Receiver, P= Pirjo/Caller)
2002-06-07_17-09-17

```
1  P: Nii lähdiksä sielt          P: So did'y leave from there
2     ne[ljän jälkee.                af[ter four.
3  T:   [Vähä hämminkiä odotas,    T:   [Some problems wait,
4  P: Haloo?                       P: Hallo?
5  P: Haloo haloo,                 P: Hallo hallo,
6  T: Odota vähä.                  T: Wait a moment.
7     (0.6)                          (0.6)
8  P: °Joo.°                       P: °Yes.°
9     (1.4)                          (1.4)
10 T: Joo no tää nauhot- (.)       T: Yeah well this record- (.)
11    voi että tää on raivostuttava   oh shit this is maddening
12    tää kapistus. .hh (.) juu. (.)  this device. .hh (.) yea. (.)
13    No niin [siis mitä,             Well yes [so what,
14 P:         [Nii.                 P:          [Yes.
```

21   Here the Finnish independent particle *no* works as a 'go ahead' and is translated as 'huh' (Sorjonen 2002).

Tiina says to Pirjo that she has "some problems" and asks Pirjo to wait (line 3). Pirjo may not hear what Tiina says (overlapping period of talk) or she may assume that Tiina means problems in the connection. Pirjo tries to clear up the problem by repeating "hallo" clearances. However, the problem is not in the connection as such, but in Tiina's problematic situation in the toilet. She repeats the request "wait a moment" (line 6) and reserves space for some activity outside the conversation. Later she expresses that the problem is mainly with the recording device. Being in the toilet of a train and simultaneously talking on the mobile may be difficult, especially when one has to use the recordable handset instead of one's own mobile phone.

3.5.   CONCLUSION

Nowadays the technological features of the mobile phone are integrated as practical parts of human interaction. In mobile phone conversations 'technical' and 'human' affordances are connected. In this respect it is justified to see the mobile phone as an extension of the human. We are 'Homo Mobilis', as Eija-Riitta Kasesniemi calls the continuously moving and communicating generation of teens, who "while in constant movement, are perfectly synchronised in switching direction, never losing contact with the others" (Kasesniemi 2003, 42).

As discussed earlier in Chapter 2, there are three levels of affordances which work simultaneously: technical solutions afford functional features that provide various affordances for social actions (see Figure 3.1 below). From the perspective of mobile phone calls, the central affordances for social actions are *the personal nature of the device* and *the possibility of constant*

Technical Solutions		*Functional Features*
Size	·······▶	Portability
Display	·······▶	Textual/Graphical Information
Batteries	**AFFORDS** ·······▶	Wirelessness
GSM/GPRS/UMTS Networks	·······▶	Telephony/Data Connection
Software	·······▶	Applications

·············▶ *Stands for functionality: 'mobile phone as a machine'*

— — —▶ *Stands for usability: 'mobile phone as a tool'*

Mobile Phone's Affordances for Social Actions
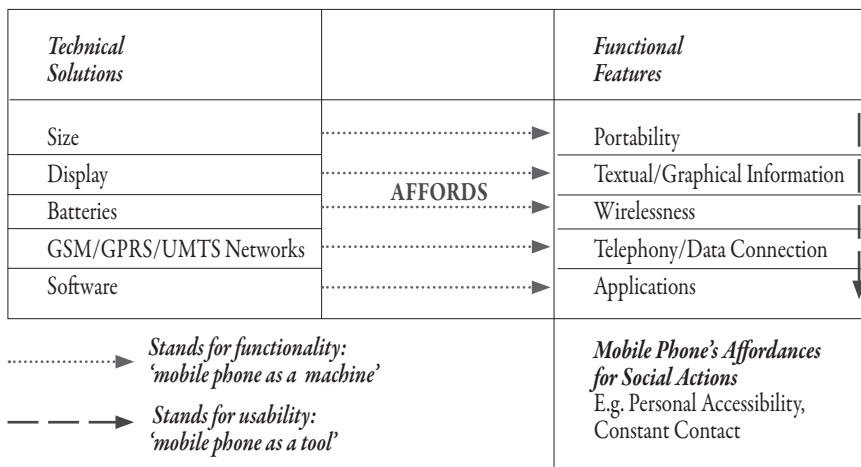E.g. Personal Accessibility, Constant Contact

Figure 3.1. The affordances of mobile phone calls.

contact. The key functional features that afford these social affordances are portability and caller ID that, for their part, are afforded through various technical solutions (e.g. small size, batteries, display, network systems, and software applications).

From the point of view of the user, functional features are those that will be recognised as practical parts of a mobile-phone-as-a-tool. Technical properties, when disconnected from the practical features of the mobile phone, represent the mobile-phone-as-a-machine part of the device, and usually receive attention only when there are some problems in the otherwise smooth managing of mobile phone calls.

In the tool-like use of handsets, the interactional affordances of mobile phones are not distinct from other communicational resources. On the contrary, various action resources join together as concurrent affordances which increase the applicability of the device. For instance, personal contact is afforded by the custom of the individual number/handset. In addition, elements like location and local weather become meaningful action possibilities when related to personal accessibility and the possibility of constant contact. Location, for example, is meaningful in two ways: 1) it either affords or restricts ongoing or near future mutual activities or 2) it restricts the action of having a phone conversation. Asking or expressing the location in mobile phone conversations typically refers to the first option: it coordinates already ongoing or near future actions. The strict geographical location is relevant in mobile phone conversations usually only when people are instructing someone on how to find a certain place (Arminen 2006). Expressions of location may also have a symbolic meaning, which is a sign of the possibility of mutual activity. For example, revealing that you are lying on the beach may work as an invitation to join you and 'have fun' (Arminen & Raudaskoski 2003).

Arrangements are often made gradually in a series of conversations. People are frequently situated in the sphere of mutual activity even when they are not in contact with each other at that present time. Changes in the circumstances are reacted to here and now and information is quickly passed on to others through mobile phones. Accordingly, the obverse of constant contact is that in order to be reachable to others, and consequently, to manage to take care of one's own tasks, a person must carry a functioning mobile phone at all times. A person without a mobile is socially accountable for his or her behaviour.

Thus, personal accessibility through the mobile phone is nowadays a self-evident issue. In fact, today the mobile phone is first and foremost a device for personal contact, and mobility is less significant. Most uses of the mobile phone are sedentary and local, and related to close personal interaction with family and friends. (Fortunati 2001.) There is no correlation between the great mobility of the users and the mobility of the phone. Researchers tracked the everyday movements of people over the course of six months in a study in which the signals from one hundred thousand mobile phones that sent or received calls and text messages were monitored. The study showed that most people are creatures of habit: they make regular trips to the same few destinations such as work and home. Most people move on average a short distance on a daily basis, whereas only a few persons move long distances in a short period of time. (Gonzáles et al. 2008.)

Nevertheless, although mobile phones are mostly used in domestic and small-scale surroundings, studies also show that people see the mobile phone as an instrument of global communication. This trend seems to be linked to the advent of GSM (which enables roaming between different networks) and a growing connection to the Internet, and to the fact that the idea of mobile connectivity in itself contains the germ of a continuous widening out towards the global dimension. (Fortunati 2005b, 66–69.) If the two sides of the mobile phone – the nearness of use and the perception of global reach – are brought together, it can be argued that the diffusion of mobile communication creates a new space that is local and global at the same time (Castells et al. 2007, 174).

It is a global trend that mobile phones afford constant contact. But locally, there are sometimes difficulties in managing that contact in practice. Calls can be hampered by multiple-placed technological complications, and overlapping and not always predictable activity environments (i.e. the call itself and the action surroundings the participants are physically in) sometimes introduce instability into the interaction. It is characteristic to activities that include mobile phone use that actions organising the activity are not only chronologically connected, but several actions aimed at the purpose of the activity may occur simultaneously. People take part in 'the jazz of going mobile', which means improvising between telephonic activity and other immanent action surroundings.

Hands free sets offer one solution to problems associated with parallel actions. In some predictions the mobile telephone is seen as a small earpiece with the actual 'device' hidden on our clothes. At first, owing to increasingly sophisticated technology, the size of mobile phones shrank year by year. However, nowadays the mobile phone has many more functions that it did. SMS has been popular from the beginning, and there are a small but growing number of WAP users as well. New applications like games, camera and other multimedia (music, videos), the Internet, and even television, need a larger display and that has further enlarged the size of handsets. This chapter has also shown that the role of information received on the screen (like caller ID) is significant in the organisation of mobile phone calls. Calls are also interconnected to SMS messages (the topic of the next chapter) in everyday practices. Thus a display is needed in mobile phones even if only calls are made or SMSs are sent but no use is made of the new media applications. Moreover, the device itself is a tool for self-expression: eye-catching covers, jewellery decorations, and personal ring tones are all part of the enchantment for some users. Thus, in view of all this, it is highly unlikely that we shall see the disappearance of mobile phone handsets in the near future.

Functional features of mobile phones become affordances in relation to the actions people want to conduct. Thus, the same features can be affordances for various actions. For example, the caller ID may work as an affordance for a 'glance then ignore' procedure (Brown 2001, 6–7), affording the tailoring of the answer to the point where the ringing phone is not answered. Hence, on some occasions, caller ID helps to organise the calls into those that must be answered and those that can be avoided. In some cases, not answering the ringing phone may be part of the 'beeping' practice (*pilari* in Kasesniemi 2003, 147–157). It occurs when some-

one makes a call but hangs up before the call is answered. As long as the caller ID identifies the incoming number, the call becomes significant for the receiver. If the caller and the called have arranged the beep in advance, it can mean things like 'pick me up now' or a number of other things. Jonathan Donner (2005, 42–43) writes that in Rwanda those few youths with mobiles have taken to beeping each other as a cost-free way of saying 'I'm thinking of you'. This is a form of phatic communication: the message has no instrumental content but is used to signal the existence of the relationship and the communication channel (Jakobsen 1960). We mobile humans are like animals in a grazing herd, constantly uttering sounds to each other so that our herd remains integral and knows where it is going to (Karvonen 2002). More than just a means to receive 'information flow' mobile contact ensures that we 'stay in touch'; we know that our own community is only a mobile phone call away.

From the beginning, users have adopted functional features of mobile phones for other actions than those for which they were originally designed. The most cited design variant is the use of text messages. Designed for technicians to send each other messages during work, text messages were quickly discovered – without any advertising – and activated on a large scale, at first by young people and later by all age groups. (Fortunati 2005a, 154–156.) In the beginning the cheap cost of text messages stimulated their use. However, nowadays SMS has become a significant form both of everyday coordination and expressive communicating, despite its cost. In the following chapter we will consider the use of SMS more closely.

4. SMS: Factual Messaging and Mental Wellbeing

4.1. INTRODUCTION

Even though the history of SMS (Short Message Service) is brief – texting in its present form was possible after the mid-1990s – it quickly became an everyday routine worldwide. In Finland people sent 3.2 billion text messages in 2007, which means that from every terminal about 524 text messages were sent in a year. The number of outgoing text messages grew by 3.1 per cent from 2006, a trend that has continued year by year. (Statistics Finland 2008.)

During the past few years operators have marketed new subscriptions that enable cheap texting. In some fixed priced mobile phone subscriptions a customer can send even thousands of messages a month. Whereas SMS nowadays constitutes a remarkable amount of the income of operators, MMS (Multimedia Message Service) messages, for instance, still do not play any significant role in their turnover. SMS messages and mobile phone calls are the most frequently and regularly used services, and other services are only gradually tried out. However, the number of MMS messages is increasing; the number of outgoing MMS messages increased 33 per cent between 2006 and 2007 in Finland, totalling around 28.7 million messages. (Statistics Finland 2008.)

SMS was built into the GSM standard as a minor, additional capability. The phone companies' vision for SMS was initially limited to sending mobile terminated messages to customers, such as voice mail notifications. For business customers, SMS was at the beginning marketed as an advanced paging system. Even though some phones already had the keypad system for originating text messages, it was expected that customers would prefer to call to the operator, who would then type in the message at a service centre. As SMS was thought unlikely to gain mass appeal its use was initially not charged in some operator's pre-paid subscriptions. However, the largest consumer group of pre-paid packages, 'young non-professionals', quickly exploited this opportunity for free text messages. (Taylor & Vincent 2005.)

Thus, at first the cheap cost of text messages stimulated their use. The low cost promoted its generalised adoption, but SMS did not take off only because it was a cheap alternative to phone calls. During the larger adoption of SMS, people found that they could communicate simply, less intensely, and in a different time frame than before (Jenson 2005, 315). After the first wave of free messages, phone companies soon installed a billing system for all customers (Taylor & Vincent 2005, 81). Thus, despite its great success, the price of SMS has not been reduced (at the European level) as has happened with other telecommunication services; in

some cases the price of SMS has even become more expensive. (Goggin 2004; Castells et al. 2007, 133; Lacohée et al. 2003, 206.) SMS has become a significant form of interpersonal communication, regardless of the cost.

Even though text messages are applied for many kinds of social actions, like taking part or voting in live TV shows, or getting reminders from the dentist etc., the most popular utilisation of SMS is person-to-person communication. Thus, this is very different from phone companies' first visions of a paging system mediated by operators. In comparison to email, another digital text medium, there appears to be a unique differentiation in the uses of communication technologies. For instance, among adolescents SMS is mainly used for communication with family and friends, (along with phone conversations and instant messaging). Email for young people, on the other hand, is mainly for making contact with non-family adults, such as coaches, teachers, and employers (Schiano et al. 2002), or email is not used at all (Kopomaa 2005, 155). When used, email is preferred for long texts and for longer duration asynchronous messaging (Schiano et al. 2002). Instant Messaging (IM) is an application that can be considered somewhere between SMS and email; it is much used by teenagers and it affords almost real-time private or group interaction through personal computers. Until now it has been a medium for sedentary use, whereas SMS has been the mobile messaging application, but nowadays IM protocol is to some extent also used through mobile computing devices.

4.1.1. SMS-in-Interaction

In this chapter the use of SMS is considered especially as SMS-in-interaction, as mutual communication of intertexters. The data consist of 206 text messages. 168 of them are part of some pair or chain of messages. The rest of the messages, 38 items, are single messages. However, it turned out in the interviews that some of the messages that were given as single messages were actually replied by SMS, but the participants had not saved those reply messages. The data were collected in spring and autumn 2005. There were seven participants, aged 16 to 32. Five of them were women, and two were men. Only those messages that the participants themselves allowed were used in the study. After providing messages, participants were interviewed and these specific messages supplied the material of the interview. All identity information in the messages has been changed.

SMS communication here does not refer to some kind of channel that mediates ideas from one head to another, but is a mode of co-operation, the organisation of which has been built up by the means and aims of this co-operation. Just as conversation analysts talk about talk-in-interaction instead of conversation in order to pinpoint the co-operational action that is accomplished through talk, so text messages can be considered as part of SMS-in-interaction, an interactional system which realises social actions by means of SMS. Because of its interactional and discursive nature, the organisation of SMS communication has similar features to talk-in-interaction. However, since the mode changes from *talk* to *texting*, the different affordances of the medium also cause changes in the organisation of actions.

Figure 4.1 below shows the basic dynamics of affordances in SMS. The analysis in this chapter focuses on the organisation of SMS interaction and the social actions these interactions afford. Thus, the investigation reaches the affordances at the level of social applicability (see Chapter 2). The dynamics of the affordances are twofold: first, the technological features of the mobile handset and the SMS application serve as affordances in the organisation of SMS interaction, and second, various social actions take place through this SMS interaction.
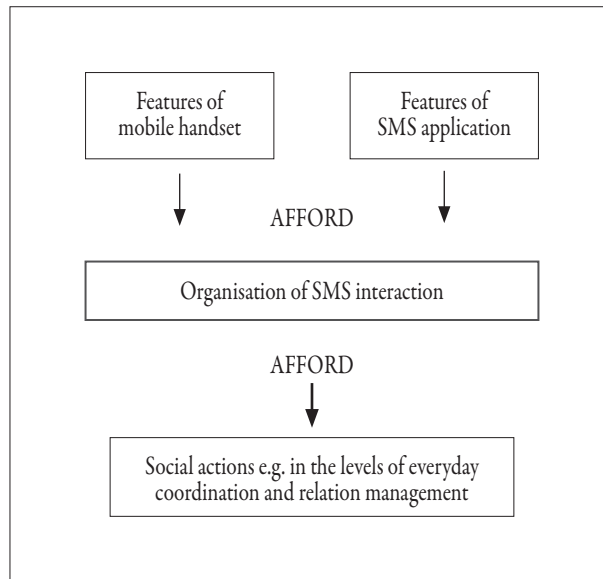
Figure 4.1. The basic dynamics of affordances in SMS interaction.

The technical solutions and functional features of mobile handsets that afford SMS actions are basically the same as with mobile phone calls and they were presented in the previous chapter in Figure 3.1. Because of the nature of the SMS data collected for this study, the actual writing process and thus the handling of the handset and interpretability of the system cannot be directly evaluated here. However, in view of the mass popularity of SMS the possible inconveniences of text entry are probably reduced by the shortness of the messages. The logical structure of an SMS application is also simple to understand: it is merely a matter of writing a message and sending it.

The analysis in this chapter is constructed on two levels:

1) *The organisation of single message/SMS interaction*: the 'sequence organisation' of actions through the analysis of real messages.

2) *The meaning of single message/SMS interaction*: the 'sequential organisation' of activity; the relations of actions to the larger context of activity.

From the analytical point of view, conducting SMS interaction is considered to be shaped by different action types that refer to the Leont'ev's activity hierarchy presented in the previous chapters. Here 'action' refers to the conduct that takes place only via text messages. 'Activity', on the other hand, includes several actions, that in addition to SMS, can also be conducted by other means and contexts. 'Operations' are parts of actions, that is, they consist of elements of a single message or a message pair.

In the analysis, first, the focus is on the organisation of text messages and especially of pairs and chains of text messages. In addition, these same messages are also examined through interviews. The participants described the circumstances of sending/receiving the messages. There are some single messages in the data that would not have been understandable without the knowledge of the context. Also the chains of text messages are made possible only inside the activity context that the texters mutually share. Thus, specific SMS actions are understood as part of a larger activity context.

4.2.   ADJACENCY PAIRS AS A STARTING POINT

I shall analyse the organisation of messages and the chain of messages through the methods of conversation analysis (CA). The main structure in talk-in-interaction is the organisation of adjacency pairs. The idea of adjacency pairs was already briefly introduced in Chapter 2. An adjacency pair is produced by two different parties; it comprises a sequence which contains two parts which are adjacently positioned. An adjacency pair contains a first part of the pair, i.e. the 'first pair part' and a 'second pair part', and these form 'pair types', for example in conversations there are pairs like 'question-answer', 'greeting-greeting', 'offer-acceptance/refusal', 'summon-answer' etc. (cf. Schegloff & Sacks, 1973, 295–297.)

John Heritage (1984) emphasise the double meaning of the organisation of adjacency pairs. On the one hand, it is a structure that directs the actions participants take: a first pair part anticipates a certain type of second pair part, for instance a question expects an answer. On the other hand, it is a model for interpretation: however the recipient understands the first action, his or her response displays some analysis, understanding or appreciation of the prior turn. The turn-by-turn character of interaction is a structure that affords continuous interpretation work and maintains intersubjective understanding. Publicly displayed second action makes it easy for the previous party to check how his or her action is understood. (Heritage 1984, 254–260.)

Certain first pair parts make alternative operations relevant in second position, for instance, invitations can be accepted or refused; assessments can be agreed with or disagreed; and requests can be accepted or declined. Thus, what relates first and second pair parts can be termed a relationship of 'conditional relevance'. It is the occurrence of the first pair part

that makes some types of the second pair part consequently relevant. (Schegloff 2007, 19–20.) These alternatives are non-equivalent: one type of second pair part is preferred and another is dispreferred. Preferred responses are those that are anticipated. However, 'preference organisation' does not refer to the psychological motives of interlocutors, but rather to the structural design of action. Forms of agreement are preferred, disagreement dispreferred. For instance, accepting an invitation is preferred, refusing it is dispreferred. In spoken conversation, the characteristic of the preferred answer is that it is usually produced without delay and is short. The dispreferred answer, by contrast, is usually delayed, and contains pause fillers (like 'well', 'umm' or 'oh') and explanations. (Pomerantz 1984, Turnbull 2003, 155–156.)

The rules of the organisation of adjacency pairs mostly hold true also in SMS interaction. The structures of sequences that are familiar in oral communication can also be found in written interaction. A question, a request or an invitation usually receives an answer (there are some exceptions which will be discussed later). The basis of the analysis of SMS interaction is that a single text message, message pair or chain of messages always carry out some action, which is made up of at least the first pair part (e.g. a question) and usually also of a second pair part (e.g. an answer). In text message pairs and chains subsequent messages always give an interpretation of the previous message. Also inside one message, subsequent statements ('operations') help to interpret the previous ones, for instance, as a 'pre-invitation' (e.g. "Will u be at university today? If yes, will u have lunch w me some time? ")or as an 'explanation' (e.g. "My cousin and his wife were visiting us. Once again I did not hear the mobile ring…").

To begin with, I have approached the text messages according to what action a single message, a message pair, or a chain of messages seem to realise. When there are several messages in an action, I have classified it according to adjacency pairs. If in a first message someone asks something and in the next message another answers the question, I have categorised the action as an inquiry. Thus, the type of action is determined by the first pair part (the first text message) and the second pair part (the second text message) that responds to it. In some actions, like in announcements, there is not always a return message, and the categorisation only concerns the first pair part.

A first text message that initiates SMS interaction can in itself be a second pair part of another action, started in another medium. For instance, thanks for a birthday card can be given via SMS. Even when the action sequence has been initiated in another medium, I have categorised messages according to the first message given in SMS interaction. Thus, a single message that gives thanks for a congratulation has been categorised as 'thanking'. When in SMS interaction there is both a congratulation message and a thank-you message, the action is categorised as 'congratulations'.

Text messages have a multi-unit character; one text message can, for instance, equally congratulate, propose or announce something. Similarly, when replying to a message, first one can respond to the first pair part of the previous message (e.g. answering a question) and then start some new action, which will then be responded to in subsequent messages, and so on. Thus, actions are categorised through the adjacency pairs inside the text messages, but the same messages can include elements of several discrete actions. In Table 4.1 below, categories and their

incidences in the data have been listed. The aim of the categorisation is to direct the analysis, not to provide binding definitions. It is not important to find out an action category for every message or message pair, or to discover only a single action category for a message. Many messages are concurrently parts of several actions.

Text messages in the data can be roughly divided into two different action modes: they either coordinate some ongoing or future actions, or they themselves provide an action which aims – broadly speaking – to maintain human relationships. Coordination messages are, for instance, announcements, requests or inquiries. These coordinative actions are often part of the activity of making arrangements (like arranging engagements) – an issue that also came up when we considered mobile phone calls. 'Relation management' is done through congratulations and greetings, but also through such SMS-specific actions in which some things are shared because they amuse or create an intimate or unique atmosphere between the texters.

ANNOUNCEMENT	42	Coordination
PROPOSAL, OFFER, INVITATION OR REQUEST	34	Coordination
INQUIRY	21	Coordination
MAKING FUN	14	Relation management
GREETING	11	Relation management
CONGRATULATION	10	Relation management
EXPLANATION	3	Relation management
THANKING	4	Relation management
ATMOSPHERING	3	Relation management
CONDOLENCE	1	Relation management
TOTAL	143	Coord. = 97 (68 %) Relat. = 46 (32 %)

Table 4.1. Action types in SMS interaction.

In the following, we shall at first consider more closely coordinative text messages, and after that we shall look at relation management messages. At the end of the chapter we shall study the relevance of emoticons in SMS interaction.

4.3. SMS MESSAGES COORDINATE EVERYDAY ACTIVITIES

Often text messages are part of an activity which has begun at some time earlier and will end at some time later, and this activity consists of interactions of many sorts. SMS may be only one encounter in a series of encounters which aims at the mutual end of some activity. Usually text messages somehow coordinate this activity; people inform each other or make some sort of arrangement.

Most of the text messages in the data are sent without a greeting of a recipient or without a signature of a sender. This is true especially in coordination messages. Based on adjacency pairs, they are written to start directly, for instance as a question, and they end without greetings. Identifying the sender or the receiver can be found in only a fraction of the messages. The opportunity to write in such an economical way – without any identification – is possible, of course, because of the identification data the mobile phone displays. We have already discussed a similar kind of phenomenon in Chapter 3 when discussing the answering of mobile phone calls. Because of the personal nature of the handset (or more specifically, the SIM [Subscriber Identity Module] card), a sender knows the recipient of a text message. A sender can trust that when sending a message to an acquaintance, the screen of this person's mobile phone will tell him or her who sent the message.

In coordinative texting, all superfluous information is discarded. In addition to the absence of formal beginnings and endings, text messages are also organised in a way that they function efficiently reducing exchange of further messages.

4.3.1. The Organisation of Coordination Messages

In SMS texting actions tend to be interlinked. For example, an inquiry is often followed by an offer or a request, and its acceptance may lead to the proposal of a meeting place and/or time (i.e. making arrangements, which was also discussed in relation to mobile phone calls). Let us consider a couple of examples.

Pre-Actions in SMS
In a spoken communication so-called pre-sequences can be found – like pre-offers, pre-invitations and pre-requests, etc. – and these pre-actions make room for an actual action. For example, a question like "What are you doing this evening?" can function as a preliminary inquiry which may lead to an actual invitation. Thus, it is a 'pre-invitation'. If another interlocutor says that he or she has some plans for the evening, the first speaker can drop the invitation and thus avoid the dispreferred answer. If the other person says something like "I have no plans, why?" a space is provided for an actual question like "I just wondered if you would like to go to the cinema with me."

As already mentioned, these kinds of pre-sequences that precede invitations and requests can also be found in text messages. However, what is peculiar to them is that these pre-questions as well as the actual questions are contained in the same message. As a consequence, the function which pre-sequences seem to have in spoken interaction disappears. A texter cannot know the response to the pre-question before he or she makes the actual invitation (or request, proposal, etc.), see Extract 4.1.

Extract 4.1. (P1/23,24,25)[1]

1. P1:	Ooks tänää yliopistolla? Jos, nii läheks mun kaa syömää johonki aikaa?	Will y be at university today? If yes, will u have lunch w me some time?
2. Salonen Emilia:	Jeps voin lähtä. Mää joskus puolen päivän aikaan tuun sinne. Oisko yheltä tai puoli kahdelta soppeli?	Yep why not. Ill be there some time around noon. Would 1 or 1.30 be ok?
3. P1:	Nähdään sitten klo 13 Julinian edessä!	C u then at 1 in front of Julinia!

In Extract 4.1 the statement in the first text message "Will u be at university today?" works as a pre-invitation to an actual invitation that follows immediately: "If yes, will u have lunch w me some time?" The use of "if" at the beginning of the second question indicates the conditional mode of the action, which is already referred to in the pre-question. The pre-question allows the writer to foreground those conditions within which the receiver can realise the invitation. At the same time it allows the responder to turn down the invitation simply by giving a brief explanation like 'I'm staying home today'.

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1 P1 refers to the participant of the study and the numbers (23, 24, and 25) refer to the number of messages that the participant supplied for to the study. "Salonen Emilia" is the name (all names are fictitious) of a person that the P1's mobile phone displays to be the sender of the message.

The structure of the message which begins with a pre-invitation follows the structure of spoken conversation. Interestingly, the message is not shaped following the norms of written language, for example "If you are going to be at the university today, will you have a lunch with me?". Elements of everyday speech seem to be a distinctive feature of SMS interaction, particularly in cooperative messages. It is not the words or the formulation of language as such that are similar to spoken interaction, rather it is a matter of the organisation of intersubjective actions: there are certain tacit means already familiar from face-to-face interaction that are applied in SMS actions. Structural elements recalling everyday oral communication recur in many other text messages in the data, for example: "So do u have anythin peculiar today? just thought we coud[2] go to the stable??" (*No onx siul tänään mitn kummallista? ku aattelin et mitn ois mendäiskö tallille??*) (P4/17). Attaching pre-inquiries to the main actions seems to be an established way of making proposals and requests both in oral communication and in SMS interaction.

Let us now go back to Extract 4.1. In her reply Emilia Salonen produces a response, a second pair part for P1's suggestion: "Yep why not". In what follows, she writes "Ill be there some time around noon". This information works as a pre-sequence for the primary first pair part of the message, that is the suggestion of a time: "Would 1 or 1.30 be ok?". In her next message P1 produces a second pair part concerning the inquiry about the time: "C u then at 1 in front of Julinia!". The action sequence is ended, even though P1's last message leaves room for a new message that would confirm or reject the suggested meeting place (in front of Julinia). However, the proposal for the meeting place that P1 produces is not in a form of a question, instead it is a message phrased in the imperative mood. "See you" (CU) is a form of 'polite command' that does not require an answer as straightforwardly as a question does. Thus, the imperative mode decreases the *conditional relevance* of a turn: in contrast to a question an imperative first pair part does not require a response.

In spoken conversation 'see you' types of statements usually work as pre-endings, as turns that precede goodbyes (A: See you/ B: Yeah, see you/ A: Bye bye/ B: Bye). In coordination messages goodbyes are, however, cut out and 'see you' type statements themselves imply the end of the action sequence – unless the other participant wants to say something in particular.

The structure of Extract 4.1 (FPP=First Pair Part, SPP=Second Pair Part)
A: Pre-inquiry + FPP
B: SPP + pre-proposal + FPP
A: SPP + *FPP*
(B: no message=accepting the proposed meeting place)

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2   The English translations try to follow the Finnish originals scrupulously. That is why also 'misspellings' are made visible, as "anythin" or "coud" in this message.

Most of the requests or proposals including pre-inquiry are structured in a similar way to Extract 4.1. There is, however, an exception which is present in Extract 4.2. This message chain starts with a message where there is only an inquiry and nothing else.

Extract 4.2. (P3/3,4,5)

1. Arja:

> Ni monelta haet pojat hoidosta?

> So what time will u fetch the boys from daycare?

2. P3:

> Puoli neljän maissa ku tulen töistä. Haenko sut samalla jostain? Käyn kaupassaki jossain välissä

> Around half past three after work. Shall I pick u up somewhere? Ill also do the shoppin some time

3. Arja:

> No mä käyn trendys kattoon paitaa. Ni eise ole paha kävellä, ku ei taida joutua viel siihen

> Well Ill go to trendy to look for a shirt. I dont mind walking coz it might be 2 late 4 u

Arja sends a text message to the participant of the study, P3, asking "So what time will u fetch the boys from daycare?". In her own message, P3 first answers the question ("around half past three after work") and offers Arja a lift. Whereas in the earlier example (Extract 4.1) the person who made the offer combined the pre-question and the primary question – and saved taking a turn, i.e. a text message – in this example the receiver of the inquiry (P3) minimises message making by interpreting Arja's initial turn as a pre-request, and makes in her reply an offer she thinks Arja is after. In addition, immediately after formulating the possible offer (Shall I pick u up somewhere?) P3 adds some new conditions to that activity ("Ill also do the shoppin some time"). At the end Arja refuses the offer of a lift, because she thinks she might not be in time. Even though Arja does not say it directly, this last message as a whole works as a refusal of the offer that P3 makes. This message fulfils all the features of the dispreferred second pair part: it refuses the offer, it is multifaceted, and provides explanations.

The structure of Extract 4.2
A: FPP
B: SPP + FPP + information
A: The whole message is a dispreferred SPP (structured by pre-answer + stating an alternative action + displaying a reason)

Even when the first message in Extract 4.2 is a form of a first pair part and starts the SMS communication, the particle *Ni* (in Finnish, translated "So") at the beginning of the message makes it a continuation of some other interaction, it 'sums up' the contents of the earlier encounters. *Ni* relates the question and the activity it displays (fetching the boys from the daycare) to some jointly shared knowledge that does not need expressing here (cf. Button 1991: conversation-in-a-series). At the same time it links the question to the follow-up offer which is then made by P3. It is noteworthy that the reference both to outside and to inside the immanent context happens simultaneously and is part of the same activity. The mutual activity context helps the texters interpret the messages, in this case the character of the first pair part question "So what time will u fetch the boys from daycare?" as a pre-request, allowing the recipient to respond with an offer. In the follow-up interview P3 explained these messages: *"That girl was coming to our place, so I suppose she was asking about the time when I would be driving there so that I could pick her up... **Interviewer:** And it seems that you guessed what she meant as you ask 'shall I pick u up too somewhere'. **P3:** Yes, that's right."* (P3)

These first two extracts represent coordinative text messages, which are the most frequent messages in the data. SMS actions are taken via adjacency pairs. SMS interaction is formed so that the first pair part of a first texter is usually responded to by the second pair of another texter. However, the 'positive', preferred, second pair part can also be left out. In coordination messages it seems to be a rule that if at the end of the message chain texters arrange something – like a time or place for a meeting – then the confirmation message is not necessarily needed, unless the proposed time or place would cause difficulties. This is contrary to spoken encounters, where the absence of the second pair part is usually interpreted as a dispreferred answer (Tainio 1997, 94).[3] Thus, SMS interaction often has a practical ending: positive answers and goodbyes can be omitted. The preferred avoidance of extra texting makes confirmation unnecessary: "lets go there at six?! lemme know if its not ok:)??" (*mennään vaik kuudelta?! ilmota, jos ei sovi:)??*) (P4/18)

Coordination text messages are not 'written spoken conversation', even though similar features can be found in both SMS and spoken communication. Instead, SMS is a particular kind of communication whose organisation has been influenced by everyday conversation. Text

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3   Yet, Mirjami Kukko (2002, 40) speaks about 'rejection by silence' in SMS. However, she is referring to situations where the initial message is a form of a question and the message has been sent to several receivers at the same time. She gives an example: "Could you cover for me in volleyball at Malmi at 9 pm?" (*Pääsisitkö sijaiseksi lentopalloon Malmille klo 21.00?*). Kukko says that these kinds of messages sent to a group of half-acquainted do not always receive a reply, and that a lack of a reply means a dispreferred, negative answer.

messages are based on written text and symbols, and technology shapes the turn-taking mechanism in many ways. First, the practical length of a message is not unlimited. It was originally limited to 160 characters; later mobile phones allowed several messages to be interlinked (two or more depending on the model of the handset). Despite the possibility to interlink messages, the keypad input system and the small size of the screen restrict the writing of long messages. Second, one message means one turn in SMS interaction, no matter what its content, and this influences the organisation of the interaction.[4] Third, the formulation of messages is influenced by the identification information that the device displays, and this reduces the amount of texting needed. As with mobile phone calls, together with the possibility of personal and constant contact the technological features of the handset make rapid coordination of everyday activities possible also through textual interaction. However, rapid coordination is not the only feature of SMS, and even if SMS is used for coordination, it is not merely due to the technological features (of handsets or of networks, etc.), but also because of the conventional social practices of SMS. Let us now move on to consider replying to messages.

4.3.2. When and How to Reply: Time and Other Media Related to SMS Interaction

The recipient has access to a message once it is fully composed, sent, and received. In that sense text message exchange is similar to other forms of written communication (Hutchby & Tanna 2008, 154). For practical reasons, text messages have a number of functions, they are multi-unit: one message can contain several turn-constructional units so that unnecessary messages are avoided. As we have seen, pre-actions and primary actions can be linked in the same message. These multi-actional messages show the asynchronic nature of SMS interaction. Even though the organisation of messages has similar features to the organisation of spoken communication, SMS actions are structured in a way that asynchrony is anticipated and some delay in replying is allowed.

Ditte Laursen has studied SMS messaging and mobile phone calls in Denmark. She found a strict norm that text messages must always be answered: "the initiating message must receive a responding message" (Laursen 2005, 54). Laursen's data constituted 511 text messages from three 14-year-old girls and three 14-year-old boys. She discovered that throughout the data, text messages received replies even though a reply was not called for. She explained this need to reply from the point of view of the organisation of intersubjective understanding: a reply confirms, not only that the message has been received, but has also been understood. Moreover, the sender can ascertain whether the receiver has understood his or her message correctly.

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4 For example, young people send empty messages (i.e. they do not include any characters). The meaning of an empty message is interpreted in relation to an earlier message or other previous mutual intercourse. It may mean that 'I'm speechless' or 'I don't want to talk to you' or it can be interpreted as teasing. (Kasesniemi 2003, 162.)

Laursen considers that replying is in many cases a purely social act: it strengthens and develops the relationship between parties. (Laursen 2005, 54–55.) In Laursen's data, if the reply was not produced as the norm prescribed, the sender often sent a reminder and/or the recipient supplied an excuse for not replying in time. For Laursen, it was the 'noticeable absence' (Sacks 1992) of replies that made the reply rule obvious (Laursen 2005, 57).

The second norm seems to be that usually a text message is immediately answered once it is received. Laursen said that the tolerance of reply time depended on the relationship between the parties: best friends and couples were expected to answer within a few minutes; more distant relationships can have an extended delay of some hours. The first reminder might be sent after only seven minutes, the assumption usually being that there is some kind of transmission problem. (Laursen 2005, 71–72; cf. Kasesniemi & Rautiainen 2002, 186.)

However, it would seem from my data, that the expectations of response and the speed of reply depend on the activity context as a whole. P3 puts into words what many other interviewees said, and what can also be seen when actual messages are analysed, namely: *"If you get a message where the sender is expecting a reply quicker than usual, then you may respond or you usually respond right after reading it, but if the matter is something you need to discuss with your husband, etc, then you send the reply when the situation has been discussed, when the matter has been discussed, and the circumstances are suitable, then you can send it a bit later too"* (P3).

Usually intertexters have a shared understanding of the circumstances in which the SMS action is realised and the reply time reflects that understanding. Thus, the tolerated reply time does not first and foremost depend on the quality of the relationship between parties as such, as Laursen (2005, 71–72) seems to suggest, but rather on the mutual goal of the SMS interaction. This is not to say that the reply time would be insignificant. In my own data in those coordination messages where sending times are known, the reply usually comes in under seven minutes. This notion concurs with Laursen's findings that first reminders were generally sent after about seven minutes.

In fact, in my data there were no reminders. Instead there were annotated messages, for instance: **B**: Good morning! Problems with the phone so could not answer before_[5] (*Huomenta! Puhelin temppuilee että nyt vasta vastaan_*) (P3/9). This explanation is not only given because there is a long delay in replying (the reply comes the following morning whereas the initial message was sent the previous evening), but also because the initial message contains a request for a lift to "mothers' camp" on the following day: **A**: Good evening! Are you going to mothers' camp tomorrow? just thought to beg for a ride, if you are going by car? ü (*Iltaa! Oletko menossa huomenna äitileirille? ajattelin kerjätä kyytiä, jos menet omalla autolla? ü*)(P3/8). Thus, the response was not only delayed but late.

This example reveals a common feature of explanation for delays: because text messages coordinate everyday activities, delays in replying complicate the coordination. But it is not chronological time as such that matters, but the specific time of the mutual activity. A text mes-

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5   The dash line means that the messages has been cut, the original message contains more text. The dash line is used as distinct from the three dots (an ellipsis) that are commonly used in the formulation of the original text messages.

sage like, **A:** Are you OK/at home? We're driving from Jyväskylä so we could pop in... cannot wait until the following morning for a reply, and the response comes immediately **B:** We are at home! Just with flu! (**A:** *Ollaanko siellä terveinä/kotona? Ollaan Jyväskylästä tulossa niin voitas pistäytyä...* **B:** *Ollaan kotona! Ei flunssaa kummempaa!*) (P3/19, 20)

Marianne Toriseva has analysed the kind of expressions of time and place that can be found in SMS messages. Places are everyday ones and familiar to the texters, like home, workplace, hobby place, or a meeting place. Times relate to the near future: time is either here and now, today or tomorrow. (Toriseva 2005, 60.) In coordination messages, time is often integrated with place. People refer to activities in the near future, for instance when arranging engagements. Sometimes also an ongoing activity, i.e. elapsed time is referred, like "Coming approx. five minutes late". (Ling 2004, 78–80.) Generally, when people are involved in some ongoing activity, for instance, when one party is late for an agreed meeting, then there is an expectation that participants will be alert to incoming messages.

Usually, issues (arrangements etc.) in the messages are not placed in time here and now, but rather in the near future, and texters pay attention to the possibility that the receiver may not immediately notice the incoming message, or the receiver may not be able to reply to the message right away. In the interviews participants mentioned that in some cases when sending a text message they already knew that the receiver might only react to the message later, as P6 described about a particular message: "*This is the kind of message which I send as soon as I remember to do it* [at 1.08 pm] *but I knew that Kati would be at work until four at least, maybe five, and in any case she would not reply to me before that.*" (P6)

The participants in Laursen's study were all teenagers and it is perhaps the intensity of the interaction – "hypercoordination" (Ling & Yttri 2002) – that requires them to notice and immediately reply to SMS messages. In affording constant contact between people closest to each other, mobile phones have also become representatives of the 'quality of a relationship'; if calls or messages are not received frequently from a person, the fear of losing his or her interest is justified (cf. Lasen 2005, 55). That is why lack of a response to an SMS message can be interpreted as a very significant act in some action contexts. Teens assume that everyone has their mobile with them at all times (Kasesniemi & Rautiainen 2002, 186). When they are unable to reply to a message straight away, young people feel that they have violated a social expectation (Ito & Okabe 2005a, 139).

Overall, SMS interaction is a compact way of communication. Phone calls were seen to be a better way of coordinating actions in a hurry, or when the issue is so complicated "*that we would need to exchange a dozen more messages about it, then I reply by calling by myself, you know*" (P1). On the other hand, participants emphasised that when matters are not so pressing or complicated, SMS is quicker and more efficient than phone calls, because calling usually takes more time than a rapid exchange of messages. When calling, one cannot go as straightforwardly to the point as when texting. An SMS contact is preferred when one *"doesn't feel like chattering"* (P2). According to Ylva Hård af Segerstad, this is one reason why teenagers favour SMS. She argues that young people like the way that the brevity of SMS almost impels one to break the conventional rules of language – to use abbreviations and emoticons – and also the

way in which it makes the communication quick and easy. One can sidestep the conventions of phone conversations, such as openings. Brevity in this context is not seen as rudeness. (Hård af Segerstad 2002, 196; see also Kopomaa 2000, 57.)

Email affords many of the same functions as SMS; one can write a message at any time and the receiver can then react to it when he or she wishes. However, texters consider that SMS reaches the receiver more efficiently than email. SMS is often used to coordinate immediate issues, whereas email is used to deal with issues that are less time sensitive (Ling et al. 2005, 89). One example in the data was a message that urged: "READ YOUR EMAIL" (*LUE SÄHKÄRIPOSTIS*) (P2/8). P2 has sent an email to his sister and because his sister *"is such a peasant that she never realises she should read them (the email messages)"* P2 has backed up the connection with a text message.[6] The reliability of SMS in relation to email comes up also in the next data example in which a Japanese colleague has first tried to contact P5 by email but because he has not received a reply (P5 has been at lunch), he has then sent a text message directly to P5's mobile phone.

Extract 4.3. (P5/12)

+818012345678

> Hi, Could you please tell me your preference whether you'd like to attend our team building or not ASAP? The reservation deadline is today. Could you check with Tarja-san's as well, please? BR, Izumi Sato

This message differs from most coordination text messages in its style: it is conventional, with greetings at the beginning as well as at the end. The shape of the message reveals both its institutional as well as its cultural context.

SMS is also used when a phone call is not possible on account of technical problems: "My charge is running low. Can you text?" (*Mulla loppuu akku. Voitko kirjoittaa?*) (P1/1). On the other hand, there was also a message in the data that said "CALL ME" (*SOITA MULLE*) (P2/1). The message had been written in a situation where *"a bloke"* had not answered the phone and P2 thought that

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6   In Section 4.5.2 in Extract 4.11 at the end of the message a 16-year-old girl asks her friend "Hav u done that msgR?", referring to Instant Messaging (IM). There the SMS message has been used to ensure the IM connection and, thus, is used similarly to SMS messages ensuring email contacts. However, among teenagers, IM is usually used alike SMS, as an almost synchronic and immediate communication medium which use does not require any specific reminders.

"when you _snap_ at him, then he'll answer".[7] Laursen, who has had an opportunity to study the phone calls and text messages of the same people, has reported cases where an SMS message was responded to by a phone call. In some of the messages the request to respond by phone was explicitly stated (as in the example above) and in others the receiver of the SMS phoned on his or her own initiative. (Laursen 2005, 65–66.)

The relation between SMS and a mobile phone call also works the other way round. There are single messages in the SMS data which in the interviews were disclosed to be replies to mobile phone calls. Here a mobile has rung and the receiver has noticed the name of the caller on the display, but has not answered the call, instead, has cut off the ringing tone. Subsequently the person called has sent a text message to the caller and has explained why he or she has not answered the phone. The person has wanted, for example, to finish watching a television programme: "Theres Poetry Panel on tv. It ends at 22.30!" (*Tuloo Runoraati. Tää kestää 22.30 asti!*) (P7/56); or he has not wanted to talk about private matters on the bus: "Hi! On the bus now,call u when at home." (*Moi! Bussissa,soitan kun kotona.*) (P7/61) These messages, for their part, are not responded to, because they are not interaction initiating messages, but they do account for not responding to the 'summons' made by mobile phone calls, and they explicitly explain that the receiver does not want to communicate at that moment but will make contact with the caller later.

Thus, the same device, the always to hand mobile phone, affords, through its many media, a possibility for ever more different and more complex ways of social interaction. Compared with other digital media, SMS would seem to offer a reliable way of contacting others; it is more trustworthy than email, and, in some cases, than a phone call. Also when encountering technical difficulties, such as when the charge is low, SMS rather than calling is possible. A phone call can sometimes be disturbing and text messages on average are a less disturbing way to contact others than phone calls. SMS most typically affords an everywhere-at-anytime connection (Licoppe 2004, 152).

We shall now return to consider the norms of replying in SMS interaction by analysing the messages that did not receive an answer but still accomplished an intersubjective action.

4.3.3. Those Shoes of Mine: Single Messages, Absent Replies

> *"Somehow I tend to think that it is similar, for example now that we are discussing, and I would ask you something or say something and you would not reply at all. I mean somehow it is a similar means of communication to me, the SMS. I do always expect a reply."* (P5)

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7   The inability to get a person to answer the phone is an interesting issue and relates to the phenomenon that was discussed in Chapter 3, namely, that nowadays the person called is also held responsible for managing the calls and s/he is not expected to answer in all circumstances. Here the caller apparently knows something about the reasons why the person called did not answer, because he thought that "when you snap at him, then he'll answer". The text message "Call me" attempted to force the receiver to react to P1's attempts to gain contact.

Leaving an SMS unanswered is often interpreted as rudeness (Kasesniemi & Rautiainen 2002, 186). However, not all participants in my study expected to receive a reply to their messages. In the data, there are some single messages that initiate the action sequence (i.e. they form the first pair part of an action), but they do not receive a reply or even expect one. The actions that the single messages realise are either announcements or requests like "I DID WHAT WE DISCUSSED WITH HELP OF HAUHO" (*TEIN SEN MISTÄ OLI PUHE HAUHO APUNA*) (P2/3); and "BRING SOME GRUB FROM THE GROCERY EG FISH FINGERS" (*TUO JOTAIN SAFKAA KAUPASTA VAIKKA KALAPUIKKOJA*) (P2/14); or "Mai,tape BRIDGE ON THE RIVER KWAI on Friday at 2110!!Mum is going to Sweden today." (*Mai,ota perjantaina 2110 neloselta nauhalle KWAI-JOEN SILTA!!Äiree menöö tänään Ruattiin.*) (P6/6)

From the point of view of the organisation of adjacency pairs and the rule of conditional relevance, a first pair part usually expects a response: a request is acceded to or rejected; an announcement expects at least the response of having received it. Only then is the action confirmed. However, in my data some requests and announcements were not replied to (see also Hutchby & Tanna 2008, 147–148). Replying to the initial message is certainly a common practice, but the fact that a reply is not produced or is not even expected, says, first, something about trust in communication technology: the message is assumed to go through in any case; there is no need for a reply just for confirmation. Second, it reflects the local "communities of practice" (Wenger 1998; Lave & Wenger 1991) in SMS interaction, or "SMS genres" (Ling et al. 2005). For instance, between family members or friends text practices can become ways in which some of the conventional norms of texting are abandoned. *"Different people have different (practices), not everybody confirms receipt"* (P5). In these situations the unusual practice must be familiar to the texters concerned, so that SMS can be used to coordinate actions without doubt or qualm.

But, above all, the missing second pair parts mirror the fact that SMS is also part of other action contexts. Encounters are dense and multiform, and the boundary between the 'turns' (between FPP and SPP) may not necessarily be between two text messages. Contrary to what Laursen (2005) has asserted, a reply is not necessarily needed in order to achieve intersubjective understanding. Intersubjective understanding can also be achieved by relying on shared experiences and shared knowledge. In a 'state of constant contact' a reply is not crucial for social coherence, either.

It is noteworthy that in the previous examples the messages that request something – "bring fish fingers" or "tape the movie" – are not questions, they *order* the receiver to do something. The imperative mode does not expect a reply in the same way as a request that is in the form of a question. The imperative mode reduces the conditional relevance of a first pair part and helps to end a message chain. This is a typical feature of coordinative texting and has been discussed earlier in Section 4.3.1. In the cases considered here, the message chain is not even started, but instead an action is taken by formulating a single message. An action that does not need any further messages to be confirmed nevertheless requires other actions. In the interview it came out that the request for fish fingers, for instance, was 'replied to' when *"missus brought fish fingers home from the grocery"* (P2).

The commonly shared practice of not answering frees one from the norm of replying to every message when there is no practical need. Single messages can be thought to be interpreted in the light of jointly shared world of experience. Most single messages in the data are interpretable by an outsider reader, but there are some messages that contain only one utterance which is not connected to its context in any way. The interpretation of the message is based on the texters' shared experiences and is beyond the comprehension of an outsider. For example, the data contain a message which says: "THOSE SHOES OF MINE" (*NE MUN KENGÄT*) (P2/13). The message is not answered. To a person who does not know the context the only thing that is evident in the message is that it refers to "those" shoes. Thus, the texters should know what shoes and what action are in question. The interviewed participant explained that he had sent the message to his father because he knew that his father was going to visit him soon. During the last visit, the father had put on the interviewee's shoes by accident. No other reference to this incident was made other than this single message, but the interviewee considered that his father would understand the meaning of the message: a similar incident had also occurred before. The father did not reply to the message, but returned the shoes when he came to visit. It seems that for some (male?) texters SMS affords 'maximum brevity'. The short message service is used for messages that operate like public announcements or orders: all elements of the relationship management are left out.

4.4.   SMS AS RELATION MANAGEMENT

However, in contrast to 'maximum brevity', text messages usually have some elements that maintain and renew the relationship between texters. Among the messages of my data, a difference can be seen between messages that coordinate everyday activities and messages that are sent especially to maintain social relationships, like greetings and congratulations. Coordination messages are usually written quickly, they become part of everyday routine activities, and their appearance is not necessarily a cause for a deep reflection. Relation management may also be organised quickly, particularly in some long message chains. On the other hand, in some situations people may take time and ponder over and reformulate messages. In these cases, if there is no special rush, writing a text message is not a casual thing, and instead people take time to compose it, especially when they want to say something special. *"I may often tinker with the message, going back and changing it and going back again. And then, if I realise that there is too much stuff for one SMS, then I keep working on it until the size is suitable"* (P1) .

Courtship, for instance, concerns relationship management and SMS gives tools for starting, maintaining, and ending a relationship. In the study of Eija-Riitta Kasesniemi and Pirjo Rautiainen (2002, 184), young boys in particular reported that they may spend as much as 30 minutes composing a single message if they consider it significant. Thus, for both boys and girls an SMS works as a mediator in an "intimate discourse" (Prøitz 2005) where the socialness of the interaction is more important than the time it takes (Bell 2005, 72). The threshold of

making contact is experienced to be lower with a text message than with a voice call (Kopomaa 2000, 63; Lasen 2005, 47). Text messages give time to react to incoming messages and also time for pondering on the reply. Moreover, one may have the courage to say more intimate things in text messages than on the phone. As Castells et al. (2007, 158) say: "If you are using SMS in its expressive function, why kill the moment with a call?"

Sometimes texting is used as a way of killing time, especially among teenagers that can spend hours sending and receiving messages (Kasesniemi 2003, 21; Oksman & Rautiainen 2002). However, there are cultural differences in the use of mobile telephony and SMS. While young people in Europe and Asia have given the mobile phone an intimate place in their lives, young people in the United States tend to see their cell phones mainly as pragmatic communication tools (Wakeford & Kotamraju 2002 in Castells et al. 2007, 134). Texting is still in its early growth stages in the United States (Castells et al. 2007, 181).[8]

It is clear that SMS is a crucial media for relationship management. Whether close friends are near or far away, SMS works as a mediator of expressive greetings. The findings of this study show that SMS is a key media for contacting friends who are travelling abroad. On the other hand, great physical distance need not to be involved in order for SMS to be used in relation management. In fact, all phone-related contacts are closely associated with face-to-face interaction. Those who use mobile SMS or mobile email also spend more time physically with their friends (Smoreda & Thomas 2001; Ishii 2004, 57). For instance, in Japan the mobile Internet, i-mode, is not a substitute for the PC Internet, since they serve different social functions. Email via a mobile phone is exchanged mainly with close friends or family, whereas email via a PC is exchanged with business colleagues. Heavy users of PC Internet seemed to spend less time with friends and family. (Ishii 2004, 57.) In work settings, email is a more 'official' and frequently used tool, whereas SMS is used as a more informal channel alongside of email, and usually between workmates who also see each other face-to-face. The transition from email to SMS indicates that the relationship between colleagues has moved from a more formal type of interaction to a more friendly, informal kind of interaction. (Julsrud & Bakke 2008.)

Both in coordination and relationship management (RM) text messages have usually some elements that maintain and renew the relationship between texters. In the following sections we will consider how greetings (both at the beginning and at the end of the messages) relate to RM, what kinds of emotional actions people take via SMS, and how text messages are an important link with those who are travelling or staying abroad.

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8   In the USA, the lack of a common mobile network standard hampers sending text messages to people in different networks. In addition, one reason for the poorer adoption of mobile technology in the USA may be in that the most important 'tool' for relationship management especially among young people is their car, for it is the car that enables sociability with friends, and on the other hand, hinders in a concrete way the use of a mobile phone. It is hard to write text messages when at the wheel. (cf. Castells et al. 2007, 37, 205.)

4.4.1. Salutations and Closings

Coordination text messages are usually written without salutations or farewells. In the data there are, however, 35 messages that start with some kind of a salutation (hi, good evening, good morning, etc.) and 22 messages in which the sender has identified herself or himself by using a signature: name or initials (17 times); nickname (3); or the name of the company (2). However, not every message that starts with a salutation would necessarily have a conventional closing, or vice versa. Mostly salutations and identifications are attached to messages that can be categorised as relation management. These include, for instance, greetings that are sent in order to say or ask how people are getting on. These RM messages are reminiscent of traditional letters and postcards, like the message in the next example.

Extract 4.4. (P6/11)

Tiina:

> Tervehdys teille! Mitä kuuluu? Kiitokset viimeisestä. Anni on lopettanut jo yösyönnitkin ja nukkuu 8 tuntia putkeen :-) Muutenkin tosi hyväntuulinen tyttö. Jukka on Oulussa keikalla, lapset nukkuu
>
> ja minä nautin hiljaisuudesta. Yritetään tulla mahd. pian sinnepäin käymään. tod.näk. lokakuussa. Ilmoitellaan sitten! Oikein hyvää viikonloppua ja terveisiä siipalle toivoo tiina

> Hello to all of you! How are you? I really enjoyed seeing you. Anni does not eat at night any longer and sleeps 8 hours nonstop :-) Such a cheerful girl in every respect. Jukka has a gig in Oulu, the children are sleeping
>
> and I enjoy the silence. We want to visit you asap, probably in October. We'll let you know! Have a nice weekend, say hello to your spouse regards tiina

This example exhibits temporal looseness in connection; it is not constant. In the interviews it became clear that attaching greetings to text messages is in fact an issue that relates to the density of communicating: when a friend is not contacted so frequently, then a message to that person usually includes a salutation and the identification of the sender. When there has been a temporal gap in communication, the initial text message usually includes a how-are-you question. Thus, the action that the message takes is in itself a greeting that the salutation and the self-identification emphasise.

This can be compared to what Christian Licoppe and Zbigniew Smoreda (2006) call the "relational" mode of communication in maintaining social relationships. Relational interactions are often long-distance contacts in which personal news is exchanged. This can involve long conversations or long written texts between people who have not seen each other for some time. For Licoppe and Smoreda, another mode of communication when keeping up social relationships is "connected presence" (see also Licoppe 2004). With the rise of mobile phones, we have gone from the pattern of seldom but longer telephone conversations to shorter and more spontaneous calls and messages. In connected presence people communicate with each other frequently and briefly. Such people see each other often, and the messages manifest commitment to a strong tie that is visible in the very frequency of calls and text messages which coordinate the shared activities.

In my data, some of the messages that fall into the category of relation management exemplify the relational mode, like Example 4.4. The connected mode, however, is manifested both through the short messages of everyday coordination as well as in the 'mood' messages sent to those closest, which I call 'atmospherings'. Many affective messages are more about signalling that one is thinking about the receiver than about entering into any real conversation exchange.

In coordination text messages there are few greetings, and when they occur, they are not reciprocal (cf. Kukko 2002, 35). When in an initial message (i.e. the message that starts a message pair or a message chain) there is some kind of salutation, this is not the case in the response message, as in the following message pair: **A:** "Hi, at what time your plane in Finland on Saturday?" **B:** "Around one I think. I'm not sure, I'll send a message." (**A:** *Moi, monelta sun kone lauantaina Suomessa?* **B:** *Muistaakseni yhden aikoihin. En ole varma, laitan vielä viestin.*) (P7/48, 49) In the initial message the salutation works as an indication of the start of a new interpersonal activity. It signals the space for interpersonal interaction when there has been a break in a mutual communication. Persons that maintain a state of constant contact, exchange messages regularly and these messages include no greetings (cf. the "continuing state of incipient talk"; Schegloff and Sacks 1973 and Chapter 3). When the state of constant contact for some reason breaks, it is a salutation that produces that state again.[9] For example, A and B in the previous example are a married couple, and B is on a trip abroad. For several days they have not engaged in the normal text message exchange that coordinates their everyday activities. In addition, they have agreed to minimise interpersonal communication during B's trip. When A asks for the flight time, the salutation "Hi" creates anew a place for coordination text messaging (there are two further messages in this message chain and they too do not include any greetings). When six hours later B initiates

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9   This is an interesting difference between mobile phone calls and text messages. Even though the same ID information (i.e. the identity of a person who makes the contact) is afforded on the screen in both modes, in the calls there was always an opening sequence at the beginning that formulated the space for mutual communication. In SMS contacts, the openings are often left out and the topic is started on right away. However, there seems to be a time during which the continuing state of contact is legitimate in SMS interaction and after which it must be marked as refreshed by a salutation.

a new message chain, no salutation is given: "Only now I realized misunderstanding in prev messages, I'll arrive on Friday and have rehearsal on Sat morning. _" (*Nyt vasta tajusin ed viestien väärinymmärryksen, tulen siis jo perjantaina ja mulla on la aamuna harjoitukset. _*) (P7/52)

A salutation not only marks a new action – or, to be precise, a newly-opened state of constant contact – it also keeps up social relationship, as well as signatures. For example, P6's message to Kati includes a salutation and a signature, but as an action it is clearly an invitation: "Hi, we'll check out the boys' gig on Friday. Can u come? We could go to masa's too, havent been there for a while Rgds Mari." (*Moi, tulemme poikien keikalle perjantaina. Pääsetkö sä? Vois käydä pitkästä aikaa masassakin T. Mari.*) (P6/32). In the interview P6 comments the use of "Rgds" in the message in question: *"That's the case for Kati and me too, I mean when we agree on some event or something, we'll keep more in touch when have agreed on something and agree on the arrangements, then I will not add 'Rgds Mari' to every message, but when I am contacting someone after a longer time then (I add it)"* (P6). In Kati's reply to Mari there is no reciprocal salutation or signature: "I suppose I'll be there but because of the other guys I have to come home at night. But cu then anyway!" (*Kyllä mä varmaan tulen, mutta mun täytyy tulla toisten poikien takia yöllä kotiin. Mutta nähdään nyt sitten kuitenkin!*) (P6/33).

There are four 'good morning' salutations in the data, and these are exceptions in the salutations in coordinative text messages. What is special about them is that none of them is given in the initial text message; they all begin a reply message. These good mornings have been used in replying to a text message which was received late the previous night. Thus, the salutation works here similarly as in an initial text message; it regenerates the space for interpersonal texting. In some messages the sender apologises for the delay. However, in the following example the replier writes the message as a straight comment, a second pair part to the previous message sent the previous night (over seven hours before), except for the personalised salutation: "Good morning Ari,I agree.Things are often drawn out at night after the game." (*Huomenta Ari,samaa mieltä. Menee yö monesti pitkäksi pelin jäljiltä.*) (P7/43). Functionally, this message ends the chain of seven messages in which the texters talk about the place where they should play badminton, as well as about the time of day that would be best for playing; they think that their regular court time in the gym (at 9 pm) is too late. The salutation in the reply message, which also includes the address of the receiver, implies specificity or the problematic nature of the message in relation to usual everyday text messaging.

In institutional contexts coordination messaging is more conventional, as shown in Example 4.3, in which a Japanese colleague contacted P5. In the data there are also two announcements from the mobile phone operator in which company name is given at the end. In these messages no salutations are given and the topic is started right away. The data include a message in the institutional context, in which the writer approaches her superior. She asks for a chance to work overtime and to be compensated with days off. In this message the receiver is identified and the message starts "Hi Pekka _" (P5/2). P5 has purposely sent a text message instead of calling because the boss is on holiday and in that situation a phone call would be too disruptive.

Address terms including names and nicknames are particularly interesting in bilateral communication as they are not needed in order to identify the receiver. Mirjami Kukko has

noticed that the address that initiates a message often relates to a request (Kukko 2002, 66). In the previous example, Pekka was approached with a request. The address related to the request occur also in the message "Mai,tape BRIDGE ON THE RIVER KWAI on Friday at 2110!!Mum is going to Sweden today." (P6/6) which was earlier considered in another context. In this message the mother directs the request to her daughter by using the nickname "Mai". An address can also be found in the following message, where it is part of a pre-request: "Does one dare to ask Ari if baddy in Lempäälä on Friday evening is okay? Tomi pays for the court_" (*Kehtaako Arilta kysyä kävisikö sulkkis perjantai-iltana Lempäälässä? Vuoron tarjoaa Tomi _*) (P7/37) Tomi and Ari usually play badminton in Tampere, and Tomi has to travel there from Lempäälä. Tomi is now proposing ('requesting') an unusual arrangement which would involve Ari travelling from Tampere to Lempäälä. Thus, the address "Ari" is related to the delicate business of asking the other to do something inconvenient. It is interesting that Tomi refers to himself as well, and it seems that these addresses are a way of lifting the conversation from the 'you and me' level to the third person level by using personal names. By the same token, Tomi also uses the passive mode "Does one dare to ask", downplaying the personal level of interaction.

A similar coupled use of membership categories (see Sacks 1992) is also shown in the message "Mai, tape BRIDGE…Mum is going". Here the mother, who is the sender of the message, uses a nickname of her daughter which is only used inside the family. Thus, Mai (the daughter) and Mum belong to the same membership category, family (Sacks 1992). These examples reveal an interesting way both of creating intimacy and at the same time of avoiding the 'you and me' level through the use of the third person.

The choice of certain addresses can soften requests and also play an affective role of their own. The use of addresses is a way of creating closeness, even when the definite action that an SMS interaction takes is not in itself affective, as in the following message pair: **A:** "Hi Dad! I'll go to Euromaster on Saturday at 9.15. The ones ranking well in Goodyear test 360 including work. Normally 480 but someone had ordered too big ones, been used for one day but it does not bother me. These were studded." **B:** "Son, I think that is a bargain. I'm attending training in Pieksämäki." (**A:** "*Moi isä! Lauantaina 9.15 menen Euromasterille. Goodyearin testeissä pärjänneet työn kanssa 360. Norm. 480 mutta joku oli tilannut liian isot, olleet päivän alla, mutta se ei mua haittaa. Nää oli nastalla.* **B:** *Poikani, teet mielestäni hyvät kaupat. Olen Pieksämäellä koulutuksessa.*") (P7/45, 46). Here the reciprocal addresses (dad – son) belong to the same membership category of family and indicate closeness and warmth, and perhaps also introduce some humour into the rather mundane topic of buying tyres. On the other hand, addresses can also emphasise otherwise affective text message, as in the one which P5 sent to her sister in hospital: "Hi Laura, my dear little sister, big hug from here to make you get better soon!" (*Hei Laura, rakas pikkusisko, iso hali paranemista edistämään täältäpäin!*) (P5/11).

In all, the practices of SMS communication seem to vary between texters: whereas some never greet the receiver or identify themselves, others do it relatively frequently. Attaching salutations and farewells, or using addresses is not, however, only a matter of personal style. In the data there is no texter who used greetings or addresses on every occasion or who used them in interaction with a specific receiver. These practices are action-bound, part of text message

repetitoires (Kasesniemi & Rautiainen 2002, 184). In most coordination messages relationship management is not needed, because the interaction between texters is continuous. They live in a state of a constant contact produced by SMS, phone calls, emails, face-to-face encounters, etc.

4.4.2. Amusements and Atmospherings

Even though most messages coordinate other activities, it does not mean that this is the only reason for people to use SMS. As one of the participants said: *"I reckon some 70 per cent is more or less factual... (and the rest) promotes mental well-being"* (P2). Surprisingly, in my data the proportion of coordination messages is 68%, and the proportion of relationship management is 32%, almost exactly as the interviewee estimated. The proportion of 'mental well-being' may be higher among adolescents, because studies show that for teenagers texting is mainly expressive and it acts as a catalyst for the construction and reinforcement of peer groups (Castells et al. 2007, 153; Kopomaa 2005, 151; Ling & Yttri 2002).

Among other things, 'mental well-being' comprises messages sent to entertain or to create a certain mood between the SMS communicators. Some times the functions of factual messaging and mental well-being are blended; in a single message a serious matter can also be discussed with the help of shared humorous content, as in Extracts 4.5a and 4.5b.

Extract 4.5a (P7/1,2)

1. P7:

> Hallo Kari, Icb bin Flahmatuche in 16.10 Uhr. Alles gut und viel spaß! Siis nähdään huomenna klo 16.00 jälkeen.

> Hallo Kari, Icb bin Flahmatuche in 16.10 Uhr. Alles gut und viel spaß! So cu tomorrow after 4.00 pm.

2. Kari:

> Bis morgen!

> Bis morgen!

In Extract 4.5a P7 sends a message to Kari who on the following day is flying home to Finland from Germany. This message contains an initial address which in this context frames the

humour of the message: "Hallo" relates it to German. The factual function of the message is to clarify that P7 will pick Kari up from the airport. P7 explains the expression "Ich bin Flahmatuche" as follows: *"this also refers to the legendary movie Top Secret, which featured elementary educational material in German. They kept repeating 'der plizt ist in der flahmatuche' which was translated as 'the pen is on the table' and so on, so it occurred to me to write 'ich bin flahmatuche' and other stuff, and we kept writing in this kind of clumsy, bad German, which our German naturally is, but we also make humour out of it"* The first message creates a humorous context that the subsequent message continues. Kari replies in German: "Bis morgen!" ("Till tomorrow!/ See you tomorrow!"). "See you tomorrow" is a phrase which in SMS interaction anticipates the end of a message chain, that is, the place where no further response is needed (Kukko 2002, 41). However, P7 continues texting, or as he says, *"making humour"* and Kari follows him. Thus, a message, whose initial aim was to tell Kari that P7 will pick him up, brought about a new action: nonsense humour, a mutual enjoyment of 'bad German':

Extract 4.5b (P7/3,4,5)

1. P7:	Tsüßßß... Ei ku miten viddu se kirjataan.	Tsüßßß... How the fuck is it written.
2. Kari:	Scheisse, tschüss! Das ist keine Mutter sprache, wir sing in SCHWIERIGKEITEN!	Scheisse, tschüss! Das ist keine Mutter sprache, wir sind in SCHWIERIGKEITEN!
3. P7:	Stimmt! Natürlich und keine ahnung.	Stimmt! Natürlich und keine ahnung.

A message chain that initially has some additional functional purpose, may not stop where the 'serious' action ends. As shown above, messages can include expressions or even adjacency pairs that can be called 'amusement'. In the next example, the completion of the initial action is followed by a new action that is derived from the content of the coordination texting. The mes-

sage chain starts as a discussion about buying scales. P1 has a job of buying two pairs of scales for a kiosk which is run by volunteers. She has visited a local supermarket and found that the scales cost more than they expected. She contacts another volunteer by SMS to ask how expensive the scales can be. In her reply this other volunteer, Sirpa Vainio, wonders whether one pair of scales would be sufficient, and suggest P1 just buys the one she saw in the supermarket. P1 replies: "Thats what we can do if we cannot find a chearper price anywhere. Yep, we'll do that!" (*Niinki vois tehä kyllä, jos ei halvelmmal irtoa mistään. Juu, näin teemme!*) (P1/12) Actually, P1 produces a phrase that anticipates the ending of the message chain: "Yep, we'll do that!" (cf. Kukko 2002, 40). It is formed to be like a firm mutual conclusion, as if the texters had already discussed the matter between the statements "That's what we can do if we cannot find a cheaper_" and "Yep, we'll do that!" So P1 closes the pondering she started in an earlier statement in the same message. From the point of view of adjacency pairs and their conditional relevance the action seems to be ended. Sirpa, the other participant, however, continues texting and starts a new action whose topic originates from the mutually constructed 'compromise' to buy only one pair of scales instead of two. P1 joins in the whimsy by replying to Sirpa's message. Even though the purpose of this part of the SMS chain seems to be purely entertaining, it in a way also confirms the official action taken, the compromise to buy only one pair of one scales.

Extract 4.6. (P1/13,14)

Vainio Sirpa:	Tätä sanotaan komponentiksi, vai oliko se kompleksi, vaiko kompromissio.	This is called a component, or was it a complex, or a compromission.
P1:	Nii, kompressori tai kommari eli jotahi sinnepäin. Puhuhan ne meilläi ennen viisaammat niistä konferensseista, vai mistä häntä kaikki krumeluurit muistaa.	Yeah, compressor or commie or somethin like that. The wise guys down here used to talk about those conferences, but how are you supposed to remember all the intricacies.

A text message provides an opportunity to pick up on something that is happening right now and to create something new in a way that rarely happens in phone calls.[10] This phenomenon seems to be completely opposite to what some researchers have said about text messaging: that SMS (instead of phoning, for instance) can prevent the other person going 'off topic' and continuing a conversation longer than planned (e.g. Hård af Segerstad 2005, 38). The previous examples have shown how people can go off topic also in SMS communication and that the role of these flings is amusement (see also Hutchby & Tanna 2008, 151–152).

Thus, the shortness of messaging is no longer an issue when the 'tune' of the messaging changes. Playing with language is a crucial feature of SMS, as in the previous Extract 4.6. There are also messages that are written in verse form. Verse form is frequently used in congratulations, but also in other greetings, such as the chain messages that people send, for instance, at Easter time, Christmas, on Valentine's Day, etc. But also serious business can be handled by using verse form: "Pay 4 euro for me Kaija darling, that is what I am asking. I'll repay when I may. As soon as I see thee, that would so greatly please me." (*Pane Kaija-kulta, 4 euroa multa. Maksan, jahka jaksan. Kunhan nään mä sun, mik' oisi harras toivoni mun.*) (P1/19). In the interview P1 explained that she likes SMS just because text messages provide an opportunity to play with language and make contact in a way that would not happen on the phone: *"I don't believe that I would ever call and recite a poem on the phone"* (P1). A personalised and customised text messaging can be seen as a type of art form (Hjorth 2005, 63).

Poems and other stylised messages can work as amusement or can create a specific atmosphere between texters. It is essential both in amusements and 'atmospherings' that some funny or otherwise emotional thing is shared 'here and now'.[11] It is characteristic of these actions that it is very difficult for an outsider to see the point of these messages. The activity environment is more intimate than in usual coordination messages. It would seem that the meaning of these messages is above all related to their written form.

Extract 4.7 contains a message from Tea to P6, and it is sent relatively late in the evening, at 11 pm.

Extract 4.7 (P6/2)

Tea:

> The world is changed/ I see it in the water/ I feel it in the earth/ I smell it in the air...

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10   Our mobile phone data contains one call that starts with a humorous world play and continues as a humorous exchanging of turns (see Arminen & Leinonen 2006, 354; Arminen 2008, 99) but ends with a practical question about getting away from the hot rod race area. It is similar to the text messages in 'bad German' presented in Extracts 4.5a and b.

11   Ling et al. (2005) call these kinds of messages which have personal meaning and often also strong interpersonal emotions at play as 'grooming'.

This message quotes the first words of the movie *The Lord of the Rings: The Fellowship of the Ring*. For P6 this text message meant that *"Tea has started you know to watch this movie at that point in the evening"*. Tea and P6 are both great fans of this saga and they share the world in which Tea's single message is full of meanings. It tells P6 a lot more than a person who does not know the context, and it also raises emotions and moods that an outsider cannot experience.

The longest chain of text messages in the data, eleven messages in all, is also based on atmosphering. This exchange happens between P7 and Maradoona Junior (MJ later in the text). This message chain also took place late in one Sunday evening.

Extract 4.8. (P7/26-36)

1. 23:27 **P7**: Guy us AIMAR!
2. 23:30 **Maradoona Junior**: Haha, Well they got the same hair anyway.
3. 23:32 **P7**: I think I scored ten at the pools. May go down to nine, well see. Rather good match, will Real equalize?
4. 23:34 **Maradoona Junior**: Well I hope not. I aint watching that match though.
5. 23:38 **P7**: Oh yes, u are playing the game I can never play. Old Lady won. Zlatan scored his 1st goal in Serie A this season.
6. 23:41 **Maradoona Junior**: No Veera is watching some shit. Nice that Juve won. Charlton is second in the premier leaque.
7. 23:42 **P7**: Some Dane was five minutes in the field, straight red card!
8. 23:44 **Maradoona Junior**: Ha ha.
9. 23:46 **P7**: Beckham's out! Two blokes from Real out!
10. 23:48 **Maradoona Junior**: Yeah. Now I'm watching it. "some Dane"...:)
11. 23:49 **P7**: Yes, he was the first one to be shown the red card. Then David.

1. 23:27 **P7**: Hemmo on AIMAR!
2. 23:30 **Maradoona Junior**: Heh heh. No sama tukka niillä ainakin on.
3. 23:32 **P7**: Mulla taisi olla kymppi vakiossa. Voi miinustaa ysiin, saa nähä. Aika hyvä matsi, tuleeko Real tasoihin?
4. 23:34 **Maradoona Junior**: No toivottavasti ei. Mä en kato sitä peliä kylläkään.
5. 23:38 **P7**: Ai niin, sä pelaat sitä peliä, mitä mä en saa koskaan pelata. Vanha Rouva voitti. Zlatan teki ekan maalinsa tällä kaudella Serie A:ssa.
6. 23:41 **Maradoona Junior**: Ei kun Veera katsoo jotain paskaa. Kiva että Juve voitti. Charlton on toisena valioliigassa.
7. 23:42 **P7**: Joku tanskalainen oli viis minuuttia kentällä, suora punainen!
8. 23:44 **Maradoona Junior**: Heh hee.
9. 23:46 **P7**: Beckham ulos! Realilta kaksi äijää ulkona!
10. 23:48 **Maradoona Junior**: Joo. Nyt katson sitä. "joku tanskalainen"...:)
11. 23:49 **P7**: Niin, sd oli se eka joka sai punaisen.Sitten David.

Late in the evening, P7 texts a message to his friend and the only content of the message is "Guy is AIMAR!" In the interview P7 clarified that this single message did not continue a conversation held during that day, but its roots reach further back. P7 has sent the message to his friend, to whom he has given the nickname 'Maradoona Junior'. This nickname is also used to save this friend's number in the address book of P7's mobile phone (however, in a Finnish form with two o's, a thing that P7 himself stressed). After giving this nickname to his friend, they together have had a custom to figure out which football stars their friends are similar to. Guy[12] is the name of their mutual friend and when watching the football game, P7 has noticed that Guy looks like the footballer Pablo Aimar. It is evident that P7 thinks that Maradoona Junior (MJ) is also watching the same game on TV. The first reply from MJ backs up this understanding: "Ha ha. Well they got the same hair anyway". Only in his second reply (the fourth message) does MJ say that he is not watching the game. P7 thinks that he is playing a (video) game and stays in the world of football by reporting the results of the other games (message 5). In the interview P7 reported that when he realised that MJ was not watching the game, *I started to commentate on that match to Maradoona because if Veera was watching some shit on television, I thought that okay, I have to commentate on this match for him*. At the end MJ is also watching the game and the last message in the chain is comprised of P7's comments on what has just happened on the field.

This particular message chain was initiated by a spontaneous remark made while watching TV. Many SMS users emphasise the spontaneous nature of text messages (Licoppe 2004, 150). Football is a sport that is often watched in a group. Perhaps P7 wished to share the experience of watching the game and this has prompted him to send the first message to his friend. The message chain is full of references which are only understandable to those with shared knowledge, such as the allusion to "Guy". The humorous vein of the message chain is emphasised in two of Maradoona Junior's messages, where he writes "Ha ha". In fact, the eighth text message comprises only an expression of laughter. P7 explains what the laughter refers to: *"For him it was completely inconceivable that I talk of 'some Dane' because for him it is obvious that everyone knows that player's name. So that is the background, in other words he is laughing at my ignorance 'Ha ha'"*. Maradoona Junior underlines the reason for the laughter in message number ten when he quotes P7's "some Dane" and attaches a smiley to the end of the message.

All the examples in this section belong to the genre in which the mood of the messages arises from their reasoning, which requires the texters to have shared experience. Interlocutors exchange small expressive messages signalling a perception, a feeling, or an emotion. In the case of a very close relationship, these encounters tend to be very frequent (Licoppe 2004, 147). Mizuke Ito and Daisuke Okabe call this kind of mode "ambient accessibility". These messages are the product of a shared virtual space that is generally available between a few friends or with a loved one. They are not sent in order to deliberately open a channel of communication but are based on the expectation that the receiver is in 'earshot'. (Ito & Okabe 2005b, 264.)

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12   The Finnish original for "Guy" here is "Hemmo". Hemmo can have an ambiguous meaning. In Finnish it can mean a guy, a chap, etc., or, on the other hand, it can be the name (or the nickname) of a person, as it is in this case.

One of the participants in the study compared a text message to a camera. She explained that sometimes there are situations where one wants to share things here and now with someone close, and a text message provides that possibility. *"And then you have written a lengthy SMS where you describe your current situation, for example that there are neon lights flashing everywhere, buzzing, people are pushing me in every direction and I don't understand a single word, no other white people around… When you are able to include your own feelings there, then I know for example that Jaska understands it exactly right, how I feel there in the middle of a street in Tokyo"* (P5). Messages like these can be compared with MMS messages. MMS communication makes heavy assumptions on the knowledge of both the sender and receiver. The sender expects that the receiver will be able to relate to the MMS. If not, the meaning of the photograph is lost. (Ling et al. 2005, 98–99.) SMS atmospherings have a special role in SMS interaction and MMS can be adapted to a similar use: the content of the message is to evoke emotions that only the sender and the receiver share. In this way MMS creates intersubjectively shared meaning instead of only having a narcissistic, 'look at me!' quality (cf. Taylor & Vincent 2005, 87–88).

Usually there are no salutations or farewells in atmospherings and amusements. If they are used, they typically have a special form and, thus, set up the humorous or sentimental frame of the text message. They are often used between specific people to create a type of intimacy in the text that would be lost on an outsider. In Melissa Hjorth's study on Melbournian SMS use, one male respondent reported that the predictive function of SMS converted his name 'Brian' to 'Asian' and he now uses Asian as his sign name with certain friends. (Hjorth 2005, 61; cf. Kasesniemi and Rautiainen 2002, 183–184.)

Usually stored messages in the phone's memory among the participants of the study were either amusements or intimate atmospherings. The messages could be many years old. In fact, some people are reluctant to give their old handsets to other persons (e.g. inside the family) simply because there are stored messages in the memory of the device, and they do not wish to delete them. These messages form an electronic diary that can be turned to again and again. They function as a type of souvenir, catching moments as postcards used to (Hjorth 2005, 62). *"I like to look at them later in the phone, and I know that I also have friends who do the same. I like the idea of them leaving something concrete behind"* (P5). Thus, modern mobile phones that can store many messages function like the earlier SMS notebooks of teenagers, where the most important messages were copied manually and then returned to repeatedly (Kasesniemi 2003, 182–185). These stored messages are like gifts; they are exchanged material objects that embody particular meanings of emotional and social value, and they are also viewed as being subject to the obligations of giving, receiving and reciprocating. As with the exchange of gifts, the value is not merely determined by the material features of the object, but also through its presence in, and contribution to, social exchange. It demonstrates social ties and allegiances. (Taylor & Harper 2003, 273.) [13]

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13   In fact, saved messages can be employed for many purposes. For instance, even though at first stored as gifts, SMS messages can also be used as pieces in a power game and in blackmailing. SMS places on record a textual document that can

Marianne Toriseva argues that the message chain which occurs in her data concerning the death and funeral of a friend, is a rare exception. She says that the uncertainty of technology, i.e. whether the text message gets through or to the right receiver, restricts the handling of particular intimate topics. (Toriseva 2005, 59.) However, for instance teenagers' messages quite frequently deal with fundamental aspects of life such as grief, the illness of a family member, or death. Also issues like sex and contraception, fear of pregnancy and so on, are discussed. Text messages are often sent at night when teens feel they need support going through things they perceive as difficult; a quiet and inconspicuous message serves as an interactive substitute for a diary when the need arises to share thoughts with others. (Kasesniemi 2003, 167, 173.)

In my data concerns about the uncertainty of the device were not apparent. On the contrary, the medium was trusted to the extent that confirmation of the receipt of a message was not felt to be required.[14] Even though the participants were selective providing text messages to the study, it became evident that a central function of SMS is to enable intimate encounters that could not be carried out otherwise (e.g. certain kinds of atmospherings). In fact, there is evidence to suggest that people consider it easier to express emotions using SMS than in face-to-face conversation (e.g. Hård af Segerstad 2002, 195; Lasen 2005, 47). Teenagers, for instance, say that they would not dare to bring up all the topics they discuss in text messages in regular conversation (Kasesniemi 2003, 167). Hence, SMS has not only transformed the way people communicate with each other but also the content of communication: intimate topics that earlier might have remained unspoken are now broached using SMS.

4.4.3. Contacts Abroad

One significant mode of messaging that was apparent in my data concerned messages that were sent or were received from abroad. These text messages included both coordination and relation management messages. In Extract 4.3 we looked at one message between Finland and Japan which concerned work-related issues. But text messages also provide a link with those who are close to us who are travelling or living abroad. Mobile telephony has dramatically improved the opportunity to maintain contact with those dear to us who are geographically distant (see e.g. Paragas 2008). SMS is cheaper than a phone call and in some ways is also easier. For instance, individuals on holiday can receive messages without feeling pressure to answer right away. These messages signify closeness: even when there is geographical distance, a text

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later serve as evidence either of content or of contact, or both. The former Finnish Foreign Minister, Ilkka Kanerva, had to resign in May 2008 because the text messages he had sent to an erotic dancer came to light. The recipient herself made the messages public, and the minister was forced to resign.

14   This is the opposite of Laursen's findings: she noticed that people expect to receive a reply, and if they do not, they usually treat it as a transmission problem. However, according to Laursen, this may be because it is easier to consider the absence of a reply as a transmission rather than as a relationship problem. (Laursen 2005, 57–58.)

message signals that the receiver is in one's thoughts. In Extract 4.9, P6 congratulates her father, who has a birthday. The message is sent to the parents who are having a holiday abroad. The reply comes from their "Holiday Phone", which means that because their usual mobile phone numbers are also their work numbers, on holiday they have another single SIM-card (and thus a number) by which they can be reached.

Extract 4.9. (P6/18,19)

1. P6:	Hyvää syntymäpäivää isälle! Mitäs on lomaohjelmassa tänään, rannalle vaihteeksi vai?	Happy birthday Dad! What's on the holiday agenda today, to the seaside for a change or?
2. Holiday Phone:	Kiitos. rannalle kun eilen oltiin beachilla.Ei vaan vanhat jaksa urakoida. käymme nyt kylässä markkinoilla.Hotellimme on kyllä aivan upea.ei ole tarve lähteä hyvän ruoan perään.nyt vasta oleennumme.	Thanks.to the seaside because we were on the beach yesterday.We are too old to toil.we'll now visit the village market. Our hotel is simply stunning.no need to go looking for good food.not setting in until now.

This message pair combines congratulations and a request for the latest news; it represents the typical relationship management actions that are taken through text messages. It also contains shared humour: P7 asks for the holiday agenda "to the seaside for a change or?" and gets an answer "to the seaside because we were on the beach yesterday". P7 explained in the interview that this is "*inside humour*" since all the parties know that lying on the beach is what the parents will certainly do every day of their holiday.

4.5.   WHAT DO EMOTICONS AFFORD?

Emoticons are a distinctive feature of SMS. The original text emoticons are generally thought to have been invented by Scott Fahlman. Fahlman had become increasingly frustrated by people getting angry over emails that were originally intended to be humorous or ironic. His readers had failed to see the glint in the writer's eye and took the messages too seriously, so he designed symbols that indicated the emotion he intended. His first emoticons were :-) and :-(,

and these symbols and their variations have spread from the internet to SMS. Texters have since then create hundreds of different emoticons, i.e. smileys[15], by combining the base characters of the keypad. (Kasvi 2000.)

In my data in 33 text messages there was at least one emoticon. The use of emoticons varied between participants: the youngest, a 16-year old girl attached at least one smiley to every message she sent (and respectively, in all messages she received there were smileys), whereas the messages of one male participant contained no smileys at all.

4.5.1. Accessory and Independent Emoticons

Linguistically emoticons have no lexical or grammatical purpose as such. However, they do seem to have a functional role. I have classified the smileys in my data into two categories based on their apparent function in SMS communication. I refer to them as *accessory* and *independent* emoticons.

Accessory emoticons help interpret written text. As a rule, these smileys are placed at the end of an expression, thereby providing a framework for interpreting the immediately preceding expression. They operate thus like punctuation marks: a full stop, a comma, an exclamation mark or a question mark always determines the function of a preceding statement.

Smileys used in SMS functions are related both to the coordination of activities and to the management of human relations. They serve, broadly speaking, the maintenance of mutual understanding and also have an entertaining function. Let us first look at Extract 4.10.

Extract 4.10. (P4/5)

P4:

> Moi mitä sulle kuuluu pitkäst aikaa?? kävimpäs tänään lääkärissäki ja olin motata akalta nenän poskelle ku punnitti.. :-) et semmosts, pitäs alkaa lukeen läksyjä :-(TXT..) <3

> Hi long time no c how r u doing?? i did see a doc 2day and I almost punched the bitch in the nose as she was weighin me.. :-) an so on, shoud b doin my homework now :-(TXT..) <3

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15   Originally a term 'smiley' referred only to a happy face, but is nowadays usually used as a generic term for any emoticon, as in this chapter. When needed to be distinguished, in this chapter a 'happy smiley' or a 'happy emoticon' indicates a smiling face.

Extract 4.10 presents the initial text message of a message pair. It is, first and foremost, a greeting. It greets a friend who has not been met *"for a week I think"* (P4). Thus, the message starts with the salutation "Hi" which marks the newly-opened connection. However, the break in interaction has not been so long that the identification of the sender at the end of the message is required. The happy smiley frames the story of seeing a doctor which is intended as a humorous anecdote. The sad emoticon at the end, on the other hand, expresses the fact that P4 does not enjoy the idea of doing homework. She would rather exchange messages with this friend, and by using the letter combination "TxT" asks the recipient to reply.

Happy emoticons can be compared to laughter in spoken conversation. Laughter is related to humour, and frames the shared humorous point of view. Laughter may also mark delicate issues in talk. Critical statements can also be received or softened by laughing (Jefferson 1984, Haakana 1999). Accessory emoticons express the mood of the texter as they frame the written content. They are the prosody of written interaction: something that gives the interlocutor more interpretative cues than just bare words and frames out those interpretation possibilities that the sender does not want to imply.

Independent emoticons, on the other hand, have independent meanings. They express something by themselves, without being related to some other textual content. At the end of the message the 'smile' :-) or the 'heart' <3, for instance, can serve as independent farewells without any other expressions. In Extract 4.10 the heart at the end of the message serves as an independent closure, showing that the message comes 'with love' from the person whom the mobile phone displays to be the sender. The letter combination "TxT" could also be treated as an independent emoticon, but it is not an emoticon in the sense that it is an acronym from a textual (not from a graphic) expression which has a special meaning. In all, Extract 4.10 shows that emoticons enliven the textual content of the message.

4.5.2. From Text to Cipher

The message exchange between a 16-year-old participant and her friends shows that smileys can have an essential and integral meaning in SMS communication. The smileys used have been varied and their meaning is not self-evident at first glance to an outsider. Extract 4.11 is an example of the rich and stylised use of smileys.

Extract 4.11. (P4/7)

Virpi's
father:[16]

> No mits sulle??..=)
> Ootko juhulinu koko
> vkl:n?..Ü mie ainaki oon
> :p Jokos oot tehny sen
> mesen? :///

> So whats up??..=) Been
> partyin whole wkd?..Ü I
> sure have :p Hav u done
> that msgR? :///

The text in Extract 4.11 seems like a foreign language that is largely understood, although something might well be lost. The smileys used are reminiscent of *emojis* in Japanese i-mode interaction. *Emoji* is the Japanese name for graphical symbols used in mobile emails, and in the phone browsers there is a wide selection of different kinds of *emojis*. The name literally means 'picture character' and the characters can be used much like emoticons elsewhere, for instance, as interpretation frames. (Rivière & Licoppe 2005, 121–122.) In contrast to smileys in SMS, however, an *emoji* can be any graphic symbol whatsoever, and a circle of friends can negotiate a special meaning for some *emoji* so that only insiders can understand it. As a result, even without words it is possible to communicate to the receiver something that only he or she can understand. (Järventie 2005, 76.) Some of the emoticons in Extract 4.11 are special marks that have diverged from the original smileys and may have some meaning that is unique to the texters (cf. Kasesniemi & Rautiainen 2002, 183). This use of emoticons is one way of making SMS intimate and can be compared with the atmospherings discussed in Section 4.4.2. The interpretation of the message is realised through shared competence. At the same time as sharing closeness these special smileys connect the sender and the receiver to an 'inner circle' through their secret code. The use of in-group language may also be one reason why teenagers do not appear to like to adopt predictive text input (Kasesniemi 2003, 206) based on general language. SMS argot (abbreviations, acronyms and emoticons, etc.) is a way in which membership within a social group can be confirmed (cf. Taylor & Vincent 2005; Green 2003). However, there is no evidence that a coherent use of SMS-specific short forms or other abbreviations and acronyms is used by all texters; on the contrary, studies have shown that the number of known specific abbreviations was much lower than expected (Thurlow 2003, Döring 2002 in Hård af Segerstad 2005).

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16   The sender of the message is Virpi, but because she has used her father's mobile (or SIM card), the receiver's phone has reported the sender to be Virpi's father. Virpi is living in France at the moment and has lost her own Finnish SIM-card and uses her father's card instead.

4.5.3. Requesting Kindly by Ordering with a Smiley

Some texters use emoticons almost always, others only occasionally. The adults involved in the study did not use smileys every time, one of them not at all. Smileys may, however, gain a more significant role when used scarcely.

Extract 4.12. (P1/6,7)

1. Turpeinen Anne:	Voi surku unohin ne mehut. Laita syrjään ni otan huomenna ü	Oh dear I forgot the juices. Put aside so Ill fetch tomorrow ü
2. P1:	Joo, nostin ne jo jää-kaappiin... Ü Semmosta se, ku on sama pää kesät talvet.	Yeah, i already put them in the fridge... Ü Thats what happens when your memory goes.

In both text messages in Extract 4.12, the character ü is used as a smiley. This smiley is a derivative from the original smiley :-) from which there is also the version :). In text messages the 'smile' is often simplified as the single character ü. This is because with the traditional 12-key mobile this smiley can be created by pushing a single button (the 8tuv key on the Finnish keypad). At the same time the message is compacted, allowing space for other characters.

If the message pair in Extract 4.12 is considered without the smileys, the content of the messages might be interpreted more negatively. However, the accessory emoticons soften the statements. The first message is a request to put the juices aside. The happy smiley at the end of the message helps to interpret this as a gentle request, not as an order (what its grammatical form implies). Of course, the smiley at the end can also serve as an independent farewell. Requesting is always a delicate matter, and in written interaction the tone of the request can be clarified by accessory emoticons. It might be asked, of course, why the texter does not soften her request simply by making a conditional question: 'Would you put aside...?'. The imperative formulation exemplifies, however, the essential feature of coordination messages, which we discussed earlier, namely the closing of the message chain. Unlike a question, an imperative expression does not necessarily expect an answer, even though an answer is produced here. That the request is made like this – by using the imperative and the smiley that softens it – is in fact an economical way of texting: the receiver is not obliged to reply to the message, only to put the juices away.

In this extract, however, the message is answered and the reply also contains a smiley. It is placed after three full stops that mark an ellipsis. Conventionally, an ellipsis in printing and writing indicates an intentional omission of a word or phrase from the original text. It can be a sign of a pause in speech, an unfinished thought or, at the end of a sentence, a trailing off into silence. (Wikipedia 1.7.2008, Nykyajan kielenopas.) Jouko Raivio (forthcoming) notes that in passages of dialogue in novels, the ellipsis is used to evince both thinking and hesitation. It also creates the dramaturgy of talk when a character for some reason has problems with producing talk.

In my research material, there are 33 ellipses marked by two- or three-dot lines, of which eighteen have a smiley and eight an exclamation mark. Mirjami Kukko points out that in SMS communication an ellipsis guides the reader to continue the thought or to look for connotations. She argues that ellipsis with a smiley encourages the recipient to read the text ironically. (Kukko 2002, 77.) In my data, the frame created by an ellipsis and a smiley is in some cases clearly ironic (see e.g. Extract 4.10). However, it can also be humorous or open (e.g. when a smiley is attached to the end of a message after an 'unfinished thought'). Ellipses before an exclamation mark seem either to increase or decrease the emphasis, depending on the context. In all, ellipses in SMS display the interactional nature of text messaging. Unfinished thoughts and different kinds of emphases created by ellipses are materials for intersubjective reasoning. For the writer they mean – similarly as smileys – that not all meanings must (or cannot) be given and for the receiver they encourage interpretation based on the mutual understanding.

In Extract 4.12 the reply message contains two expressions that without the smiley between them could even be interpreted as a rap. The ellipsis before the smiley encourages a humorous interpretation of a potentially problematic formulation ("I already put them in the fridge"). At the same time the smiley also softens the subsequent statement. The end part of the message "Thats what happens when your memory goes"[17] is an additional expression in relation to the action taken (request-answer). Thus, the end part seems to work like those amusements we looked at in Section 4.4.2; when the actual action has already been completed, something new is introduced from the content of the previous SMS action, its aim being to lighten the atmosphere or to make the reader laugh.

4.5.4. Intersubjective Understanding and Emoticons

Emoticons serve as an interpretative tool of 'what is meant'. As an example of how the meaning of an expression is based on the interpretation of what is said (or rather what action is taken), John Heritage uses the statement "Why don't you come and see me sometimes" (originally from Schegloff 1972, 107; 1984, 31). This statement is part of a spoken conversation and its

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17   In the Finnish original there is a proverb with roughly the similar meaning, though the translation perhaps lacks some of its nuances. Its literal translation is "That's what happens when you have the same head in summers and in winters".

interpretation rests on adjacency organisation. Heritage says that in principle the statement "Why don't you come and see me sometimes" could be heard as a complaint and could be answered for instance like this:

(Heritage 1984, 255)
B: Why don't you come and <u>see</u> me sometimes
A: I'm sorry, I've been terrible tied up lately

In fact, the sequence in which the statement is the first pair part ran like this:

(Heritage 1984, 258)
B: Why don't you come and <u>see</u> me some [times
A: [I would like to
B: I would like you to

In Heritage's example it is B that initiates the sequence and A's statement, "I would like to", interprets B's initial turn as an invitation. In the third turn B tacitly confirms A's interpretation of the first turn as correct. If in the third turn B had responded to A's second turn by saying "Yes but why don't you", then B's initial statement would have been treated as a complaint, and A's response to it would be inadequate. (Heritage 1984, 258–259.)

In SMS communication, a series of messages can serve this kind of sense making. However, some interpretation cues from spoken communication are in SMS modified by emoticons. Thus, in SMS interaction, the statement "Why don't you come and see me sometimes" could be framed positively by using a happy smiley. It would then be easier to treat it as an invitation rather than as a complaint. The message could be like this:

Extract 4.13. (Invented)

B: Why don't you come and see me sometimes :-)

Of course the receiver could also interpret this expression with a smiley as a (friendly/taunting?) complaint that he or she has not met the sender for a while. This might be revealed in the possible reply message. Thus, the importance of adjacency pairs in intersubjective understanding is not superseded by smileys. However, the use of smileys shows that texters are aware of the interactional mechanism in which meanings are negotiated. A statement never pinpoints

a strict state of affairs. In the intersubjective organisation of SMS, smileys offer a way to guide the interpretation in the required direction.

In conclusion, it seems that emoticons in SMS have the same functions as both prosody and other cues (facial expressions, gestures etc.) in face-to-face communication. In all, the use of smileys exposes the principle of language use that words and utterances do not carry exact meanings, but are shaped contextually. Expressions are always indexical (e.g. Heritage 1984, 142). The context produced by written words may not be enough if the text is compact as in text messaging. Emoticons help interpret the meaning of a message, thereby reducing the need for more messages to ensure understanding.

On some occasions emoticons are indexical expressions: a heart <3 can refer to deeply felt love or just be an affectionate farewell depending on whom one texts. Some other stylised emoticons can acquire special meanings between certain people. As a whole, smileys that carry positive connotations are most often attached to the text messages, supporting a positive interpretation. Only two emoticons in my material were 'sad'. One has already been presented in Extract 4.10, and was related to the humorous frame of not wanting to do homework. Another sad emoticon was in the message in which it was said that "And besides, YOU did not even remember my name day :-(" (*Ja sitä paitsi, SÄ et edes muistanut mun nimppareita :-( )* (P5/6) Although this part of the text message seems accusatory, in fact it is part of a message chain in which P5 has sent birthday congratulations to Timo late in the evening and Timo has replied: "_better late than never" (*_parempi myöhään kuin ei milloinkaan*) (P5/5). P5 replies that she is tired of work and already in bed and will call Timo some other time, and then she adds this "And besides, YOU did not even remember my name day :-(". After this P5 and Timo continue to exchange messages in which they say goodnight and 'give hugs'. Thus, the mood of the whole message chain is positive and tender. It seems that even a sad emoticon as a highlighter of one's own negative mood has, after all, a purpose to lighten or embroider the interaction in a positive way (cf. Kopomaa 2005, 149). Insults, for their part, do not require special symbols. In fact, people who use smileys regularly, point out that when texting a person who is close to them, the mere elimination of smileys is a way of saying that the message is written in a negative mood. Carole Rivière and Christian Licoppe (2005, 123) have compared French and Japanese SMS conventions and have noticed that in Japanese mobile email culture *emojis* are sometimes used also to express strong antagonistic feelings. They have not found a similar phenomenon in French SMS practices.

4.6.   CONCLUSION

SMS seems to form a communication mode of its own, which has a close relationship both to spoken and to traditional written forms of interaction. Because of this two-dimensional character, Ling (2005) says that in SMS language seems to be a kind of "trans-linguistic drag queen"; it has features of both the spoken and written genre, though with a flare of its own.

Crispin Thurlow (2003) points out that communicative practices seldom spring from nowhere, rather they are adaptive and additive to existing practices and, thus, do not break completely with long-standing patterns of interaction and language use (see also Ling et al. 2005). In this study text messages are considered as parts of SMS-in-interaction, the interactional system which realises social actions by means of SMS. Because of its interactional and discursive nature, the organisation of SMS communication has similar features to talk-in-interaction, but the different affordances of the mediative devices ('talk' and SMS) cause differences both in the aim and organisation of actions. The mobile phone provides frames for SMS; the organisation of the communication is determined by technological affordances.[18]

One message constructs one turn in the practice of SMS communication, and this shapes the organisation of messages. In the data considered here, SMS is mostly used to coordinate ongoing or future activities. It is shown to inquire, propose, offer, request, announce, agree or account for something. Because one message means one turn, in coordination text messaging people seek to text economically: regulating the length and the duration of their writing. Salutations and goodbyes, for instance, are usually omitted from messages, a feature which is supported by the identification information the screen displays. In addition, messages are 'packed' as a multiunit; parts of several actions may be included in the same message. They are organised so that the actions can be realised with as few turn-takings as possible.

Even though the turn-taking differs from spoken communication, the organisational building blocks are in some ways similar. As a rule, a first pair part is followed by a second pair part, even if the first pair part is report-like. And a question is always replied to by an answer: in these cases the second pair part cannot be omitted without incurring some difficulties in the interaction. However, there are some ways of taking actions that are characteristic of SMS, for instance making a request using the imperative mode (sometimes softened by a smiley), meaning that the second pair part is not necessary and fewer messages are needed.

In coordination messaging, the structure of linguistic communication is in many ways similar to everyday conversation, not to the grammar of written language. Also the vocabulary of the language used is rarely standard language. When studying Swedish text messages, Hård af Segerstad stressed how the orientation to the colloquial language could also be seen in the written shape of text messages. Text messages include features usually associated with spoken interaction, like hesitation sounds or laughter, for example "Hmm, may be!? Let's get in touch tmorro :-) (*Hmm, kanske det! Vi hörs I morr'n :-)*) (Hård af Segerstad 2002, 220, 229). What I emphasise here is that texters do not necessarily orient to the expressions of colloquial language as such,

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18   For people that cannot communicate orally, like the deaf, SMS has been very useful because it has greatly increased communication opportunities. Those who are hearing-impaired, for instance, are no longer dependent on being close to text phones or on other people when sending or receiving messages. Also the barrier between the deaf and those without hearing problems is reduced as a consequence of having common means of communication that can be utilised by both groups. (Bakken 2005.) However, for many deaf people sign language is the mother tongue, so acquiring the nuanced SMS language that is in many ways based on the organisation of spoken conversation may in some cases be difficult. These days, many deaf persons are pleased to use the video telephone application in mobile phones which allows them to discuss by signing.

but rather to the interactional means for taking actions. Expression of hesitation and laughter, for instance, always have a situational and intersubjective function in relation to the action the messages are realising. The expressions are similar to spoken language, as these elements expose the intersubjective and goal-oriented nature of SMS, and disclose its character as a 'quasi-synchronic' medium.

Another important field of social activity made possible by SMS is the maintaining and renewing of social intercourse, which I have called relationship management (RM). RM is carried out trough greetings, congratulations, thankings, making fun, and 'atmospherings'. In RM texting, the structure of the messages is sometimes rather like traditional postcards. On the other hand, the messages can be very informal, and although texts can be entertainments, they can also concern serious matters. The activity environment is sometimes very intimate, and it does not always open up to the outsider. Sharing an intimate issue through text messaging is certainly an essential social affordance of SMS. The activity environment is rather different from, for instance, phone calls, and the textual but still temporally adequate medium is creatively employed to express especially intimate and emotionally significant issues. According to several studies, SMS and the expression of emotions have a special relationship: in text messages feelings can be expressed that would never be raised on the phone or face-to-face.

Interestingly, in contrast to a lowered threshold for expressing emotions, for some texters SMS also affords 'maximum brevity'. The *short* message service is used for messages that work like public announcements or orders: all elements of relationship management are reduced.

Generally speaking, both types of SMS, coordination and RM messages, are marked by the richness of language. Especially in RM messages, verse form colours some messages. The text messages of a single person may not form one coherent style of messaging, but the person can take advantage of several text message repertoires in different situations. Eija-Riitta Kasesniemi writes:

> The teen may, for instance, compose a formal standard language message for the violin teacher in order to reschedule the lesson. Parents may receive an excuse imitating spoken language but punctuated according to the rules of grammar on why teen will be late coming home. SMS exchanged with the best friend may include wordplays in slang and local dialect, and messages that go around the group of friends are often full of puns and insider vocabulary. Girls and boys with romantic interests exchange messages filled with vocabulary and expressions best compared with romantic short stories published in magazines or daytime soap operas on TV. (Kasesniemi 2003, 208–209.)

SMS usage is linked to other media, for instance coordination text messages are used as, and together with, coordination mobile phone calls. SMS is also comparable with email. Emails can be used for coordination and relation management, but their use is more location bound and thus unreliable if some instant coordinating is ongoing. By phoning, people take real here-and-now actions, or actions that are so complicated that in SMS they would need long message

chains. Nevertheless, in taking a simple action SMS may work better than calling; it is quicker when no time is wasted on 'inevitable chatting'. Also when talking is not possible, then the text message is the medium.

> When you have to be silent, you can still send a text message, and the same applies to noisy surroundings. It may be too late at night to make a phone call, but it's never too late to send an SMS message. And when you've forgotten to send a postcard to congratulate your friend, a text message may still reach him or her in time. (Kopomaa 2000, 77.)

The use of emoticons is also distinctive to SMS interaction. Emoticons would appear to have two tasks: on the one hand they maintain intersubjective understanding in communication in which the messages are short and succinct, based on basic adjacency pairs. Attaching a smiley to a message frees from the need to explain the shade of meaning further. On the other hand, especially in relation management messages, the number of smileys seems to be bigger and their use is more individual and creative, understood fully only by the texters themselves.

Many interactional activities not considered in this study can be realised through SMS. For example, you can receive a reminder of an appointment with a doctor or a bank manager. Almost every Finnish TV channel has run some kind of chat programme based on SMS. By sending text messages one can also take part in different kinds of votes, send comments to live TV shows, write short letters to the editor, etc. In all, by using SMS one has the chance to make his or her own voice heard in the public arena. I subscribe to my home village small local newspaper. Until recently there were almost no letters to the editor. I missed them as they would have told me the topics the people around there talk about nowadays. When it recently became possible to speak out through SMS, public opinions bombarded this local newspaper. Thus, SMS has shown that we 'silent Finns' are in fact active communicators, if not face-to-face then through mobiles. The mobile phone, the *kännykkä*, which we all carry with us, has made us '*kännykkä* people' that are always not only contactable, but also ready to say one's piece.

5. WAP: When Mobile Phones Became Incomprehensible Machines

5.1. INTRODUCTION

In the previous chapters we have got acquainted with mobile phone calls and text messages, the applications that are mainly used for person-to-person communication. From the data sets of calls and SMS messages we could not observe the actual use of the handset. This chapter, however, studies the interaction between the user and the mobile handset through an analysis of the video-recorded use situations of WAP (Wireless Application Protocol). The focus is on the sequential proceeding of WAP use, on its situational reasoning and especially on some black spots of user-device interaction.

WAP is an open international standard for wireless communication. In 1997, Ericsson, Motorola, Nokia, and Unwired Planet founded the WAP Forum (nowadays known as OMA, the Open Mobile Alliance). The principal application of WAP was to enable mobile users to access websites from a mobile phone or a PDA. A WAP browser was designed to provide all the basic services of a computer-based web browser, but it was simplified to operate within the restrictions of a mobile phone.

Mobile internet sites, known as WAP sites, are websites written in, or dynamically converted to, WML (Wireless Markup Language: WAP 1.x versions) or to XHTML (Extensible Hyper Text Markup Language: WAP 2.0 version) and are accessed via the WAP browser (WAP Forum 2002; 4mobile.net 19.3.2008).

The Japanese i-mode system is the other major competing wireless data protocol. With i-mode a light version of HTML is used for producing content. In addition to email, i-mode provides access to various services such as sports results, weather forecasts, games, financial services and ticket booking. The i-mode mail is interoperable with Web-based email, and images and sound formats from the Web are also used (Ito et al. 2005; Ling 2004, 10; Wikipedia 2.5.2007.)

When launched, WAP was assumed to become a great success. It was marketed as a revolutionary application for mobile information seeking: it was said to provide all the basic services of Internet only simplified to operate in mobile phones. However, as a common consumer technology, it is not widely used (like SMS), though, it continues to be utilised as a technical platform for some mobile internet solutions.

The initial lack of success has been ascribed to several factors. It has been argued that problems in early adjustment, in connections, and in use of the browser have frightened users away.

First of all, especially with the early WAP versions, there have been technology-based problems: networks, phones and the services themselves have all been known to crash (Ramsay & Nielsen 2000, 3; Arminen & Nissinen 2001), resulting in bad user experiences. Also, the development of WAP, according to experts, is lacking the 'killer application' that would catch the consumer's attention (Kumar et al. 2003). Early WAP applications for different mobile phones were not always compatible. For instance, second-generation WAP sites were written in XHTML, and first-generation WAP browsers could not read these sites. However, second-generation browsers can read sites that are written in WML, the program language of the earlier protocols. (4mobile.net 19.3.2008.) Different browsers can treat certain tags and commands in different ways. Lack of compatibility among handset providers, browsers, and the WAP standard has created a frustrating environment for developers and difficulties for users (Kumar et al. 2003, 81–82). One reason for the mass rejection of WAP is said to be the cost of the services. However, even free WAP services did not capture many people's interest (Vincent 2004; 2005, 119).

This chapter aims at revealing some problematic aspects of early WAP through a close examination of its actual use. The data collection took place in 2002 and the data consist of the video-recorded use of first generation WAP services. In comparison with the present mobile web-browsers, early WAP can be considered an 'old' application. However, the results of the analysis produce basic understanding of the mechanism of user-device interaction. They also reveal specific problems in the use of early WAP which helps to recognize comparable troubles in the use of present-day ICT interfaces.

The chapter proceeds as follows. The analyses in the chapter concentrate on the video-recorded interaction between the user and the handset, differing thus from earlier chapters where the actual handling of the handset could not be directly observed. This is why some basic issues related to the investigation of human-device interaction are considered first. As discussed in Chapter 2, this study adopts the idea of action-in-interaction. When using information and communications technologies one always both carries out some tasks (i.e. the device is used for something) and also executes this task in interaction with the device. In Section 5.2.1, the meaning of the interaction in the environment of technology use is considered more closely. After that aspects of ethnomethodological studies on human-device interaction are discussed and the model of human-device interaction (Arminen 2005a) is illustrated. Section 5.3 presents an analysis of the empirical data. Users notice the affordances of WAP in the context of situated actions, i.e. depending on the goal of the course of action. Users seem to encounter difficulties at the level of comprehensibility (see Chapter 2: handling, comprehensibility, and applicability) due to ambiguous command options and tricky menu structures. These problems force them to concentrate on the functions of WAP service instead of their own ends, and diminish the usability of WAP.

5.2. STUDYING TECHNOLOGY USE AS ACTION-IN-INTERACTION

5.2.1. Interacting with 'Intelligent' Devices

In Chapter 2 the meaning of the concept 'interaction' was discussed. It was argued that sequential, turn-by-turn actions are a main feature that organises all activities. The origins of the term interaction come from the physical sciences, where it denotes a reciprocal action or influence. In the social sciences the term first meant communication between persons in which the physical and the social were separated. Nowadays, however, the distinction between social and physical has become blurred in the social sciences as studies of the reciprocal influence of people and material things – e.g. technologies – have emerged. (Suchman 1987, 6.)[1]

All theories that encourage seeing people and other things (e.g. material or symbolic artefacts) as belonging to the same activity organisation make room for ethnomethodological inquiries, since EM focuses on the organisation of activity. As presented in Chapter 2, ethnomethodological conversation analysis (CA) is a suitable method for analysing any interaction as a single sequential organisation. When people act together, they usually have a shared understanding of what is going on, and this awareness directs the action. If there are misunderstandings, they are typically repaired. Interaction with information technologies is largely different from social interaction. The user and the device do not necessarily have a shared understanding of 'what is going on'. Information technologies are 'socially blind' – they are unable to make use of users' situated abilities (Cheverst et al. 2005, 254). Nevertheless, using a device is also interaction which proceeds in turns. The device reacts in some way to the user's actions. Even an absence of reaction is a response. The information from the device directs the action, just as other participants' actions do in a human-human interaction. It is the human participant that reads the meanings into whatever the technologies do or display, and this interpretation work resembles what people do when encountering each other (Raudaskoski 1999, 17).

Lucy Suchman (1987) argues that interaction between people and information technological devices implies mutual intelligibility or shared understanding. She is not interested in inquiring how there can be mutual intelligibility, but in how we account for it in our interactions with devices. Suchman is aware of asymmetries in the respective situational resources of a human and a computational artefact. Nevertheless, she argues that despite these different resource bases, people see computational artefacts that possess reactive, linguistic and internally opaque properties as interactive and intelligent. (Suchman 1987, 118–119.) According to philosopher Daniel Dennet (1987, 1999), this is because we follow what he calls an "intentional stance". It is a strategy of interpreting the behaviour of an entity (person, animal, artefact, or the like) by treating it as if it were a rational agent with rational goals. This strategy works

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1   French sociologists Bruno Latour and Michel Callon, for instance, have created a theory called "actor-network theory" (Latour 2005, Callon 1986, Callon and Latour 1992). What they call an "actant" can be either a human or a nonhuman actor which influences other actants inside the same network. In networks of humans, machines, animals, and matter in general, humans are not the only beings with agency; other material elements can act, too.

whether or not the goals are 'real' or 'natural' from the point of view of the so-called agent. The rationale behind the intentional stance is that in our evolutionary development it has been critical to have an ability to make quick predictions of a system's behaviour and its goals. However, intentional stance is not some kind of evolutionary remnant, but is still a main principle of human behaviour today, as all acting with fellow humans and other environmental entities is based on the interpretation of others' intentions and aims, a fact in which ethnomethodology is also grounded.

In social psychology there is also talk about the CASA (Computers Are Social Actors) paradigm (Reeves and Nass 1996). In studies on attitudes, Byron Reeves and Clifford Nass have found that people treat computers and other media as if they were human. Ethnomethodological studies report similar conclusions, although at the practical level of interaction: humans follow the same rules and procedures in interaction with humans and with machines. The reasons for treating computers as if they were human rest not on the 'humane' features of ICTs as such, but rather on the user's techniques for dealing with information technologies. The question is more one of practical strategy than anything else; i.e. people can easily differentiate between humans and machines.

5.2.2. Ethnomethodological Studies on Human-Device Interaction

Ethnomethodological studies on technology use are concerned with the tacit and 'seen but unnoticed' dynamics of technological tools and other action resources of diverse human life settings. Ilkka Arminen (2005a, 199–200) categorises ethnomethodological studies in the field of technology use into six different groups. First, there are studies that focus on the elementary properties of human-computer interaction and deal with the user's inferential and sequential work in using the artefact through its interface. Second, some studies address technologically-assisted work processes in which information has to be standardised, such as computer-assisted emergency dispatch (e.g. Whalen 1995). Third, there are studies on technologically-assisted multi-party communications, such as videoconferences (e.g. Raudaskoski 1999). Fourth, there are also studies of computer-supported co-operative work in hi-tech settings, such as Christian Heath's and Paul Luff's (2000) study on the subway control room. Fifth, some studies are carried out to elaborate the requirements of future systems through the analysis of existing systems. And sixth, the design processes of technology-assisted settings themselves can be a target of scrutiny.

The analysis presented in this chapter falls into the first category, as it looks at the interaction between the user and the device in situations where a WAP application is used via a small mobile phone. Earlier analyses of human-computer interaction based on ethnometodology and CA, and focusing on the user's actions through the interface, include, for instance, Suchman (1987) on an expert help system of a paper copier; Frohlich, Drew and Monk (1994) on the management of repair in human-computer interaction; Raudaskoski (1999) in her study of a software tutorial; and Arminen (2001; 2005) and Koskinen (2007) in their analysis of

some novice users using a WAP browser. Common to all these earlier studies is, first, that in every case the users are facing a new situation; they have never used the application in question before. Second, in each case, there are two people using the device at the same time as a team. This makes the sequential sense-making processes more transparent, because they occur not only in 'silent' interaction with the device but also in communication between the users. These types of studies resemble the user tests conducted in industrial product development (cf. Kurvinen & Koskinen 2000). In such user tests, the selected participants use technical devices and applications chosen beforehand and are given a certain task to carry out. This process is then videotaped and analysed. The difference is, however, that often in user tests, only a strict number of variables are measured (e.g. the time to complete specified actions, the number of errors, etc.), and the results are usually displayed as statistics (e.g. the average time or the average error rate). (Dumas & Redish 1993; Preece et. al. 2002, 429–459.)

In studies using ethnomethodological principles, phenomena are not measured and compiled into averages, but rather their meaning is analysed in the context of procedural action sequences. This means that, for instance, similar-looking 'errors' can be a consequence of different kinds of reasoning processes attached to completely different affordances of the application. In fact, researchers in the area of ethnomethodological interaction analysis are not so much interested in 'errors' as such, but rather in 'problems' and their repairs. When problems occur, the management of repair takes place in the interaction between the user and the device. (Frohlich et al. 1994, 388–389.) In this study, ethnomethodological conversation analysis helps to trace the interactional roots of usability problems. At the same time, it also reveals some cultural expectations and conventions that affect the patterns of use. CA focuses on the orientation of the users and explicates how the technical properties operate in use, rather than separating these properties and the user's reasoning of them into distinct entities (Arminen 2005a, 204).

Sequential Model of Human-Device Interaction

Lucy Suchman's study *Plans and Situated Actions. The Problem of Human-Machine Communication* (1987) was the first significant inquiry into human-computer interaction based on ethnomethodology and conversational analysis. Suchman analysed novice encounters with a device called an "expert help system", which is a computer-based system attached to a large and relatively complex photocopier, and is intended to instruct the user in accomplishing tasks. In her study, the basic instructional sequence of user-machine interaction consists of 1) the instruction that the machine presents; 2) the action the user takes after reading the instruction and interpreting it; 3) the following action that the machine presents. So, the first instruction given by the machine calls for some action that the user must take. After that action, the response of the system should be a new instruction, which stands as confirmation of the adequacy of the user's previous action. If the system does not respond, the user thinks that the previous action was somehow incomplete. If the system repeats the first instruction, it implies that the user's previous action should also be repeated or that there was some mistake in the user's action that should be repaired. (Suchman 1987, 107, 144.)

Ilkka Arminen (2005a, 203) states that we can generalise Suchman's model to account for any human-computer interaction which seems to follow this basic pattern: any single user's action that causes a change in the state of the system emerges on the interface as a shift on the display. The user takes action according to the current state of the device and we can define this step as any action that alters this state. Arminen's model of the basic sequence in human-computer interaction is presented below.

User's domain	Interface	Design domain
1. User browses contents, locates and interprets activities	DISPLAY 1	Contents and collection of activities #1
2. User makes a choice	User performs an activity	An activity causes a change in the state of a system
3. User evaluates the outcome of the activity	DISPLAY 2	Contents and collection of activities #2
(4. User browses contents, locates and interprets activities for the next activity)		

Figure 5.1 Basic sequence of Human-Computer Interaction (Arminen 2005, 203).

The situation of the user comprises preconceptions about the nature of the device and the operations required to use it. All this is combined with moment-by-moment interpretations of evidence found in the actual use. Suchman states that in the case of the expert help system, the relationship between instructions and the actions and objects they describe is reciprocal rather than directional. The following data extract clarifies how instructions, while answering questions about objects and actions, also pose problems of interpretation that are solved in and through the objects and actions to which the instructions refer. In the following, E and F are photocopier users and their discussion is represented in the left column. The discussion reveals that only after seeing how the machine reacts to what they just did, do they come to understand the instructions they have just followed.

Rather than the interpretation of the instruction "Pull the latch…" being a prerequisite to the execution of the action, the action, in fact, clarifies what the instruction intends (Suchman 1987, 142).

Extract 5.1: (Lucy A. Suchman (1987) Sequence xii)

THE USERS		THE MACHINE	
Not available to the machine	Available to the machine	Available to the user	Design rationale
F: "To access the BDA, pull the latch labeled Bound Document Aid" (Both turn to the machine)		DISPLAY 2	Instructions for copying a bound document
E: (Takes hold of the latch)			Accessing the bound document aid
F: Pull it down: Just push it down			
E: (Does, BDA starts to open)			
F: (startled) Oh, alright.		DISPLAY 3	Placing the document on the glass
	Opens BDA		
This is what you do.			
E: Is this what you do? Oh my gosh.			

5.3. MAKING SENSE OF WAP

Interpretative work and situated understanding through sequences of actions is also an essential aspect of interaction with WAP services. The analysis focuses on the role of conceptual affordances, their ambiguity and the lack of hints provided by system design. The study does not evaluate the content of the WAP sites in general (e.g. whether the content is sufficient or not), but rather focuses on the organisation of user-device interaction and its critical factors.

In the first generation WAP application analysed here, information networks are accessed through textual hyperlinks on the mobile's display. Nowadays, there can also be some graphical links. Because of the small display,[2] only a few links can be seen at a time. In consequence, WAP interface is organised into a tree-like hierarchy of menus, in which browsing starts from an abstract menu, and then becomes increasingly more specific. The starting point is typically

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2   Model: Nokia 8310

the main menu provided by the network operator in which the different WAP sites are clustered together in general categories like 'News', 'Entertainment', etc. Users must locate candidate selections from a menu, construct a relevance order between candidates, and select the best candidate.

At the bottom of the display, there are typically two options that can be selected via the function keys below the options (see Picture 5.1 below). The left key usually affords access to the mobile phone's internal menus, such as bookmarks, and it is also used to open the links in WAP. The right key is meant to be used to return to the previous menu or page, or to cancel the operation; the status of the shortcut key changes along with the operational situation at hand.

The key (1) and the function (2) it realises.

Here the user chooses the *Poistu* (Exit) command.
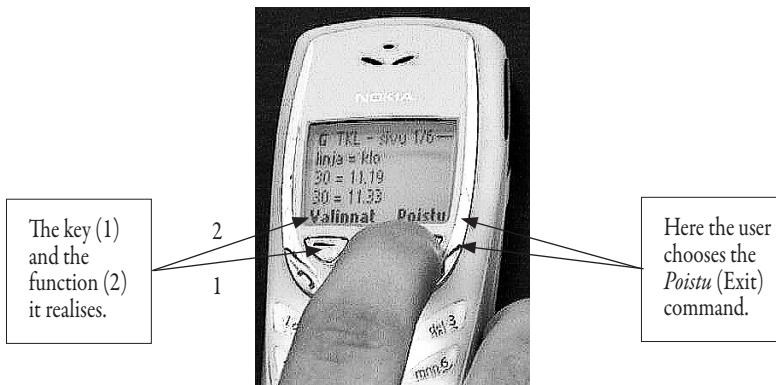
Picture 5.1.
The basic control keys of WAP.

The data extracts point towards two main things. First, the study illustrates how interpretation and sense-making processes in human-device interaction are sequentially organised. The development of the ongoing task is interpreted by the evaluation of the result of the actions accomplished so far. Second, the analyses of the use of the control keys of the WAP system show the inadequacies in the usability of text-based commands and classifications. In all, the study shows that the design of any human-device interaction requires knowledge of the situational and sequential organisation of actions and their affordances.

The following cases come from situations in which the user is asked to show what kinds of WAP services he or she uses. Hence, these users are not novices but are familiar with at least some WAP services.[3] The situations were video-recorded (during the spring and summer of 2002) by a researcher who also interacted with the user. In this chapter, eight action sequences from two different users are introduced. These extracts of WAP use are selected from the data that consist of video recordings (seven minutes on average) of twelve users using different

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3   The difference between this study and some other ethnomethodological enquiries on WAP use (e.g. Arminen 2001, Koskinen et al. 2006, Koskinen 2007) is that here the users are not novices and they are not given a specific task to accomplish through WAP.

mobile internet applications (WAP, email, the Internet) via a Nokia mobile phone or a Nokia Communicator. The data was first collected for a research project called "The future of mobile applications. A case study on experts' future views inside the mobile cluster of Tampere", conducted by myself and Ilkka Arminen. During the spring and summer of 2002, eighteen people – sixteen men and two women aged 23 to 50 – who worked with mobile phone applications were interviewed, and twelve participants' actual use of a mobile internet application were video recorded. All recordings were analysed for the purpose of the final report of the project (Raudaskoski & Arminen 2003), and the results serve as background knowledge for the cases analysed in detail here. In the present study, the participants were restricted to two and the video-recorded material was closely examined. This was time-consuming since everything that took place in the recordings (both audio and visual phenomena) were included in the transcriptions. However, the detailed analysis was needed because the interest was to investigate the actual affordances that the users deploy in user-device interaction.

The recorded situations do not correspond to the so-called ordinary use of WAP because the action takes place at the request of the researcher, and she and the user maintain a discussion. The additional person affects the organisation of the user-device interaction. The benefit of this, however, is that the presence of the researcher enables verbal explication, even when it is not asked for, and such explication helps to examine the user's interpretative work.

The interaction with the device consists of action pairs, or 'adjacency pairs', as they are called in CA. Action pairs comprise the commands of action made by either the user or the device and the responses given.

The action sequences are transcribed according to standard CA conventions (See Appendix 1). The current way of presenting the transcription was chosen in order to show how speech relates to other activities (e.g. when they overlap). The analysis is based on the original Finnish data, but it can be followed with the English translations. The Finnish originals can be found in Appendix 2. In a case where the analysis focuses on the Finnish formulation of a command, the situation is explained and the translations are chosen in line with the Finnish original formulations. In the following extracts, U is the user of the device and C is the person behind the camera, and the markings in bold refer to activity with the device. In addition to the conventional manner of CA representation, the transcription includes the following additional features of the interaction between the user and the device:

U=User, *C= Camera operator*, **Bold=Activity with the device**
< >   Performing an action with the device
{ }   Menu (or page or state) that is opened through the action
[ ]   Overlapping activity or/and talk (A single bracket indicates the starting
           point of overlapping activity)
UNDER   Underlining demonstrates the cursor position within the menu
[5.4]   Length of pause (in seconds) in activity with the device (as opposed to pauses
           in conversation)
(( ))   Comments about ongoing activity

5.3.1. "I don't know if it was because I can't use it"

We start by considering the failure of a WAP error message to provide the sufficient information needed to repair the user's course of action. In everyday life, in any of our daily practices, we make sense of the world around us. In person-to-person interaction, like in conversation, one crucial sense-making machinery is repair work. Through the possibility of making (self or other) corrections, mutual understanding of 'what is going on' can be achieved. CA has focused on the repair work we routinely do in our everyday encounters (see e.g. Schegloff et. al 1977; Schegloff 1992; Jefferson 1987; Drew 1997). The language does not carry meanings, but meanings are negotiated intersubjectively and repair serves as an 'understanding display device' in social interaction. In conversation, people have the possibility to check, correct and query their understandings as talk unfolds.

      In human-technology interaction the humans are the only entities able to comprehend what is going on, however interactive the technological system may seem on the surface (Raudaskoski 1999; Frohlich et al. 1994). In the following case the WAP service announces a failure of action, but does not guide the user to deduce the source of the failure. The error message only indicates that for some reason the user's activity is incorrect according to the device. This is confusing since the repeated error message is a consequence of the action commands that seem to be the only ones available in the situation at hand. The logic of the service is not transparent.

      In this first case, the user has been showing some features of the bus timetable service of Tampere City Transport (abbreviated in Finnish TKL) to the accompanying researcher and he wants now to go back to the opening page of the same timetable service in order to show some other features of the service. What happens, however, is that the action command "Exit" (*Poistu* in Finnish)[4] is met with the response "Page not found" (*Sivua ei ole*). The original displays are shown in Pictures 5.2 and 5.3.
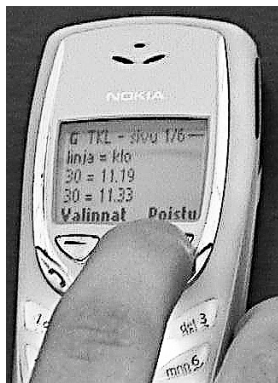
Picture 5.2.
"Exit"

Picture 5.3.
"Page not found"

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4   In mobile phone applications based on English, the option *Poistu* is given as "Back". However, this study analyses the original interaction between the user and the WAP application based on Finnish options, and the nuances of the meaning of the term *Poistu* in Finnish are better understood by using the translation "Exit" rather than "Back".

The device announces that the user has made an error and, therefore, the user tries to correct it by reformulating his command. He browses "Options" (*Valinnat*) menu and finds a chance of going back. However, the command "back" (*paluu*)[5] reshows the same announcement: "Page not found". Pictures 5.4 and 5.5 represent this action sequence.

Picture 5.4.
"back"

Picture 5.5.
"Page not found"

Let us look at the textual transcription of the situation. The transcription starts from the setting represented in Pictures 5.2 and 5.3 (line 1). In line four the user starts to browse the menu, speaking quietly by himself, saying "so bad that there is n-". His sentence stops when he finds a chance of going back (line 5). However, as we saw, the command "back" (*paluu*) caused the same announcement: "Page not found".

Extract 5.2. Page not found

```
1 Pics 5.2 & 5.3    [<EXIT> {PAGE NOT FOUND}
2           U:   [So hhhh ˚oh [I´ll choose that (1.4)
3                            [<OPTIONS> {OPTIONS} ((BROWSES))
4           U:   ˚>So bad that there is n-< here is [back˚ (0.5)
5 Pics 5.4 & 5.5                                    [<BACK> {PAGE
6                                                     NOT FOUND}
7           U:   ˚Page not found˚. (.) Well I´ll show that,
8           C:   What does it me[an then.
9                              [<OPTIONS> {OPTIONS} ((BROWSES))
10          U:   This is just #(th[is)# en[ding and then you choose y´know
11                               [<QUIT> {END BROWSING}
12                                       [<YES> {BASIC DISPLAY}
13          U:   ag[ain from here .hhh I don´t know if it was
14             [<MAIN MENU> ((BROWSE))
```

5   Here the content of the Finnish term *paluu* is more equivalent to the English term "back". Thus, in this study, "back" is a translation of *paluu* and "exit" is a translation of *poistu*.

```
15        U:    [because I can´t use it [but (1.0) this is y´know as in
16              [<SERVICES> {SERVICES MENU}
17                                       [<BOOKMARKS> {BOOKMARKS}
18                                           ((BROWSES))
19        U:    [google I have saved something here so I can
20              [<TKL-WAP>
21              [find something but there is nothing amazing,
22        C:    [Hmm:
23              (0.8)
```

Reading out the announcement of the device in line seven may reflect the bafflement of the user. And the particle "well"[6] in the statement "Well I'll show that" in line seven works as a marker of an alternative way to reach the aim. As an experienced user of the device and of this service, the user manages to solve the problem by quitting the WAP portal and entering the basic display of the phone (lines 11 and 12). After that he starts again from the beginning: he opens the WAP portal once more and enters the same bus timetable service he was just looking at by using a bookmark. The user interprets (or at that moment wants to interpret) the camera operator's question "What does it mean then" (line 8) to refer to what he is doing right now. However, the question is about the recurrent error messages, and the user actually answers that question in lines thirteen and fifteen: "I don't know if it was because I can't use it".

The user cannot explain the reason for the error message. An open error announcement like this can be stressful in a situation where all the options that seem to be available for the sought-after aim give the same response. It is the user who is responsible for sense making, but reasoning is hard due to the inconsistency between the operations which the command selections seem to afford and the actual executable operations. The user can not figure out the logic of the application. Similar incidents happened with early mobile full-web browsers; not even experts could tell why some problems occurred (Raudaskoski & Arminen 2003, 40–42).

It is not unusual that people very familiar with the use of some mobile applications still do not see themselves as skilled with its technology (cf. Schiano et al. 2002). Most users use core functions and accept failures outside the core area blaming their incompetence for errors. In this case the participant is a very experienced user of different kinds of mobile services (and devices) and still cannot comprehend the trouble source. Beginners, if they face these kinds of troubles continually, may stop using the application altogether. Faced with constant problems novices feel embarrassed and angry. They may either consider themselves too stupid to learn to use the application or they may see these difficulties as indicators of insurmountable technological problems in the application itself (Koskinen et al. 2006; Koskinen 2007; Ramsay & Nielsen 2000, 69).

---

6   "Well" represents here the Finnish particle *No*. In this case *no* indicates a topical shift (see the discussion about the *no/well* relation in Chapter 3).

The bafflement of the user in this case may be due to the fact that he has entered the current WAP page by using a bookmark. Inside the WAP service, "exit"/"back" usually transfers a user to the previous page (like in an Internet browser) or to the previous menu state, and here the user has not been viewing any other pages. The error message is insufficient; it does not mark the trouble source and hence does not give enough information to the user to understand where the problem lies (cf. Ramsay & Nielsen 2000, 23–28, 34). As regards the levels of affordances talked about in Chapter 2 (handling, comprehensibility, applicability), the user here has no problems in handling the device. Instead, it is hard for him to figure out why he cannot go backwards to the upper menu of this WAP service. He is probably aware of the architecture of the menus inside the service (i.e. how to enter the current page without using the bookmark), but does not notice that the commands are only available in connection with the actual path of menus he had used (cf. Heylar 2001, 198). The system logic is inconsistent and, thus, its comprehensibility is low.

Error messages need not always be confusing or annoying. As with everyday speech, repair initiators and reformulations could also be designed in human-device interaction to increase the sense of control and understanding. If repair initiations of the system could be structured so that the system orients to the users as experts in their own tasks, and not just as receivers of information of failure, the sense of smoothness could be sustained despite 'clearances' on the way.[7] (cf. Raudaskoski 1999, 265.)

5.3.2. The Documentary Method of Interpretation

As with their everyday practices, when using WAP people rely on common-sense knowledge of social structures (Garfinkel 1967; Koskinen 2007). Interpretation based on common-sense knowledge of social structures is part of all everyday reasoning; Harold Garfinkel has called this mechanism "a documentary method of interpretation". According to the documentary method of interpretation, a single appearance can be seen as documenting an underlying pattern and, conversely, the individual documentary evidences are interpreted on the basis of a presupposed underlying pattern. In other words, single evidences and underlying patterns are used to elaborate each other in everyday sense making. (Garfinkel 1967; Heritage 1984, 84–97.)

In the following second case, the option "start the search by route number" at the beginning of a bus timetable search serves as documentary evidence of interpretation and makes the user see 'a pattern' in obtaining general timetable information about a specific bus route. The user relates the option to the customary way of presenting timetables in printed timetable books. The option works as a false affordance at the level of applicability, i.e. the user assumes

---

7   For example, in the WAP case considered here, instead of only giving a single formulated error message, the application could have been programmed to respond, for instance, with alternative options on how to proceed, like: "(Previous page does not exist.) Do you want to A) Quit? B) Go to Opening Page? C) Cancel?" However, the small display and the limited memory capacity restrict programming possibilities.

that the service gives route-specific information, but the service does not provide it. The user starts to look for the timetable for the 23 bus – he wants to know when the bus leaves Hervanta – but he ends up looking at the timetables of a specific stop located elsewhere. The situation is constituted of several sequential operations, which change the user's interpretation of the organisation of the service. As the activity proceeds and new operations come up, the user gradually comes to understand how the service actually works. The interaction based on action pairs – command for action / response to it – changes the conceptions of the user.

This following case comes from the same WAP use situation as the previous example where the user encountered the error message "Page not found". Thus far, the user has demonstrated some features of the service to the accompanying researcher. The service shows him the estimated times when the next buses (several routes) pass the bus stop near him. All the stops in the city have been given an identification number which, in the time of the video recordings, one had to know when seeking stop-specific information. The user has contacted the service by using a bookmark that leads him directly to the information about his nearest bus stop. Thus, he did not have to remember the four-digit identifier of the stop. After doing this, he goes on to show that instead of looking for bus stop-specific information, one can actually look at all the timetables of a particular route.

Some explications: "TKL" is an abbreviation of a local public transportation company (Tampere City Transport). "Hervanta" is a name of a quarter of the town. "Kalevantie" and "Messukyläntie" are the names of the streets on which there are bus stops.

The sequence begins from a situation where, in addition to the stop-specific information, the device also affords the user to choose the search by the route number. Picture 5.5 is a still photo from the settings represented in line one of the transcription below.
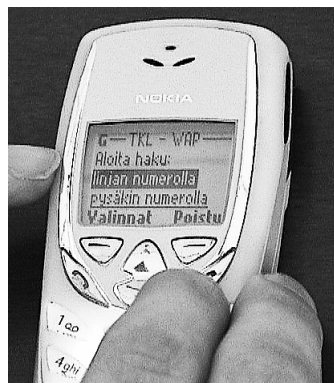
Picture 5.6.
"Start the search: By route number..."

The view on the display gives the impression that one can seek information about bus routes and bus stops separately. If we now look at the transcription, the same display "{TKL – WAP / Start the search: by route number / by stop number}" is shown during the omitted lines, until line 2, when the user begins to browse the menu, reading it aloud at the same time (lines 2 and 3), and a third possibility, searching by the address of the bus stop, becomes apparent.

Extract 5.3. Bus 23 i

```
1 Pic 5.6    {TKL-WAP/ Start the search: by route number / by stop number}


[  ] ((Lines omitted))

2    U:    Here: it is begin the search by route number by stop number by
3          stop address (1.0) So if [I now want some rou[te number
4    C:                            [Yeah:,
5                                                    [<ROUTE NUMBERS>
6                                                     {OPTIONS}
7    U:    [(0.6) there say (1.0) when do[es number twenty-three run
8          [<OPEN THE LINK>            [{ROUTE NUMBER}
9    U:    from here, (1.0) [I'll put there that f[ormat [twenty-three was
10                          [<OPTIONS> {OPTIONS}
11                                                 [<FORMAT> {ROUTE NUMBER}
12                                                 [((TYPES 23))
13   U:    the route n[umber (1.4) #and well: [let's fi[nd# (1.5)
14                    [<OK> {TKL-WAP}          [<FIND> {OPTIONS}
15                                                     [<OPEN THE LINK>
```

The user chooses the bus route search (lines 5 through 8) seeking information on "when does number twenty-three run from here?" (lines 7 and 9). When demonstrating the service to the camera operator, he speaks aloud, but performs the same action, 'asking the device a question', simultaneously by pressing keypads (lines 5 to 15). He sets the route number he wants (Route 23) and, by using the keypads, commands the device to seek the information.

In the next Extract (5.4), which is a straight continuation of the previous extract, the user starts to presuppose the answer, by saying (line 16) "so this gives apparently quite". However, the device's new request to choose the direction stops the user's flow (the 0.8-second pause). There is no answer to the question ("when does number twenty-three run from here?"), but rather a new inserted question from the device about the direction of the bus route. The user must orientate to this new task. He reads the instruction and chooses the direction (lines 19 and 21), "that's Hervanta Central Square".

Extract 5.4. Bus 23 ii

```
16      U:    So this gives a[pparently quite (0.8) well Hervanta
17                          [{TKL-DIRECTIONS: Hervanta-Central Square
18                                            /Central Square-Hervanta}
19      U:    Central Square or Central Square Hervanta that's Hervan[ta
20      C:                                                           [Mmm::.
21      U:    Cent[ral Squa[re,
22          [<HERVANTA-CENTRAL SQUARE> {OPTIONS}
23                      [<OPEN THE LINK>
```

The user has oriented himself to find the timetable information for the route of bus number 23. The use of the expression "from here" in Extract 5.3 in line nine is here interpreted to mean from "Hervanta". It could also be read to mean that the user assumes that the service is place-sensitive: i.e. the service would give information in relation to the given place. However, at that time this was not a location-based service, meaning the service did not locate the user by using GPS chips, etc., and an experienced user would certainly know that. A video recording was made in Hervanta, where the terminus of route 23 (between Hervanta and Central Square) is located. So, the utterance "from here" probably indicates Hervanta. This conclusion is also backed up by lines sixteen through twenty-two (in Extract 5.4), where the user must choose the direction of the bus. Especially in lines nineteen and twenty-one the utterance "that's Hervanta Cental Square", where the expression "that's" conveys the self-evident nature of looking at the direction from Hervanta to Central Square; the direction is "from here", from Hervanta onwards. The user probably supposes that he can find the information as he would do on a printed timetable. In a printed Tampere City Transport timetable (Appendix 3), route 23 is given in both two directions so that below the heading 'Hervanta – Central Square' is a list of all the times when buses leave from Hervanta. Listed below the other heading, 'Central Square – Hervanta', are the times of departure from Central Square. No stop-specific timetables are included, only the times of departure from the terminus.

The device's demand to choose a direction is not in conflict with the user's inmost presupposition that the service will give information regarding the whole route for the 23 bus. Thus, it does not change the interpretation frame the user has adopted. After the device's complementary question, the user has reason to believe that his inquiry ("when does number twenty-three run from here?") will receive an answer. However, what appears next on the display is stop-specific information (see Picture 5.7).
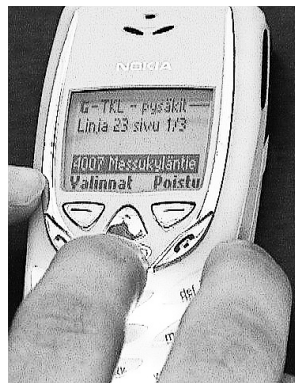
Picture 5.7 (line 24):
The service gives a stop number and
the street name of the stop.

The situation continues as follows (Extract 5.5). The view on the display in Picture 5.7 is transcribed in line twenty-four.

Extract 5.5. Bus 23 iii

```
24 Pic 5.7      (4.2) {TKL-STOPS: Route 23 page 1/3 / 4007 Messukyläntie}
25              [((BROWSES THE STOPS))
26 Pic 5.8  U:  [And then it well: (0.7) uh it offers different (.) stops.
27          C:  Yes.
```

So, as a response to the route-specific command of operation, the user gets a menu of stops, and the first stop is "4007 Messukyläntie", which is not in Hervanta but in Kaleva, another area of Tampere. The user's utterance "And then it well:" (line 26) shows that he is going to explain the operation of the service before it gives the answer, but then there comes a pause in the dialogue (0.7 seconds) during which the user navigates the menu and realises that this is actually the response he gets: he can only get information on individual stops. The user becomes aware of this only after browsing the menu and grasping that the device only offers different stops and that he must choose a stop to be able to go on searching information. Picture 5.8 is concurrent with the user's expression "uh it offers different (.) stops".
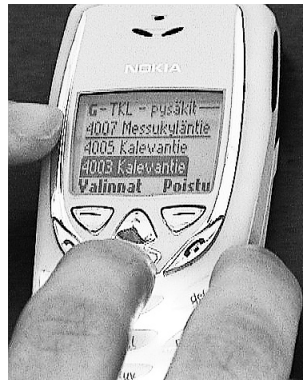
Picture 5.8 (line 26):
"Uh it offers different (.) stops"

The expression reveals, first of all, that this is new knowledge to him. Both the micro pause before the word "stops" and also the emphasis on that word marks it as significant in this context. In addition, the expression "uh" seems to express astonishment (or even disappointment) that the search accessed via the bus route number ends up offering only stop-specific information. This does not appear to be what he had anticipated. If something like this had happened in interaction between people, the participant would have probably initiated a repair sequence and mentioned that he wants information concerning the whole bus route, and especially the times when buses leave from Hervanta. However, here the user understands that he can only follow the procedure of the system.

Accordingly, he starts to demonstrate the service to the person behind the camera. The situation continues in the next extract, where the user says "when it is at that stop" (lines 28 and 29), choosing a bus stop (line 30 <4001 KALEVANTIE>) that is irrelevant to the situation at hand. Consequently, bus number 23 is not said to run "from here", from Hervanta, any longer. The user has given up the original task of finding the information he defined in the beginning and just continues to demonstrate the service to the camera operator. The basic sequence is similar to the previous situation: the user gives the device an order for action (by using the keys) and simultaneously formulates a question ("when it is at that stop?", lines 28 and 29).

Extract 5.6. Bus 23 iv

```
28    U:    And then well,=>if I choose from there when it is< at
29          that s[to[p,
30              [<4001 KALEVANTIE> {OPTIONS}
31                [<OPEN THE LINK>
32          (0.6)
33    C:    °Mm°
34          (3.0) {TKL-PAGE 1/5: Stop 4001, Kalevantie /line=time}
35          <ARROW[KEY] {23=11.18/23=11.38/23=11.58} ((BROWSES THE MENU))
36    U:        [So well, (0.6) so it gives n- you see the next buses
37          that g[o th- the next twenty threes
38    C:          [M-ye::.
39    U:    £that go by that stop£. (.) Okay (.) it does it this way. .hhh
40    C:    Mm.
41    U:    Well this is hhhh well (0.7) quite (0.2) an <↓okay (.)
42          #service#> .hhh.
```

In line thirty-four, the device answers the inquiry: information about the stop in question is given. The user starts to browse the menu (line 35), again anticipating a certain kind of answer, saying "So well" (line 36). But what he then sees stops him and gives him an idea of what this is all about. He notices that the service gives him all the number 23 buses that pass stop number 4001, listed in temporal order (11.18, 11.38, 11.58) from the search moment forward. Thus, he does not get all the timetable information about route 23, not even in relation to that individual stop. His expression marks his understanding about the structure of the service as information which is new to him. "So it gives n- you see the next buses that go th- the next twenty threes £that go by that stop£. (.) Okay (.) it does it this way" (lines 36 to 39).

It can be that the amused tone of his voice (line 39) marks the paradoxical nature of the situation: he ended up looking at the stop-specific information even when he wanted to show an alternative way of seeking the timetable information. In lines forty-one and forty-two, the user is not completely convincing when he says that it is an "okay service". The choice of words, hesitation, pauses, and prosody of the last comment all give the impression that he expected the structure of the service to be different from what it turned out to be in practice. This account

ends the whole activity sequence: the structure of the service is now clear and further information cannot be found. The final response to the information inquiry has changed the user's understanding of the logic of the whole service: one can only get stop-specific information, regardless of whether one seeks it by stop number, by route number or by stop address.

At the level of applicability, there is a false affordance. In the Finnish cultural context, the option "start the search by route number" is related to the common-sense knowledge of presenting timetables as in printed books. The option is seen as part of the concurrent affordances, as it is related to the customary way of seeking for timetable information. Thereby, it serves as documentary evidence of the underlying logic of the service. The user assumes that the service also gives route-specific information, though the service does not in fact supply this.

During the course of the activity, there are certain action potentials that direct the use of the service despite the initial suppositions of the user. When the activity proceeds and new actions come up, the user gradually comes to understand how the service actually works. The interaction based on action pairs – command for action/response to it – changes the conceptions of the user. In lines 17, 24 and 34, the device's announcements are important affordances at the level of comprehensibility: to be able to go on with the service, the user must act according to the information and action potentials that the device has displayed.

After the device's announcement in line twenty-four, the user understands that he cannot get general information about the bus route 23, only stop-specific information. But it is not until after the device's turn in line thirty-four that the user realises that he cannot get all the information he needs about that precise stop: he can only see the timetables of those route 23 buses that pass the stop after the ongoing search moment. At that point the user has encountered enough 'diverging documentary evidence' to change his idea of the underlying pattern of the service which he got at the beginning of the situation. The information requests and the announcements of the device are not automatically meaningful, but rather work as affordances in the mechanism of a documentary method of interpretation. They are interpreted and acquire their precise meaning only in the particular context of the interaction.

The user had to change his interpretation of the service at hand step by step during the activity. The new information he received remoulded the user's knowledge and his awareness of affordances, and thus, changed the course of activity. In the end, what the user needed to know in order to appropriately use the service was, in fact, a product of this situationally proceeding activity itself. The development of the ongoing task was thus interpreted by the evaluation of the results of the operations so far.

5.3.3. Leaning on the Other Functions of Mobile Phone

Common-sense knowledge in the use of different kinds of ICTs (Information and Communication Technologies) develops in the practices that people take part in in their everyday routines. For instance, people using WAP also employ the mobile handset for other operations,

most usually for mobile phone calls and text messaging. The awareness of the device's functions when, for example, calling or sending text messages, is present also when using WAP and can be called upon. This is shown in the analysis of the next case. When looking for a solution for proceeding inside the WAP service, the user tries to make use of the letter keys of the mobile phone, that is, applying a function that can be used when writing a SMS message or when searching for a name in the alphabetically ordered address book.

At the level of handling, the use of WAP in this data set means pressing the keys of the keypad. In some handsets there are also scroll buttons that can be used to browse the menus. Generally, problems in the use of early WAP were not caused by handsets but were inherent in the application; this was true even with beginners (Ramsay & Nielsen 2000, 6). In the following case, the user has to switch her attention to the keypads because there is a problem in understanding the logic of the service; i.e. she does not know which keys to push in order to proceed with the service.

The user wants to find out what movies are being shown in Tampere. Even though she is not as experienced a user of WAP as the one in the previous extracts, she, too, has used WAP for her own interests also before this recorded situation. Now the user enters the pages of Finnkino, a Finnish movie theatre company. The problem here is that this WAP service offers the Helsinki area information as a default, and the user does not know how to get the information about Tampere. After a Finnkino WAP site has opened up, there is a four-second pause in activity and in talk. During that time the user moves her thumb above the keypad as if she was looking for something. A close look at the videotape reveals that after four seconds, she pushes key number eight once. This is shown in Pictures 5.9 and 5.10.

Pictures 5.9 & 5.10.
Pressing the key number eight.

Picture 5.9   *Picture 5.10*

After pressing the key she waits three seconds – nothing happens on the display – and starts to scroll down the menu with the cursor key. Below is the transcription of the same situation.

Extract 5.7. Key number eight

```
 1          {MUSIC AND CIMEMA/Finnkino … ⊙} ((Open the link))
 2          {FINNKINO WAP/City: Helsinki/Day:}
 3          [4.0] ((moves a thumb above the keypad))
 4    →     <key number 8> (('tuv' key))              ← Pics 5.9 & 5.10
 5          [3.0]
 6          <CURSOR KEY DOWN> {Helsinki/Day: Today}
 7          <CURSOR KEY UP> {City: Helsinki/Day:}
 8    U:    °°(Do I get it from there)°°
 9    C:    Does it offer only He[lsinki the[re.
10                                 [<OPTIONS> {OPTIONS/Open the list}
11    U:                                        [Ye: yes I
12          [just wonder (0.6) how one gets that (0.9) I have
13    C:    [Mmm:
14    U:    looked there (.) l:ast time °but (let´s hope)° (3.5)
15          <OPEN THE LIST>
16          {FINNKINO WAP/Helsinki/Jyväskylä/Kuopio}
17          [((scrolls down the menu))
18    U:    [Here is °that (.) a place to (select)° (2.8)
19          {FINNKINO WAP/Pori/Rovaniemi/Tampere} <TAMPERE>
20          {FINNKINO WAP/City: Tampere/Day:}
```

Why does she push key number eight? She is familiar with the service, but previously she has needed it in Helsinki (and perhaps nowhere else) and now tries to figure out how to get the Tampere movie listings. The only logical explanation for pressing key number eight is that she is trying to find the Tampere listings by using the alphabetical order. In some other applications of mobile phones, such as when writing text messages or searching inside an address book, key number eight contains the letters t, u and v (Finnish context). So the letter t is what one gets when pressing the key once. Inside an address book, when one wants, for instance, to find Tania's phone number, selecting the letter t gives one all the names that start with the letter t and one only has to browse this list of Ts in order to find the right number. Here the user employs the same strategy with WAP; she tries out if the letter t brings up all the cities that start with the letter t, like Tampere. However, key number eight is not the solution, as nothing happens on the display after she has pushed the key.

In the transcription, in lines fifteen to twenty, it is shown how the user finds a menu where she can choose Tampere among other cities to be the target of the search. In this list the cities are in alphabetical order. So, the user's idea behind the first guess is right, to find Tampere using the alphabetical order.

The problem lies in the fact that the service does not include any hints about possible ways of finding information about different cities. The structure and the link-ups between menus are hidden from the user. This problem of comprehensibility also causes breaks in the handling of the device.

5.3.4. Contextual Configuration and Sense Making

The control commands of WAP serve as diverse affordances in relation to the user's aim when conducting operations and actions. It is characteristic to all human activity that it is aimed at some goal and this goal directs the way affordances of the activity environment are noticed and used. The shifts in the action context, that is, the contextual configurations (Goodwin 2000), can make people orient to the same 'things' in the environment as diverse affordances (that enable diverse actions). In other words, things work as documentary evidences of interpretation according to the task at hand. Lucy Suchman emphasises the difference between planned courses of actions and actual situated actions that are conducted via information technologies (Suchman 1987). The actions choices that have been built into the devices are often seen only in relation to some sustainable and consistent courses of actions and the variety of operations that are apparent in real use has not been studied or discussed. In actual use, the control commands may not remain unambiguous, but can serve as different affordances in relation to contextual configurations.

In the following, the user interprets the command "Exit"[8] in three different ways: 1) to afford a chance to quit the service altogether, 2) to offer a possibility to 'correct' an operation (by altering the state of the system), and 3) to afford a way of going back into WAP sites and menus. However, only one of these is the designed function of the command that actually exists and can be realised. Ambiguous control commands introduce confusion, and hence, are serious design problems.

The following case is part of the same WAP use situation as the previous one. The user has browsed the cinema sites and now reads aloud the information she found concerning the film *Ice Age*. Through three data extracts from the same situation (5.8, 5.9, and 5.11) we will, among other things, examine the path the user takes inside WAP in order to find the menu "News and Weather". This path is introduced on the navigation map (Figure 5.2). On the map, only the main menus are visible, not all the submenus the user browses through when searching for the right option. To monitor the menu options from the small display and still discern the structure of the menu hierarchy is not easy, especially when the user is faced with confusing control commands. The action sequence considered in the following Extracts 5.8, 5.9, and 5.11 begins from the bottom of the map. We will return to discuss the map in more detail at the end of this section.

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8   Again, in applications based on English the option would be "back", not "exit". However, "exit" is a more faithful translation of the Finnish concept of "*poistu*" than "back".

RADIOLINJA WAP

UTILITIES AND ENTERTAINMENT

ENTERTAINMENT AND LEISURE

NEWS AND WEATHER

MUSIC AND CINEMA

FINNKINO WAP

TAMPERE

ICE AGE
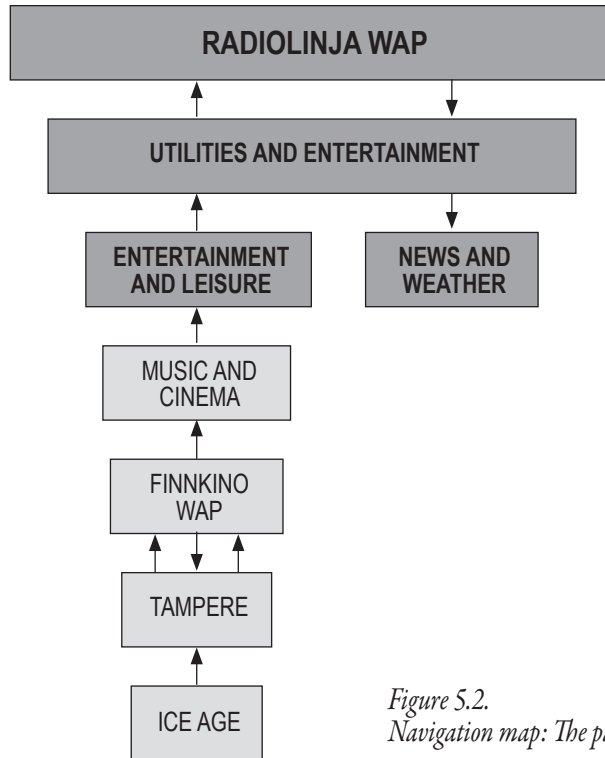
Figure 5.2.
Navigation map: The path the user takes.

Ambiguous Control Commands I: Exit for Quitting

Before looking closer at the navigation map, let us at first consider the separate data extracts. As mentioned earlier, the user has browsed the cinema sites and now reads aloud the information she has found concerning the film *Ice Age*. After having read the information she wants to exit the service altogether. The situation is presented in Pictures 5.11 and 5.12.

Picture 5.11.
"Exit"

Picture 5.12.
Subsequent display
(after pressing "Exit")

In many mobile phone handsets (like the Nokia phone used here), when browsing the basic menu (e.g. all services and options of the device) the selection "Exit" (*Poistu*) takes the user back to the opening menu. This function is also found in some WAP applications.

However, here using the Finnkino WAP service the command "Exit" does not end the session and move the user to the beginning. Instead, it shifts her from the site of *Ice Age* to the previous WAP site, which is the Finnkino Tampere site (Picture 5.12), through which she earlier selected to look at information about the movie *Ice Age*. (Now the first option in the list of movies to select is *40 days and 40 nights*.) At this point, the user does not to seem recognise this change of display as a shift back.

Let us look at the transcription. The view of the display in Picture 5.11 is represented in lines four to seven and the command "Exit" is present in line nine. The view in Picture 5.12 is shown in line eleven and twelve.

Extract 5.8. Exit

```
1          U:   .hhhtch so:: that you may, (0.2) running time [also]
2          C:                                                 [Hmm:]
3          U:   (1.2) and age limit al[so (0.5) yes: .hhh so you can
4                                     [((end browsing))
5                                     {ICE AGE/..minutes/
6                                        Age limit:K7/
7                                           Cities}
8          U:   find everything usef[ul fr(h)om t(h)e(h)re y´k(h)ow heh
9  Pic 5.11                         [<EXIT> 🌐
10              heh [.hhh
11 Pic 5.12        [{TAMPERE/Cities/
12                   40 Days and 40 nights}
```

At the beginning of the extract the user is reading and commenting on the information she found when navigating the site. The last piece of information about the film is the age limit (K7 meaning that children under seven are not allowed to see the film). The user evaluates the service "You can find everything useful from there y'know" and gives a laugh. After the verbal assessment, the "Exit" command seems to anticipate the end of browsing, at least within this WAP service. If she wishes to continue the search, the next – and only – possible selection down the menu would be "Cities" (Kaupunkeihin), the link through which she came to see the Tampere listings in the first place. Picture 5.11 represents the items on the display at that moment. The user, however, does not open the link "Cities". It could be accessed by pressing the shortcut key "Options" (Valinnat) on the left (in Picture 5.11). Instead, she presses the short-cut key "Exit" (Poistu) on the right. (The globe symbol in the transcription demonstrates the moving globe symbol which appears on the display when the mobile phone makes a connection to the service.) As previously mentioned, the command does not end the session; instead it

moves the user from the site of *Ice Age* to the previous site (Picture 5.12), even though the user does not seem to notice that this display modification is a shift back.

The continuation of the situation discloses that the user is still looking for the mode of going backwards. An ambiguous formulation of a control command *Peruuta* makes her mistakenly interpret it as an affordance of reversing. However, this option does not include a function which allows her to do this. Let us look at the situation further.

Ambiguous Control Commands II: Back/Cancel
The steps in the use of this WAP service are followed by a camera operator who now seems to be concerned about having missed the first moments of the session. The camera operator starts to propose whether the user could move on and show some other service. Meanwhile, the user has some difficulties, which we shall focus on next. The problem relates to the Finnish formulation of the commands *Poistu* (Exit) and *Peruuta* (Back/Cancel).

While the camera operator is speaking, the user conducts a very rapid but interesting action sequence, which is shown in Pictures 5.13 to 5.16.

Picture 5.13   Picture 5.14   Picture 5.15   Picture 5.16

Pictures 5.13 to 5.16. The quick sequence of four pushes.

First, the user gives the "Exit" (*Poistu*) command (Picture 5.13). Right after pressing the shortcut key that stands for "Exit", the same key changes to *Peruuta* which in Finnish can mean either "Go backwards" or "Cancel", and is here translated as "Back/Cancel". The other items on the display remain the same. The situation is presented as a series of still images in Pictures 5.13 to 5.16. After pressing *Poistu* ("Exit"), the user instantly presses the *Peruuta* ("Back/Cancel") key (the second image in the sequence), and this action brings back the situation which started

this sequence, that is, the command choice is again *Poistu* ("Exit"). The user yet again presses *Poistu* ("Exit") (Picture 5.15), and *Peruuta* ("Back/Cancel") appears on the display (Picture 5.16). And once more, the user chooses *Peruuta* ("Back/Cancel"), but it only brings back the starting situation.

In the following transcription this sequence of four quick pushes is represented in line seventeen. Extract 5.9 is a straight continuation of Extract 5.8. It begins with the camera operator's statement regarding the beginning of this video recording session. (C's incoherent turn from line 13 to 16). C seems to think that the user wants to end the session and later (lines 19 to 20) she starts to propose whether the user could show something else. However, the user is already engaged with the service (the focus line 17), which, in fact, can be considered a response to C's concern about missing the beginning of the session.

Extract 5.9. Going backwards

```
13    C:    I missed the very beginnig but #you h[mm but#
14    U:                                      [Yes (I)
15    C:    you #hm# but you y´know: #hmmm# but you started already
16          to @[KEY I[(h)N(h)@ that's allright but.
17  →          [<EXIT> <BACK/CANCEL> <EXIT> <BACK/CANCEL>    ← Pics 5.13-5.16
18    U:          [Oh well: .hhh th[en
19    C:                           [Is there any OTHER
20          service that [you (0.8) hssss.
21                       [<OPTIONS>
22          {OPTIONS/Home page/Bookmarks/Open the link}
23          <CHOOSE>
24          {TAMPERE/Cities 🌐}
25    U:    ˚Well let´s see˚ [(2.7) [˚let´s see how one˚
26                          [{FINNKINO WAP/City: Helsinki/ Day:}
27                                 [<EXIT> 🌐
28    U:    manages to ↑back y´know to go (1.5) backwards through
32          these (a bit) (6.3)

((3 lines omitted from 29 to 31))
```

In lines 25, 28, and 32 the user wonders "how one manages to back y'know, to go backwards" (at this point, three lines from 29 to 31 are omitted). This utterance, together with the unusual sequence of several pushes, supports the reading that the user wants to go backwards; thus, she has interpreted the command as "Back". However, in this service, the Finnish term *Peruuta* means "Cancel", to call off the previous command (though the Finnish *Peruuta* also means to "Go backwards"). In other words, here it has nothing to do with going backwards to visited menus or WAP sites.

In an application where one moves forward by opening links, the formulation *Peruuta* is easily perceived as an affordance for going backwards inside the menus. However, this is not

its function in this application. A better solution would have been to replace the command *Peruuta* with the term *Peru,* which also means "Cancel" in Finnish, but contains no double meanings that could confuse the user.

A similar puzzlement due to the textual formulation of the display item can be seen in Ilkka Arminen's study on novice users of WAP. In a videotaped session, two novices use a WAP service in September 2000, when WAP services had been publicly available in Finland for some months. The users are searching for stock market information in the WAP pages of the trade journal. K is operating the phone, N is assisting her and O is the test organiser.

Extract 5.10. (Arminen 2005a, 207)

```
1       {TRADE JOURNAL}
2  N:   #Y[a:h#
3  O:     [what next
4  N:   news
5  K:   new[s
6         [<SELECT NEWS>   <-
7       {CALLING SERVICE}   <-
8  N:   No no [no          <-
9             [<CANCEL>     <-
10 K:   Sa[me
11        [{NO RESPONSE FROM SERVICE}
12 N:   Let's put then let's go then [back
13 K:                                [let's go
14      from some other place [then.
15                            [{TRADE JOURNAL}
```

In line six, K selects the "News" but the users are alarmed by the response of the device (line 7). The users show concern when noticing the announcement "Calling service". At this point, the assistant user says "No no no" in a nervous tone (line 8), and K instantly selects "Cancel" in line nine. The users here display shared understanding; they react unanimously and without delay. The announcement "Calling service" is the source of the trouble. The users seem to think that the device operates as a mobile phone and is making a telephone call. However, in the context of WAP, "calling" is meant to be understood in a technical way as making a data-link connection to the service. In other cases, when service providers used formulations such as "contacting service", the novice users were not confused, but instead continued the process normally. (Arminen 2005a, 207–208.)

These kinds of encounters, where the user finds evidence that he or she has made or will make an error when actually none exists, Lucy Suchman has called 'false alarms'. Another type of communicative breakdown shown in the use of a copy machine, Suchman calls 'garden paths'. In garden paths, the user really makes a mistake in respect of the ongoing task, but it remains hidden because the action taken satisfies the procedure of the program; like in the case

above in Extract 5.9, where the user pushes the *Peruuta* key in order to go backwards. In that case the operation was an error from the point of view of the user's aim, but satisfied the system: from the point of view of the system, the user just cancelled the earlier command. In neither case, in a false alarm or in a garden path, is the breakdown available to the system. (Suchman 1987, 163.)

Ambiguous Control Commands III: Exit for going backwards

The continuation of Extract 5.9 (in Extract 5.11) shows that it is hard for the user to realise where exactly she is located in the service at any one moment. After the camera operator's request to see some other WAP service, the user now wants to go backwards in the menu in order to find a link to the news and weather site, which she then later demonstrates to the person behind the camera (not shown in the extracts).

In Extract 5.8 the first "Exit" command was given in order to exit the service altogether. After that in Extracts 5.8, 5.9, and in the following Extract 5.11 until line 34, the command "Exit" (*Poistu*) works as a kind of attempt to modify the settings on the display in order to find out the logic of the service. The user has problems seeing where she is and what actually happens when she presses the "Exit" key; she does not know where she exits to. Only gradually does she find out that the command "Exit" is in fact the one that moves her backwards within the WAP sites and menus. Because only a small amount of textual information can be seen on the display at any one time, the user must constantly navigate in and through menus in order to pinpoint where she is and where she should go.

Let us examine Extract 5.11. The extract begins from line 28, and includes lines 29 to 31 that were missing from Extract 5.9. One explanation is needed: *Radiolinja* in line 43 is the name of the Finnish mobile operator of that time.

The "Exit" command in line 31 and the operation it accomplishes (it moves the user backwards from the Finnkino Tampere site to the home site of Finnkino WAP, line 33) perhaps make the user realise that it is in fact the "Exit" command that shifts her back to the earlier site. Anyhow, from lines 34 and 35 onwards the user's activity is more systematic. She now uses the command "Exit" to retrace her steps, which is also the programmed option of this command.

Extract 5.11. Browsing menus

```
28    U:     manages to ↑bac[k [y´know]to [go (1.5) backwards through
29                         [{TAMPERE/Cities}
30    C:                        [Hmmm: ]
31                                      [<EXIT> 🖐
32    U:     the[se (a bit) (6.3)
33              [{FINNKINO WAP/Helsinki}
34          <EXIT> 🖐 {MUSIC AND CINEMA/Finnkino}
35          <EXIT> {ENTERTAINMENT AND LEISURE/ Ring tones/
36              Images/ Music and Cinema}
```

```
37   U:    ˚<I[mage mu̲si:c cinema>˚ the̲re was y'know (1.0)
38         [<CURSOR KEY> ((Browses)) {ENTERTAINMENT AND
39                                    LEISURE/ Jokes}
40   U:    .tchhhh [˚Let's look at˚ [(1.0) ˚that still.˚
41              [<EXIT> {UTILITIES AND ENTERTAINMENT/
42                   Entertainment and Leisure}
43                         [<EXIT> {RADIOLINJA/New}
44         <CURSOR KEY> ((Browses))
45         {RADIOLINJA/Utilities and Entertainment}
46         <UTILITIES AND ENTERTAINMENT>
47   U:    ˚L[et's take that a̲gain and [choose the li̲nk.˚
48            [{OPTIONS/Open the link}
49                                   [<OPEN THE LINK>
50         {UTILITIES AND ENTERTAINMENT/Entertainment and Leisure}
51         <CURSOR KEY> ((Browses))
52         {UTILITIES AND ENTERTAINMENT/News and Weather}
53   U:    ˚N[ews and weather let's look at what happens around
54           [<NEWS AND WEATHER> {OPTIONS/Open the link}
55   U:    [the world.˚
56         [<OPEN THE LINK> {UTILITIES AND ENTERTAIN…/
57                          News and Weather 👆}
```

When the display view in line 35 changes to "Entertainment and Leisure", she browses the options on the menu, the last option being "Jokes" (*Vitsit*) (lines 38 to 39). However, she does not find what she is looking for and presses "Exit" again (line 41). She now enters the previous upper menu "Utilities and Entertainment" and presses the "Exit" key without browsing the menu options. Hence, she enters the 'end point', that is, the opening page of the Radiolinja WAP portal in line 43. Now, instead of going backwards, she must start going forward again. She opens again the link to "Utilities and Entertainment" menu (lines 48 to 50), where she now browses the options and finds the "News and Weather" option, opens it and moves on to look at the possible selections inside this menu.

During three related extracts (5.8, 5.9, and 5.11), the command "Exit" (*Poistu*) is perceived by the user as three different affordances. The first one, "Exit" in line nine (in Extract 5.8), seems to afford a chance to exit the service altogether at a point where the action sequence is ending. This would be analogous to the employment of the "Exit" (*Poistu*) command inside the basic menus of many mobile phone devices, and also in some WAP browsers.[9] However, this is not the real affordance of the command. Hence, from that position onwards until line 34 (in Extract 5.11), "Exit" offers the possibility of some kind of menu state modification, during which the user tries to figure out the logic of the system: at that point the user seems to be lost in the service (cf. Heylar 2001, 198). From line 34 onwards, "Exit" affords the possibility

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of going backwards to the previous page/menu visited, which is the designed function of this command, at least in this particular browser/service.

However, it is clearly confusing to employ the command "Exit" (*Poistu*) for a mode that goes backwards. The standard meaning of the concept *Poistu* in Finnish relates it to the action of 'going away', which does not imply anything about the direction of this movement. And as said, in mobile phone surroundings, inside basic menus, *Poistu* brings the user to the beginning display, to the basic state of the device. For moving back to the previous menu within the basic menu, many handset manufactures have employed commands like "Back" (*Paluu*, *Takaisin*) or "Previous" (*Edellinen*). In WAP applications, the employment of *Poistu* as a command for going backwards, together with the confusing meanings of the command *Peruuta* (Back/Cancel), are clearly design problems.[10]

Lost in Menus

With the early WAP application, the user has to move in and through the menus. Every option opens up a new virtual environment, where the user must be able to proceed. Let us now turn back to the navigation map, which retraces the path that the user follows in Extracts 5.8, 5.9, and 5.11 in order to find the menu "News and Weather". To monitor the menu options from the small display and still discern the structure of the menu hierarchy is hard, especially when the control commands are puzzling. Throughout the activity, the user must browse the menus in order to understand 'where she is' and thus perceive correctly the affordances of the service. When going back to previous sites and opening links to new sites, the hierarchical structure of the service and the actually roamed path may be confusing and it is hard for the user to get to know the menu structure.

On the map, the shifts between pages/menus are related to the operations the user takes and also to the lines in transcriptions. The chronological order of operations has been numbered. It should be borne in mind that we can only see here the main menus, not all the submenus the user browses through when searching for the right option. The action sequence considered in the previous extracts begins from the bottom of the map.

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10   The problems may also be due to the constraints of the handset in question. The different browsers of different handsets may treat certain tags and commands in different ways.
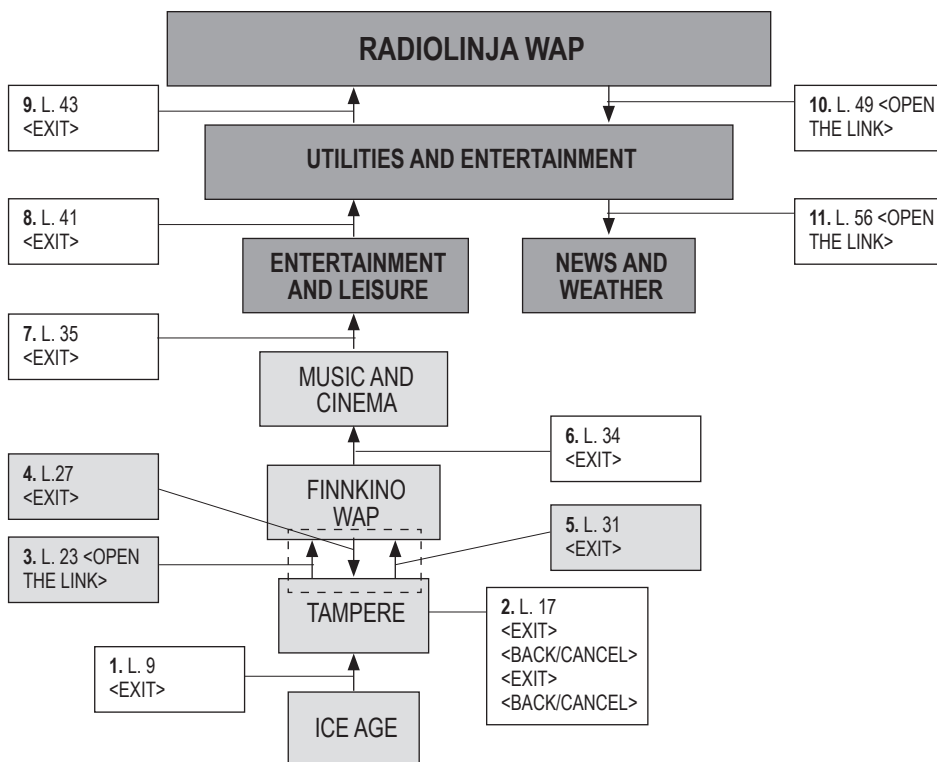
Figure 5.3. Navigation map with operations.

The command "Exit" (*Poistu*) usually moves the user back to the previous page along the path s/he has roamed so far. Links to the pages are clustered together hierarchically, and when searching within WAP the user also moves in and through different layers of the links. Let us look at shifts number 3, 4, and 5 in the navigation map more closely. In the third shift (3) the user chooses to open the link to "Cities" (lines 22 and 23 in Extract 5.9) and she enters "Finnkino WAP" page, through which there is an entry to the list of cities. Hierarchically, the user moves into the upper menu. However, this is not strictly speaking a shift back, since she opens a new link, although from the perspective of menu hierarchy she in fact moves 'back'. The next (4) shift, ("Exit" in line 27 in Extract 5.9) then moves her back to the previous page she has visited, which is the page listing Tampere movies she just left. Now, in relation to the menu hierarchy, she moves into the sub menu when she exits to the previous page! After that (5) "Exit" (in line 31 in Extract 5.11) brings her in fact back to the previous page, which is again

the "Finnkino WAP" page. From that point onwards the user acts swiftly and uses the "Exit" command systematically to move backwards.[11]

It is little wonder that at some point the user became confused. To associate the roamed path with the menu hierarchy is certainly hard for anyone, since the menu hierarchy can only be known by using WAP. It is an impasse: in order to get to know the various services behind the labyrinthine menu structure, one has to browse menus and take a look inside different sites by trial and error. However, during these 'trips' inside WAP, the chronological path that has been followed interferes with the system's menu hierarchy, and thus learning the architecture of menus becomes tricky.

In Marc Ramsay's and Jacob Nielsen's study (2000, 55–56) one task of novice users of WAP was to find out what was on BBC1 that evening at 8 p.m. They performed the task twice: before and after they had spent a week using WAP phones. Although the times to find the information improved between these two session, on the second occasion only 17% of the users found the service, while on the first time it was found by 20% of users. This poor performance was explained by the inadequate architecture of the menus: users simply forgot where they found the listings in the first week and they could not find the right path again a week later.

As we have seen, the inconvenience of searching inside early WAP was not only on account of the inconsistent menu systems, ambiguous control commands also confused the users. In addition, the content items could be confusing. In a tree-like menu, the items at the top are abstract and hard to understand (e.g. "Utility"), and the target content is typically accessible only after four or five selections (Koskinen et al. 2006, 35; Koskinen 2007, Ramsay & Nielsen 2000, 32–33). The users in this study were not first-time users, and still they had problems both with contents and menu hierarchy as well as moving inside WAP. It seems that users adopted early WAP for some specific use (like for timetable checking), but it was not used to make indiscriminate searches. The easiest (and only usable?) way to take advantage of early WAP was to enter the pages that were known beforehand, and if they were visited regularly, to use a bookmark.

Thus, in order to manage to use the service, a user had to understand the textual and symbolic feedback pertaining to the functions the system affords. Klaus B. Bærentsen (2000) has argued that instead of textual and hierarchical menus, designers of technological applications should use graphic displays presenting dynamic information on the structure and functions of the system. He applies Gibson's theory of ecological optics. When we move in the physical world, we have a notion of the goal towards which we strive. The operational details of the activity are determined by the perceptual pick-up of available information about the condi-

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11   In the navigation map, from shift seven (L.35 <EXIT>) on, the user is inside the Radiolinja WAP main menu (provided by the network operator) in which the links to the possible services are clustered together in several sub menus (only a small part of them is visible in the navigation map). Here moving back and forth is a little bit faster, because no connections to the service are opened. The question still arises, will the user here, or users in generally, notice the difference between moving inside the pages they have visited, and when they are inside the permanent menu structure of the network operator?

tions for the activity – i.e. affordances. The constant structure of affordances is perceived in motion. The actor moving in the world gets an idea of 'where he or she is' and what the possible actions to be taken are. Similarly, Bærentesen talks about *technological optics*. He says that technological affordances can be directly perceptible if they are signalled by specific perceptible surface characteristics and the user has acquired the relevant knowledge about the functions of the objects.

Understanding textual classifications is based on common-sense knowledge, although in small-and-deep interfaces, like in early WAP, at least the top items are so abstract that they are beyond common competence (Koskinen 2007, 26). In addition, a small-and-deep interface causes confusion over menu structures. Especially in these kinds of hierarchical menu systems the user easily misunderstands 'where he or she is' and what key choices he or she has to make to go on with the service. Bærentsen has argued that in some cases the hierarchically organised systems of menus may be transformed to a corresponding system of scenes as illustrated in Figure 5.3 below.
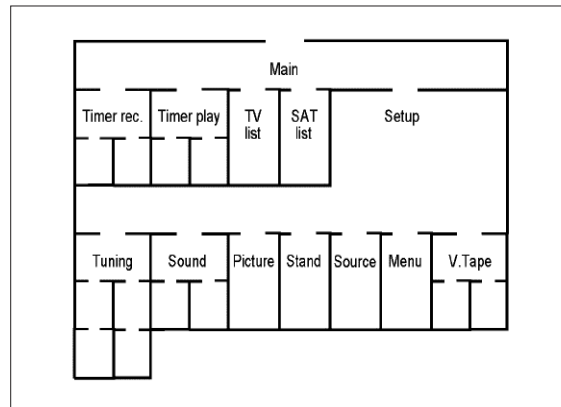
Figure 5.4. The system of menus of a complex AV system, with TV, VCR and Satellite receiver transformed into an organised set of scenes (Bærentsen 2000, 51).

However, in small mobile phones like the ones in our WAP examples, small displays restricted the use of graphical scene maps. Nevertheless, nowadays in new mobile phones increasingly bigger displays with a better resolution would back up the use of scene maps. The comprehensibility of menus of present-day WAP has already been improved by larger displays and graphics and colours, and also because of modified browsers.[12] Some critics say that WAP

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12   In the early WAP the movement inside the service could be managed only through hierarchically structured menus and links. Nowadays there are solutions – like iPhone – that has a touch screen which allows the user

was only a temporary solution before greater bandwidth and better phones became widely available. It is assumed that it is the Internet (as we know it from our PC use) that is browsed through bigger displays; graphics, hyperlinks and images included. Indeed, in Finland in 2007 thirty percent of the owners of new third-generation mobile phones had increased their use of the Internet and email. (FICORA/Suomen Kyselytutkimus Oy 2008.) However, WAP still exists and there are increasingly more users. The future will show what direction the 'mobile internet' takes: the full-web or its stripped-down WAP version. In any case the developers must in the future also pay attention to the principles of the organisation of user-device interaction and its possible trouble sources as introduced in this chapter.

5.4. CONCLUSION

The analysis in this chapter has considered early WAP services, and from the perspective of present-day third-generation mobile data transferring solutions, some aspects of the data may seem old. However, the results show the importance of understanding the actual affordances of information technologies. They also produce knowledge of the basic dynamics of hierarchical textual interfaces, which still exist in different mobile phone and ICT solutions. The study has revealed the problematic aspects of WAP which certainly contributed to the poor success of the application in the first place. The analysed cases demonstrated how an ICT solution fails to be a tool and becomes a machine.

It is clear that the designers of different kinds of intelligent user interfaces cannot design properties or resources that are always identical for everyone. They design affordances and real-ising affordances depends on cultural competence and the contextual progress of a use situation. Cultural constraints and affordances cannot be treated separately, as Donald Norman (1989, 1999a, 1999b) did, because cultural constraints are part of the situational conditions that enable affordances to be affordances, that is, possibilities for actions.

When making sense of ICTs, people do not act randomly, but their reasoning rests on the documentary evidences that are interpreted based on common-sense knowledge and former experience with parallel kinds of systems. In this study on early WAP, the analyses pointed out that the designed logic of the system was often lost on the users. In some cases only a single command was enough to create a false interpretation of an underlying logic: for instance, the *Peruuta* (back/cancel) command was thought to be connected to the mechanism of going back-wards. Similarly, documentary evidences were interpreted on the basis of the logic assumed: for instance, the option "start the search by route number" at the beginning of the service made the

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to scroll e.g. a webpage by dragging up, down, or sideways anywhere on the page without activating links. Scrolling by touching and the possibility of transferring to any compass point means that controlling and following the direction of the movement and piecing together one's location inside the service is easier. The screen becomes a spotlighted point of a virtual landscape that remains there 'all around'.

user believe that it was possible to find out the whole bus timetable of a specific route. In the Finnish cultural context, these options worked as false affordances.

People use mobile phones mainly in operations other than WAP browses. The awareness of the mobile handset's functions when, for example, calling or sending text messages, was also present when using early WAP. In one of the examples, the user turned to utilise the textual input of the handset – like when searching inside the address book – when looking for a solution to finding the movie theatre listings. In another case the command option "Exit" seemed to afford the same as when navigating the basic menu of a mobile phone, shifting the user to the opening display. In Ilkka Arminen's example, the novice users of WAP misunderstood the announcement "calling" because they had knowledge of the handset as a telephone.

Often users spent time wondering 'what is wrong?'. They faced troubles that forced them to concentrate on the logic of the service instead of their own ends. Successful routines did not emerge. When the comprehensibility of ICTs is low, *concurrent affordances* do not come to play a role. In the case of early WAP this meant that other affordances of the mobile phone (like portability) did not increase its applicability. This is illustrated in Figure 5.5.
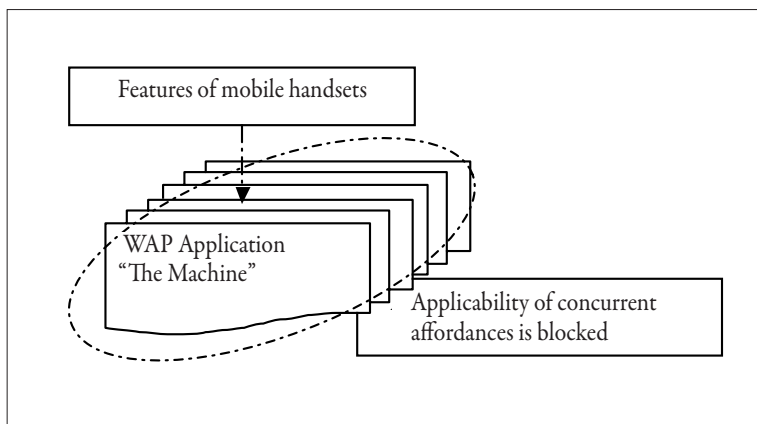
Figure 5.5. The users' attention to problems in application blocks the applicability.

For instance, 'always available' sites are not of use if people get lost in WAP. Thus, in occasions like these, WAP came to represent an 'incomprehensible machine' to users. In the early days of WAP, these kinds of personal or hearsay experiences of its incomprehensibility were certainly one of the factors that led to its poor success.

The use of WAP (and similar kinds of ICTs) does not mean using a stable system in a stable moment of time with stable aims. Rather, it is use-in-interaction, where the sequentially proceeding activity consists of the turn-by-turn procedure of the system and turn-by-turn

interpretations and implementations of the user. In the cases analysed, the users had to change their understandings of the service at hand step by step during the activity. The development of the ongoing task was thus interpreted by the evaluation of the result of the ongoing actions. Knowledge of using WAP and the actual use were altered by each other. In the end, what the user needed to know in order to appropriately attain the goal of use was, in fact, a product of this situationally proceeding interaction between the user and the system. Therefore, it was interaction in its true sense.

This interactional mode of activity can be used to provide an efficient ICT services. The structure of a service can 'force' the user to proceed 'properly'. In the WAP case where the user sought route-specific timetables, the sequential progressing of user-device interaction directed the user to 'take the right operations' and at the end to 'realise the content of the service'. Although in that case the end result was not particularly satisfactory, the basic elements of a good service can be found there. The potentials in the organisation of user-device interaction can be applied to build up usable services in any branch of ICTs if both control commands and content classifications are unambiguous. If at the end the service offers what it promised at the beginning and does this by guiding the user through unequivocal steps, the user does not have to worry about 'what am I supposed to do next?'. The users must be able to trust that the application will steer them to finishing the task they are performing. In this way applicability is realised.

If the logic is not self-evident, comprehension is usually only gained through some problems in use. It is very hard to design an interactive and unambiguous information technology system. If there are remotely ambiguous items, people's tendency to make sense of everything, their intentional stance, may adjust interpretations even to the point where 'mistakes' are not noticed at all. One example of this can be found in Pirkko Raudaskoski's study of telephone answering systems, where three secretaries were asked to accomplish certain tasks (e.g. leave and look for messages) using a dialogic telephone system. The telephone system was programmed[13] to produce certain kinds of turns (first pair parts) that request the user to respond. The system recognised answers as 'correct' or 'false' (depending on how the system recognised them on the basis of the program) and, accordingly, took the relevant next turns. Among other things, this study showed how flexible users were in making sense of the situation. They interpreted the system's turns, sometimes giving a new meaning to a turn, quite different from that intended when the system was designed.

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13   For the study Raudaskoski built a hypothetical telephone answering system program in which the speech recognition and production parts of the system were simulated.

Extract 5.12. (Raudaskoski 1999, 94)

```
1  S:    So you want to leave a message for eve – is that right?
2  U1:   A message for eve that's correct
3  S:    What is it that you want to do then?
4  U1:   Can you say that judy is at home
5  S:    Do what?
6  U1:   Judy is at home
7  S:    You can leave messages or listen to messages – select either
8  U1:   I want to leave a message for fred
```

Notice that the system regarded the user's first turn in line two as a negation (as it was not in an acceptable form for the response to be a *yes*) and the system went on to ask (line 3) what the user wanted to do instead. However, the user, oriented towards the dialogue on the basis of what had happened and what she had said, gave the system's turn a new interpretation: the system was asking her for the content of her message. The system's next turn (line 5) was meant as a repair initiator indicating that the system did not understand what the user wanted to do. However, the user reinterpreted it as a command to clarify the message and so she repeated the message (line 6). The following turn of the system was again a repair initiator (line 7), but the user's interpretation was that the system had sent the message to Eve and now asked what the user wanted to do next, repeating the possible actions that can be performed by the system. In the end, the user thought that the task was accomplished, while the computer was still trying to elicit an 'understandable' turn from her. (Raudaskoski 1999, 93–94.) This example shows, first of all, that if there are remotely ambiguous items, people's interpretations may vary drastically. By the same token, the example demonstrates how difficult it would be to create a system that could interact with the user in all situations. In addition, like the WAP analysis conducted here, so too the study on the telephone answering system illustrates that knowledge of the sequential organisation of situated actions, and their affordances, is needed when designing human-computer interaction. Making simplified models of cognitive processes will not be enough.

In human-device interaction, the user and the device are asymmetrical participants in the co-operation. The user must accommodate his or her actions to the possibilities and constraints the device stipulates. In this study on early WAP, limiting the number of participants to two may seem to put into question the general applicability of the results. Of course, other interesting phenomena could have come forth if there had been more participants involved. However, the restriction of the number of participants does not devalue the importance of the discovered phenomena. The adequacy of the results rests on understanding of the fine details of the user-device interaction. Their generality lies in the general operativeness of the methods that were used, the wide range of actions and interactions which they underpin; it does not lie in 'abstracting away' of details (Button & Dourish 1996, 24). The results can be generalised in the sense that similar phenomena could be and have been found elsewhere and they tell us about the methods of using ICT systems (see e.g. Suchman 1987, Raudaskoski 1999; Raudaskoski & Arminen 2003, 38–43; Koskinen 2007).

The situated nature of action possibilities is a universal rule of user-device interaction. Only through the activity of the user do the designed features of the application come to be real affordances of the user-device system. Analysing the sequential organisation of user-device interaction in detail enables us to interpret what in the device works as an affordance in a certain context. It is also possible to notice the differences between the user's expectations of the functions and their designed structure. Hence, people can perceive affordances that the device does not have, or they might not notice potential functions it does have. Revealing 'false' affordances (which people perceive but which are not included in the artefact) or 'missed' functions (that are designed into the device but are not noticed) is relevant for the future design of related applications.

6. Tools and Machines

This study has looked at aspects of mobile phone use. The notion of affordance has been a key concept in this study, illustrating the situational conditions of mobile phone use. The analyses have focused on the sequential organisation of the use situations and the role of the affordances of mobile handsets and applications in conducting actions. In this final chapter, the main findings of the study will first be discussed. The key aspects are brought together by using a diagram that combines Table 2.2 and Figure 3.1. Subsequently, the implications of the study are considered first for the design and development of mobile multimedia and other information and communication technologies; secondly for studies on social action and interaction and, thirdly, for the theory and methods of social psychology. Finally, some consideration is given to the issue of the intricate aspects of staying in touch *through* as well as *with* mobile technologies.

6.1. MOBILE PHONES: MACHINES AND TOOLS

The social world of mobile communication is complex. Social activities are always layered, and there are several overlapping acts going on simultaneously. No one approach would be sufficient to describe the details of the social world of mobile communication in all its richness (cf. Benson & Hughes 1991, 132). In this study, attention was given to naturally-occurring instances and the main 'sampling procedure' was to collect data where a certain mobile phone application (calls, SMS, WAP) was used. There was no attention given to specific 'underlying variables' (e.g. age, marital status, education, etc.) in the data collection phase. For instance, the ages of the participants were not standardised in advance and only a few teenagers and elderly people participated in the study. This can be seen to be a weakness from the perspective of the generalisation of the results, especially if the goal had been to specify systematically the mobile phone practices of a certain group. However, this was not the aim of the study.

The number of participants may raise another question concerning generalisation, especially in the case of WAP. However, certain practices are interesting and important simply by virtue of existing. In the approach taken by this study, the adequacy of the phenomenon is not dependent on the frequency of the occurrence (even though the incidence of some phenomena was high e.g. in mobile phone calls) or on the number of participants as such. The cases were closely examined, which was time consuming but revealed the actual methods people acquire

and the real affordances they deploy in taking actions. The knowledge of the dynamics of certain mobile interactions can be generalised in the sense that the elementary forms of social actions are often culturally shared. In addition, the existence of certain phenomena in mobile interaction enhance the possibility that practices of the same kind also exist elsewhere (e.g. in the use of other ICTs) and this possibility can be considered generalisable (Peräkylä 1997, 215). The generalisation considers not so much the details of specific practices, as the details of the means by which such practices arise and are constituted (Button & Dourish 1996, 24).

The interest of this study has been to produce formal descriptions of people's methods for producing of social order while using a mobile phone application. The study was made reliable by the method of data processing; the data corpus consists mostly of either audio or video-recorded material which was closely examined and transcribed and widely presented in the final text. This has hopefully made the analytical claims transparent.

The study has discussed the division between usable tools and incomprehensible machines. I have argued that basically the usability of any environmental resources rests on the possibility of a person utilising his or her competence in recognising affordances of activity. The affordances do not rest on the 'naturalness' either of the means of activity (e.g. people may or may not use tools, or possible tools can be simple or complex) or of the composition of the environment (e.g. natural or built components of activity). In action, technological features are considered like any other resources, they can turn into meaningful affordances. When affordances are recognised in relation to the user's own aims, technologies become usable; they are used as *tools*. If users do not identify the affordances of technological artefacts, these artefacts are seen as *machines,* and attention is switched to the functionality of the internal system of the artefacts.[1]

Thus, when describing the key characteristics of interaction, the separation of 'artificial' and 'natural' as a starting point is not relevant, as if technologically mediated interactions would be completely different, a non-interaction. In contrast, technological components can increase interaction and sociability (cf. Gaver 1996), as is the case with mobile phone. The mobile phone can be called 'an extension of the human' because its features have become personal potentials for social interaction. Thus, while being a concrete material extension of the hand, the mobile phone also becomes an extension of the social self: it affords participation in informal communities of practice that can no longer exist without mobile applications.

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1   The division between tools and machines relates to a larger question of the relationship between people and technologies in modern society. For instance, nowadays computers have become part of the occupational practices in almost every occupation. They are employed to make work more effective, but in many cases the competencies and skills people had for managing work practices before are of no use anymore. Computers have become to signify the independence of technical operations from human skill and sensibility. Thus they serve as machines, and learning to use them requires a lot of time and capacity which has caused people in many workplaces to set themselves against computer solutions and use them only reluctantly.

The following figure combines the idea of affordances at the activity levels – handling, comprehensibility, and applicability – with the idea of three different concurrent sources of affordances of mobile phones: technical solutions, functional features, and social actions.

HANDLING	COMPREHENSIBILITY
Technical Solutions	*Functional Features*

	AFFORDS	
Size	┄┄┄►	Portability
Display	┄┄┄►	Textual/Graphical Information
Batteries	┄┄┄►	Wirelessness
Networks	┄┄┄►	Telephony/Data Connection
Software	┄┄┄►	Applications

┄┄┄┄┄► *Stands for functionality: 'mobile phone as a machine'*

— — — ► *Stands for usability: 'mobile phone as a tool'*

Mobile Phone's Affordances for Social Actions
E.g. Personal Accessibility, Constant Contact

APPLICABILITY: Concurrent Affordances

Figure 6.1. The usability of mobile phones is a matter of various affordances.

Problems at any levels of affordances can hamper or block the use. The designed applicability of the application may not be realised, for instance, because of problems in comprehending the logic of the system. On the other hand, easily learnable functions lead to the real usability of the application. From the point of view of the user, functional features are those that are recognised as practical parts of a mobile-phone-as-a-tool, and constitute the basis for real applicability. If technical properties are considered apart from the practical features of the mobile phone, they present the mobile-phone-as-a-machine part of the device. Technical solutions are of key importance in enabling mobile activities, but they may not be the ones that the individual user focuses on when using his or her mobile. Problematic situations may bring attention to certain solutions; for instance batteries are noticed when they start getting low or the network system comes to mind when there are interferences in a connection.

The study concerned three different practices: calls, text messages, and WAP usages. The analysed calls provided information about the social applicability of mobile telephony. Mobile phone calls are intuitive and easy to use in terms of their logic. The practices of making and taking a telephone call are already familiar from fixed landline telephones. Thus, at the levels of handling and comprehensibility the basic functions were already known, and the new features that mobile telephones introduced could be piggybacked as affordances for new kinds of social actions.

The central social affordances of the mobile phone are the personal nature of the device and the possibility of constant contact. The key functional features that afford these social affordances are portability and textual information that, for their part, are afforded through various technical solutions (e.g. small size, batteries, display, network systems, and software applications). In the tool-like use of handsets, the interactional affordances of mobile phones are joined together with other communicational resources as *concurrent affordances*. For instance, personal contact is also afforded by the custom of having an individual number/handset. Similarly, location becomes a meaningful affordance when related to the possibility of constant contact. Since it is a person not a specific location that is contacted, location becomes a variable in the social actions: concurrently with the personal and constant contact, location either affords or restricts actions, or is of no value. Thus, in mobile phone mediated interaction, location becomes a part of concurrent affordances which are organised by the purpose of the activity.

In SMS the organisation of mobile-mediated textual interaction differs from phone calls, and there are different kinds of challenges at the levels of handling and comprehensibility of the application. When SMS was launched, the operation of the keypads was considered hard and clumsy. The good comprehensibility of the application – a simple act of writing a message and sending it – however, lowered the perceived difficulties, combined with the cheap cost of messages. When the functionality of SMS was learnt, concurrent affordances opened up special benefits at the applicability level. SMS affords quick coordination of everyday activities and can also be used in situations where talking on the phone is not possible. The shortness of the messages reduces the problems of text entry and the length of the chains of messages is regulated when needed. One result of the study showed, for instance, that people have been creative in organising the sequence order of the messages in order to reduce the exchange of messages: in requests and offers people sometimes adopt the imperative mode which, unlike question, eliminates the need for an answer. As the study demonstrated, SMS also has important usages in relation management. It provides an opportunity to take new kinds of intimate and amusing social actions in which the time used in keying in the message is not essential. The reason for the usability of SMS can be found from the new kind of sociability it affords. Generally speaking, the popularity of SMS is based on its great applicability.

Through mobile phones, people are situated in the sphere of mutual activity even when they are not constantly in actual contact with each other. Arrangements are often made approximately and gradually in a series of several conversations, realised through calls or SMS. Accordingly, in order to be reachable, and consequently, to be able to take care of one's own

tasks, a person must carry a functioning mobile phone at all times. A person without a mobile has to account for his nonconformism.

The ever-to-hand handset and the ability to make a connection anytime and anywhere inspired the developers of early WAP. The applicability of WAP was marketed as groundbreaking: it was said to make available to the mobile handset all of the basic services of the Internet. However, the real applicability of early WAP was often blocked because users encountered problems with ambiguous command options and tricky menu structures. They were stuck at the level of comprehensibility. When people had to concentrate on the functions of WAP service instead of their own ends, early WAP came to represent an 'incomprehensible machine' for many users.

6.2.   IMPLICATIONS FOR DESIGN AND DEVELOPMENT
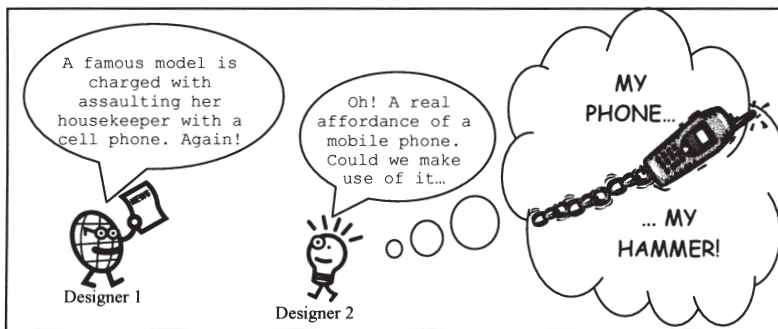
Figure 6.2. Affordances that actual use exposes can be exploited in design.

Right from the beginning, users have adopted the functional features of mobile phones for other actions than those which were the designed ones, those that were first inscribed inside the technology. For instance, created as a device that is used while moving, the mobile phone soon became an individual technological device, used by its (often sedentary) owner everywhere as an instrument of individual communicating. Subsequently, mobile telephony overtook traditional landline telephony, even though mobile phones were at first designed as a complementary and secondary means of communicating when on the move. (Fortunati 2005a, 154–155.)

This study has twofold implications for design. First, it introduces a general approach for studying the affordances in the use situations of information and communication technolo-

gies, which can be utilised in design and developing new applications. Analysing affordances at three different levels – handling, comprehensibility, and applicability – gives a multifaceted picture of the usability of devices. Second, the results of the analysis of mobile phone calls, text messages, and WAP introduced in this study can be considered straight indicators for design and development.

As already mentioned, the affordances of the mobile phone are related to the courses of actions. To give an example, let us consider here one key element of the mobile phone that was an important part of all the uses of the mobile phone investigated in this study, namely, the display. At first sight, the role of the display in phoning would seem marginal. Mobile phone calls can in principle be conducted even without the display, as with landline telephones. However, at the level of applicability, the display is part of the concurrent affordances that has completely changed telephony culture. Even though mobile telephony is a voice-to-voice interaction, the display plays a significant role in managing the social actions taken by the mobile phone calls: answers to calls are no longer responses to neutral summonses and opening self-identifications have disappeared; unknown numbers are not answered; calls that are from friends but cannot be taken are answered by SMS; people 'beep' each other, etc. We also save phone numbers into the address book and browse them on the display. We no longer remember numbers by heart; thus we cannot actually use the phone without the display.

In SMS the display amounts to the central affordance of the whole practice that would not be possible without it. Even small displays are large enough to write and edit, and also to read short messages. SMS was thought to be a marginal application on account of bad manageability. Even though the handling of the keypad may need some learning, the basic structure of the service is easily followed: one writes a text, it is seen and edited on the display and then sent to the person whose number is usually chosen from the address book. Or vice versa: one reads a message and the display usually shows the name of the sender. Even an empty message can be a statement. Similarly to the 'beep' practice in mobile phone calls, the SMS protocol affords a meaningful action without any other text on the display than the name of the person who made the contact.

WAP was especially designed to exploit the screen; it was thought that a stripped-down Internet could easily be run in handsets. However, the early WAP system was structured so that people needed to see 'around', that is, more than what one screen could afford was required to proceed in and through the hierarchical menu systems. The users could not see 'deep into' the service or into the 'environment' of the current position, things which would have been essential for the comprehensibility of the service. Early WAP included both long menus and many menu layers one on top of the other. When the deep structure of the architecture of the services and the small size of the display were connected to the low resolution of the screen and to low speed connections, the practicality of the application was often questioned.

The development of applications means affording whole courses of actions. When an application is used, a user gets an idea of the activity environment he or she is acting in through the display. The adequacy of the display is related to the architecture of the service and to the

aim of its use.[2] The display needs to be sufficient for gaining access to the critical affordances of the application. Even a small and low-resolution display is adequate for a small amount of information that is placed in one dimension, like in caller information or in text messages. A larger display as such does not increase the usability; it is the comprehensibility of the interface that matters.[3]

The present-day WAP is easier to use on account of larger high resolution displays, but also because of modified browsers and better data connections. Graphics and colours have helped to create more comprehensible menus. However, today many people are familiarised with the idea that there is only one Internet and in the future we will access it also through our mobile phones. Attention today has switched away from the WAP to third-generation mobile Internet solutions which provide such services as photos and video sharing, personal information management, file storage, music and games. However, in spite of the long history of WAP and its problems, the development of these new solutions has encountered similar kinds of comprehensibility problems than early WAP did. For instance, Nokia's new Web portal, OVI, and especially its music management solution has been criticised for its tricky user interface that once it has been tried, inhibits one from trying again.

Yet, in spite of the many public declarations of the death of WAP, it still exists as a technological base and there are increasing number of WAP services and a steadily growing number of users. In fact, full-web browsers in mobile phones may also face display restrictions: if all the contents (including links and images) of the Internet sites are available, critical information may become hard to pick out. The situation is reminiscent of some aspects of the early WAP: the relation between the size, amount of information, and its distinctiveness may not be optimal in full-web browser either. For instance, the WAP service may be more pleasant than a full-web site for reading a 'newspaper': instead of loading the original Internet site into one's data phone, reading the same information from a WAP site (which is already adapted to the display of a mobile phone) without a large number of images and messy internet links might be more comfortable (http://www.taskussa.fi/2007/08/16/wap-elaa-sittenkin/).

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2   In some new mobile phones, web browsers afford scrolling by touching the screen and it is possible to 'drag' the webpage to any direction. Where in the early WAP the architecture of the service was layered and hierarchical, the logic here is 'puzzle-like', i.e. the view on the display offers one 'piece' from the whole at a time and the user can change the view by dragging the page by fingertips.

3   A good example of this is 'ease of use' handsets. Larger display and bigger fonts are not enough to increase the usability of the handset, for instance, for elderly people. My recently deceased father got his first mobile phone at the age of 85. It was Doro's HandleEasy, a model with a large display, a big keypad and some shortcut keys for direct calls. This model was suitable only for calling, not for SMS. The features of the phone seemed suitable for our weak-sighted father. When I visited him, my father complained that he could not make any calls with the phone: it was jammed. I started to advise him, but it required examining the manual for some time. The dominant logic of the current mobile handset – separate buttons for making and cutting off calls and for navigation, and their diverse functions depending on the state of the system – was too complicated. There were too many possibilities to go onto the wrong track simply when making a call so that my father gave up trying altogether. The handset might have been easier for someone already familiar with the dominant logic of current mobile handsets. However, the comprehensibility of the system was far too complex for a person with weak eyes and previous experience only with the use of the old-style landline telephone.

When different applications are converged into the same device, the new platform sets the limits for the functions. For instance, you may have a five megapixels camera in your mobile phone, but if you are at all interested in photography, you would get far better pictures with your old three megapixels digital camera. This is because high quality optics and flash do not fit into a mobile phone handset, whose size and functionality is restricted by its other applications. Similar kinds of things may also be faced with the system logic of different applications. When people have learned how to 'drive a car with automatic transmission', the switch to 'manual transmission' may initially prove troublesome; analogously, when people have used a software application on some technological platform (e.g. on a PC) and then use the similar application on a mobile phone, the new procedures they face due to the convergence of platforms may make them feel insecure and frustrated.

Applications must be designed so that the relation between the size of the display and the amount/levels of information remains optimal. It is important for designers and developers to keep to one simple rule: mobile phones (as well as other ICTs) either serve as tools or machines for users. The complexity of technologies must not mean complexity at the user interface. It is better to wait (or release a modified version) than launch a service that has great potential applicability but which at the level of basic functionality is still so cryptic that users will not see the tool for the machine. The new environment and the courses of actions inside which the new service is used define the usable affordances of the service. In order to design usable applications, co-operation between different parties – e.g. application developers, content providers, handset manufactures, and operators – is needed.

The approach introduced in this study helps to clarify both workable solutions as well as bottlenecks in the real courses of actions that include the use of mobile (or other) technologies. In the design of new or improved artefacts, it is actually of primary importance that the designers know what kind of affordances people perceive and use when acting with existing devices. Or similarly, it is important to know which designed action possibilities are not taken advantage of. Looking at the actions taken, research reveals whether the designed action potentials are perceived or not, and whether there is some need for 'missing affordances' that can possibly be added to the next model of the device.

6.3.   IMPLICATIONS FOR THE STUDY OF SOCIAL ACTION AND INTERACTION

This study supports Harvey Sacks' notion that any social phenomenon can be analysed using the premises of ethnomethodological interaction analysis. Ethnomethodological conversation analysis (CA) formed a systematic tool for analysing talk-in-interaction. In this study the idea of action-in-interaction is adopted. This means that all actions can in principle be considered both as interaction between participants (be they human or not) and, concurrently, as an activity with some purposeful aim. The approach employed considers human activity as systems of sequentially organised actions structured by situational resources.

These resources are regarded as affordances. This definition follows from the ecological psychological point of view that affordances are action potentials of specific actor-environment systems. Affordances are 'indexical features' of our environment; they are related to the action context. Communicative resources as well as other affordances are employed in taking actions, and equally, those resources acquire their precise meaning inside the frame of the ongoing action.

The combination of CA and affordances benefits both ethnomethodological interaction analysis as well as an ecological approach. First, for CA it means that resources other than speech are regarded as equally important and intertwined parts of the organisation of talk-in-interaction. In addition, the affordance point of view emphasises the interactional nature of any activity and provides an opportunity to concentrate on the various media and their affordances in any organisation of action-in-interaction. For instance, this study has investigated mobile-phone-calls-in-interaction, SMS-in-interaction, and WAP-in-interaction. The characteristic affordances of these various applications of the mobile phone have been viewed through close analysis of the interactional organisation of the medium in question.

Second, both for the researcher who is interested in finding out the affordances of a specific activity, or conversely, investigating for instance what action potentials a specific artefact brings to an activity, CA provides concrete means for analysis. Regardless of the degree of the researchers' former relation to ethnomethodological enquiries, I consider that there are at least two valuable principles of conversation analysis that can be used to make affordances visible: 1) *no thing is valueless a priori in relation to the organisation of the interaction;* dissection of the actual actions is needed to reveal meaningful affordances of the activity system in question; 2) *activities comprise sequences of actions and these sequences are often realised in action pairs;* the organisation of an activity can be studied by using the conventions of CA. These two principles are valuable for the study of any social actions and interactions.[4]

6.4.   IMPLICATIONS FOR SOCIAL PSYCHOLOGY

Due to the historical roots of the field, social psychology as a discipline can be seen to emphasise either the individual or the social as a starting point for the study of human behaviour. A

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4   The approach developed in this study and the distinction between the three conceptual levels of activities – handling, comprehensibility, and applicability – have proved to be useful in investigating the assistive technologies of special groups, for instance of aphasic speakers (Aaltonen & Raudaskoski 2009). The usability of a device may turn to be problematic because of the troubles only in one of the levels of affordances. For instance, many aphasic speakers have had a stroke and are also partly paralysed and there are often problems in the handling of devices. On the other hand, the sudden and drastic changes in their health and abilities force many aphasic speakers to learn to do mundane tasks differently than before. If they in addition are offered a new and fancy assistive device the logic of which they should learn from the beginning, they may not be willing or capable to take advantage of such a device, even if they could handle it and could understand its applicability.

distinction is made between psychological and sociological traditions of social psychological research (see e.g. Farr 1996; Burr 2002; Wetherell et al. 1998; Pirttilä-Backman 2004), with the psychological tradition seeming to be more individual-based and the sociological tradition looking for answers in social structures.[5]

The approach developed in this dissertation combines the theoretical worlds of ecological psychology and ethnomethodology. In a way, the approach challenges the distinction between 'individual' and 'social' since it argues that human beings and the social environment cannot be dealt with separately when investigating meaningful human behaviour. Ecological psychology regards the separation of human beings and the environment into two different systems as a mistake: perception as well as all other phenomena we consider to be 'psychic' only come into existence within the systemic organisation of the human actor and the environment (Gibson 1986; Järvilehto 1998a&b; 1999; 2000)[6]. Ethnomethodological conversation analysis, for its part, does not see language and other actions as a way of investigating or demonstrating the phenomena inside our heads: they are, instead, indicators of social organisations and should be studied in the context of activity systems. Thus, the approach does not represent an individual or social, but rather a *systemic* viewpoint in social psychology.

This study gives practical tools for investigating *interaction* which is often understood as a key phenomenon of social psychology. The old definition of interaction as abstract 'information exchange' between individual brains has given way to more sophisticated formulations in all fields of social psychology, but the studies often lack concrete tools for analysing the interaction as it happens for real. The ethnomethodological interaction analysis used in this study gives means for the detailed investigation of the sequential progress of any interaction.

In addition, through the analyses made and the elaboration of the theory of affordances, this study shows that the material/technological/semiotic parts of the environment are just as important as 'human' resources in the successful progress of interaction. Social psychological studies inevitably come across technologies when studying everyday social practices. When the starting point of a study is systems of activities, there is no need for the distinction between the 'natural' and 'artificial' resources of human behaviour, or the division of 'human sciences' and 'technology sciences'. The key elements of a social practice are determined concretely by the actual organisation of an activity, not by some scientific classification formulated in advance. At the core of social psychological investigation is the fact that interaction means co-operation with the relevant affordances of the activity system, be they 'human' or 'non-human'.

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5   However, the way different theories have become part of 'psychological' or 'sociological' social psychology seems sometimes to have more to do with the historical context of scientific disciplines than the actual content of theories. For instance, G. H. Mead is often regarded as the most distinguished theorist among sociological social psychologists, while theoretically his work is strongly linked to philosophy and, on the other hand, to Darwinism and natural sciences (Farr 1996). In fact, I believe that Mead's theory of the relation between mind and society crosses the boundaries of individual and social and is rather systemic in nature.

6   An extensive presentation of the systemic organisation of human behaviour can be found in the organism-environment systems theory created by Timo Järvilehto (Järvilehto 1998a&b; 1999; 2000). It has been one of the influential theories in the background of this study.

This study has shown, for instance, that when using ICT systems, 'cognition' is constituted by the situational dynamics of social and material phenomena (for example, when using WAP). Of particular relevance to social psychological theory is the fact that cognition and action are seen as interrelated (cf. Lave 1988; Hutchins 1995; Edwards 1997; Te Molder & Potter 2005). Activity systems have an emergent quality in relation to all cognitive phenomena. The way an activity system is organised in a specific situation constructs the practical knowledge of this system. (Järvilehto 1999.) The system organised prior to a particular task cannot be sufficiently detailed or sufficiently precise to anticipate exactly the conditions or results of actions. Knowledge is the product of the whole situation: in any given instance, it is continually being refined, enriched, or completely revised in relation to ambient conditions. (Keller & Keller 1993, 126–127.)

6.5.   STAY IN TOUCH

When living their lives and acting with technologies, people are primarily concerned with the goals of actions and the processes of communication, not the technology itself. People can be creative in using available communication technology to solve their immediate needs. For example, during the tragic events of 9/11, people tried to contact their loved ones, no matter how. When the first communication channel was blocked, they tried the next available alternative. Many messages of love and concern were sent out using landline calls, mobile phone calls, SMS messages, pagers and Internet. Declarations were not frilly, fancy or creative, but were extraordinarily meaningful. (Katz 2006, 104–110; Ling 2004, 46–47.)

When writing this thesis, a massacre occurred at school in Kauhajoki. It was the second similar kind of incident within a year in Finland. The Internet has been said to play a key role in designing these massacres and gaining publicity for them. It has been argued that the Internet should be controlled more in order to prevent these kinds of episodes. Persons with whatever peculiar passions find a virtual community from the Internet that back up their interests. The answer has been, however, that the Internet is nowadays far too large a community to be controlled, and far too important to close down. 'Side effects' like these thus have to be tolerated.

Mobile phones are typically used between people who already know each other and who usually also have face-to-face contacts in their everyday life. Mobile phones are, however, connected to other media. News reports about the massacre mentioned mobile phones. Networks were blocked when people tried to contact their loved ones after news about the incident had emerged. It was also said that the killer himself had called to his friend after the killings and had said goodbye before shooting himself. One episode related to happenings around the massacre pinpoints the role of mobile applications in the network of real time information flow through different media; the online mass communication is intertwined with dense mobile communications by masses. A colleague of mine was having a lecture during the time of the massacre in Kauhajoki. At some point in the lecture, students began to start fidgeting. It came out that one

student's close friend, who is a non-Finn and lives abroad, had sent her a message: "Shooting at school, don't go out!". This foreign friend only knew that shootings were happening in Finland, and just in case gave a warning to this person, who was in Tampere, hundreds of kilometres away from Kauhajoki. Fortunately the lecturer already knew about the incident and could calm the students and tell them they were not in danger.

This study has analysed the 'beneficial' uses of mobile phones. Like the Internet, mobile phones have become critical in managing everyday business, domestic or institutional. We all know that mobile phones are also used for detrimental purposes: to organise criminal or terroristic attacks, to trigger bombs by calling or sending a text message, etc. Mobile phones form a part of many sorts of communities of practise.

However, it could be said the most serious threat which concerns mobile phones in general and affects every user is not linked to what people might do with mobile phones, but rather what mobile phones might do to us. Lately in Finland there have been headlines about an issue that influences every mobile phone user: the possible health risks from radiation emitted by mobile phones and base stations (e.g. Karinen et al. 2008; Agarwal et al. 2008; Hänninen et al. 2007). Some researchers have warned parents not to give a mobile phone to a child under twelve years of age. A handset should not be kept close to the body and should be at least two metres away when not used (and preferably also when used; people should employ hands free sets). [7]

In practice, however, handsets are kept close to our bodies; they have become extensions of the human body. People are so dependent on their mobiles that the warnings of health risks must be based on unquestionable evidence from different research sources before people are willing to go back to the time before mobile phones. Radiation is an invisible factor that belongs to the machine part of the mobile phone; it is not perceptible in our everyday practices when we use mobile phones as tools. This is also known by manufactures: every indication of some health risk is soon ridiculed by manufacturers and we wish to believe these accounts. Even if some incontrovertible evidence came to light, people might well tolerate such imperceptible side effects just to keep everyday life running. If the studies show indisputable evidence of mobile phone-related health risks, it would be interesting to investigate possible changes in people's everyday practices: would we hang onto the possibility for mobile communication and continue to maintain constant mobile contact? The present study on mobile phone use gives a baseline for investigating possible future changes.

Thus, it is evident that the use of mobile phones forms, and is formed by, the net of social practices that are afforded both by the features of mobile technologies as well as by the organisations of social conduct. Mobile phones have become the 'most visible invisible computers' of

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7   In 2009, Radiation and Nuclear Safety Authority Finland (STUK) began a follow-up study with one hundred thousand mobile phone users, aged 18 to 69. The study focuses on the possible health risks of mobile phone use. For a span of at least ten years, it will follow the emergence of neurological diseases, the problems in brain blood circulation and the tumours in head among participants. The study is initiated by World Health Organisation (WHO) and it is also conducted in Sweden, Denmark, the Netherlands, and Britain.

our time: few people think that they are using high technology when they are walking in the streets and talking on their mobile. For various reasons people need to stay in touch with each other. This means that they are also compelled to stay in touch with mobile technologies that, generally speaking, do not appear to them as incomprehensible or threatening machines (like many other computational technologies) but as tools that are relevant parts of their everyday practices.

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General transcription conventions used in Chapter 3 and Chapter 5

(0.5)   Numbers in brackets: a gap timed in tenths of a second.

(.)   A dot enclosed in brackets: a 'micro pause' of less than two tenths of a second.

UPPER   Loud voice.

:   Colon: stretching of the sound.

-          Dash: a sudden cut-off of the prior sound.

.   Full stop: falling tone.

,   Comma: continuing tone.

?   Question mark: rising tone.

↑↓   Arrows: rise or fall in pitch.

[ ]   Square brackets indicate the points of overlapping talk and/or activity.

=   Equal sign: absolute contiguity between utterances.

( )   Unclear utterance or other sound.

(( ))   Analyst's comment.

.hh   Inbreath. The more 'h's, the longer the breath.

hh   'h's with no preceding dot are used to represent exhalation and breathiness.

Under   Underlining indicates the speaker's emphasis. When appearing in descriptions of the activity of the device, it indicates the place of the cursor.

> <   Speech is delivered quicker than surrounding talk.

< >   In conversation: noticeably slower talk.

he ha   Laughter.

Wor(h)d   (h) in the middle of a word marks laughter.

£ £   Smiling voice.

Creaky voice.

° °   Talk delivered quieter than the surrounding talk. (Very quiet talk is marked °° °°)

@ @   Animated voice.

.mth/.tch Smack.

→   Focus line.

Transcription conventions for activities with the WAP application in Chapter 5

< >   Performing an action with the device.

{ }   Menu (or page or state) that is opened through the action.

UNDER Underlining demonstrates the cursor place inside the menu.

[5.4]   Pause in activity with the device (as distinct from verbal pauses).

(( ))   Comments about the ongoing activity.

[ ]   Square brackets indicate points of overlapping talk and/or activity.

APPENDIX 2
TRANSCRIPTION ORIGINALS (IN FINNISH)

Extract 5.2. Page not found

```
1 Pics 5.2&5.3 [<POISTU> {SIVUA EI OLE}
2    U:    [Eli hhhh °aha [otan tosta tota (1.4)
3                        [<VALINNAT> {VALINNAT} ((SELAA))
4    U:    °>harmi et täs ei o-< no tos on [paluu° (0.5)
5 Pics  5.4 & 5.5                          [<PALUU>
6                                              {SIVUA EI OLE}
7    U:    °sivua ei ole°. (.) No mää näytän ton,
8    C:    Mitä tuo tarkot[taa sitte.
9                        [<VALINNAT> {VALINNAT} ((SELAA))
10   U:    Tää on justiin #(tä[mä)# lo[petus ja sitten tota
11                          [<LOPETA> {LOPETETAANKO SELAILU}
12                                  [<KYLLÄ> {VALMIUSTILA/SONERA}
13   U:    uu[destaan täältä .hhh em mä tiä niinku oliks tää
14      [<PÄÄVALIKKO>} ((SELAA))
15   U:    [et mää en osaa käyttää [mutta (1.0) tää on niinku
16         [<PALVELUT> {PALVELUT VALIKKO}
17                                [<KIRJANMERKIT> {KIRJANMERKIT}
18                                              ((SELAA))
19   U:    [kuukleen mää oon tässä tallettanu et mää pystyn
20         [{TKL-WAP}
21         [jotain hakeen mut siä nyt ei o mitään ihmeellistä,
22   C:    [Mjaa:
23         (0.8)
```

Extract 5.3. Bus 23 i

```
1 Pic. 5.6   {TKL-WAP /Aloita haku: linjan numerolla/ pysäkin numerolla}
```

[ ] ((Lines omitted))

```
2    U:    Tässä: on aloita haku linjannumerolla pysäkinnumerolla pysäkin
3          osoitteella (1.0) eli jos [mää nyt haluan jonkun li[njan numeron
4    C:                        [Joo:,
5                                                  [<LINJAN
6                                          NUMEROLLA> {VALINNAT}
7    U:    [(0.6) tosta vaikka (1.0) koska me[nee kakskolmonen
8          [<AVAA LINKKI>                [{LINJAN NUMERO}
```

```
 9   U:    täältä, (1.0) [pistän tohon että m[uokkaa [kakskytkolmonen oli
10                       [<VALINNAT> {VALINNAT}
11                                     [<MUOKKAA> {LINJAN NUMERO}
12                                              [((KIRJOITTAA 23))
13   U:    linjan nu[mero. (1.4) #ja tota: [haet[aan# (1.5)
14              [<OK> {TKL-WAP}          [<HAE> {VALINNAT}
15                                          [<AVAA LINKKI>
```

Extract 5.4. Bus 23ii

```
16         niin tää antaa i[lmeisesti ihan (0.8) no Hervanta
17                        [{TKL-SUUNNAT: Hervanta-Keskustori
18                                      /Keskustori-Hervanta}
19   U:    Keskustori vai Keskustori Hervanta eli Hervan[ta,
20   C:                                                [Mmm::.
21   U:    Kes[kusto[ri
22       [<HERVANTA-KESKUSTORI> {VALINNAT}
23               [<AVAA LINKKI>
```

Extract 5.5. Bus 23 iii

```
24 Pic 5.7     (4.2) {TKL-PYSÄKIT: Linja 23 sivu 1/3 / 4007 Messukyläntie}
25             [((SELAA PYSÄKKEJÄ))
26 Pic 5.8 U:  [Ja sit se tota: (0.7) ähh se tarjoo eri (.) pysäkkejä.
27      C:     Aivan.
```

Extract 5.6. Bus 23 iv

```
28   U:    Ja sitten tota,=>jos mä otan tosta et koska se on<
29         tossa pysä[kill[ä,
30               [<4001 KALEVANTIE> {VALINNAT}
31                   [<AVAA LINKKI>
32         (0.6)
33   C:    °Mm°
34         (3.0) {TKL-SIVU 1/5: Pysäkki 4001, Kalevantie /linja=klo}
35         <NUOLI[NÄPPÄIN {23=11.18/23=11.38/23=11.58} ((SELAA))
36   U:         [Niin tota, (0.6) niin se antaa ks- niinku seuraavat bussit
37         jokka mene[e si- seuraavat kakskolmoset jokka
38   C:             [Mjoo::.
39   U:    £menee sen pysäkin ohi£. (.) Okei (.) se tekee tällai. .hhh
40   C:    Mm.
41   U:    Ohan tää hhhh no (0.7) ihan (0.2) <↓ookoo (.)
42         #palvelu#> .hhh.
```

Extract 5.7. Key number eight

```
 1          {MUSIIKKI JA ELOKUVA/Finnkino … (🌐)} ((Avaa linkkiä))
 2          {FINNKINO WAP/Kaupunki:Helsinki /Päivä:}
 3          [4.0] ((moves a thumb above the keypad))
 4    →     <numeronäppäin 8> (('tuv'-näppäin))              ← Pics 5.9 & 5.10
 5          [3.0]
 6          <NUOLINÄPPÄIN ALAS> {Helsinki / Päivä: Tänään}
 7          <NUOLINÄPPÄIN YLÖS> {Kaupunki: HELSINKI /Päivä:}
 8    U:    °°(Saakohan sen tuolta)°°
 9    C:    Antaaks se vaan He[lsinkiä sie[ltä.
10                            [<VALINNAT> {VALINNAT/Avaa lista}
11    U:                                 [N:ii joo mää
12          [juuri että (0.6) millä tän saa sitten (0.9) mää oon
13    C:    [Mmm:
14    U:    siellä kattonu (.) v:iimeks °mutta (toivotaan)° (3.5)
15          <AVAA LISTA>
16          {FINNKINO WAP/Helsinki/Jyväskylä/Kuopio}
17          [((selaa valikkoa alaspäin))
18    U:    [Tossa toi on °tollai (.) valinta (paikka)° (2.8)
19          {FINNKINO WAP/Pori/Rovaniemi/Tampere} <TAMPERE>
20          {FINNKINO WAP/Kaupunki: Tampere/Päivä:}
```

Extract 5.8. Exit

```
 1    U:    .hhhmt nä:in että kylä täältä, (0.2) kes:toki [viälä]
 2    C:                                                  [Hmm: ]
 3    U:    (1.2) että ja ikäraja[ki (0.5) no:ih .hhh elikkä tota kyllä
 4                              [((lopettaa selailun))
 5                               {ICE AGE/..minuuttia/
 6                                 Ikäraja:K7/
 7                                 Kaupunkeihin}
 8    U:    täälä kaikkee hyädyllis[(h)tä lö(h)yt(h)yy tot(h)a(h) heh
 9 Pic 5.11                       [<POISTU> (🌐)
10    U:    heh [.hhh
11 Pic 5.12    [{Tampere/Kaupunkeihin/
12               40 päivää ja 40 yötä}
```

Extract 5.9. Going backwards

```
13    C:    Mulla jäi se ihan alku mut #sä m[mm mut#
14    U:                                    [Joo (mulle)
15    C:    sää tota #mm# mut sää tota: #mmm# sää kerkesit ruveta
16          jo @[NÄPPÄILE[(h)E(h)@ ei se mitää muta
17    →        [<POISTU> <PERUUTA> <POISTU> <PERUUTA>   ← Pics 5.13-5.16
```

```
18   U:                [Aha no tota: .hhh sit[ten
19   C:                                      [No onko mitään MUUTA
20        palvelua mitä [sä (0.8) hssss.
21                      [<VALINNAT>
22        {VALINNAT/Aloitussivulle/Kirjanmerkit/Avaa linkki}
23        <VALITSE>
24        {TAMPERE/Kaupunkeihin 🐦}
25   U:   °No katotaas tota° [(2.7) [°katotaas mites tästä°°
26                          [{FINNKINO WAP/Kaupunki: Helsinki/ Päivä:}
27                                 [<POISTU> 🐦
28   U:   pääsee ↑peruuttelee tota näitä (1.5)
32        taaksepäi (vähä) (6.3)
```

Extract 5.11. Browsing menus

```
28   U:   pääsee ↑peruut[te[lee t]ota [näitä (1.5)
29                      [{TAMPERE/Kaupunkeihin}
30   C:                  [Hmmm:]
31                                   [<POISTU> 🐦
32   U:   taakse[päi (vähä) (6.3)
33          [{FINNKINO WAP/Helsinki}
34        <POISTU> 🐦 {MUSIIKKI JA ELOKUVA/Finnkino}
35        <POISTU> {VIIHDE JA VAPAA-AIKA/ Soittoäänet/
36               Kuvat/Musiikki ja elokuva}
37   U:   °<K[uva musiikki ja elokuva>° tossa oli tota (1.0)
38        [<NUOLINÄPPÄIN> ((Selaa)) {VIIHDE JA VAPAA-
39                                  AIKA/Vitsit}
40   U:   .mthhhh [°Katotaas° [(1.0) °toi vielä.°
41               [[<POISTU> {HYÖTY JA VIIHDE/
42                          Viihde ja vapaa-aika}
43                          [<POISTU> {RADIOLINJA/Uutta}
44        <NUOLINÄPPÄIN> ((Selaa))
45        {RADIOLINJA/Hyöty ja viihde}
46        <HYÖTY JA VIIHDE>
47   U:   °O[tetaas toi uudestaa ja [valitaan linkki.°
48        [{VALINNAT/Avaa linkki}
49                                  [<AVAA LINKKI>
50        {HYÖTY JA VIIHDE/Viihde ja vapaa-aika}
51        <NUOLINÄPPÄIN> ((Selaa))
52        {HYÖTY JA VIIHDE/Uutiset ja Sää}
53   U:   °U[utiset ja sää katotaas mitä maailmalla
54        [<UUTISET JA SÄÄ> {VALINNAT/Avaa linkki}
55   U:   [tapahtuu.°
56        [<AVAA LINKKI> {HYÖTY JA VIIH…/
57                       Uutiset ja Sää 🐦}
```

APPENDIX 3

Tampere City Transport's printed timetable of route 23 is bidirectional in that first there is a title 'HERVANTA – Keskustori' (Hervanta – Central Square) and below it are all the times when the buses leave from Hervanta. Below the title 'KESKUSTORI – Hervanta' (Central Square – Hervanta) are the times of departure from Central Square.

23 HERVANTA – Keskustori
(keskim. ajoaika 27 min)
9.8.2004 – 5.6.2005

Hervanta – Ahvenisjärventie – Opiskelijankatu – Insinöörinkatu – Orivedenkadun silta – Tieteenkatu – Hepolamminkatu – Hervannan valtaväylä – Messukylänkatu – Kalevantie – Kalevankankaan hautausmaa – Salhojankatu – Itsenäisyydenkatu – rautatieasema – Hämeenkatu – **Keskustori** (9,6 km)

Arkisin

04	20M				
05	05	25	45		
06	05	25	45		
07	05	15	25	35	45
08	05	15	25	35	45
09	05	17	29	45	
10	05	25	45		
11	05	25	45		
12	05	25	45		
13	05	25	45	57	
14	09	21	33	45	57
15	09	21	33	45	57
16	09	21	33	45	57
17	09	21	33	45	57
18	09	21	35	55	
19	15	35	55		
20	15	35	55		
21	15	35	50		
22	15	45			
23	30M				
00	30M				
01	30MP				
02	30MP				

HERVANTA – Keskustori 23
(keskim. ajoaika 27 min)
9.8.2004 – 5.6.2005

Lauantaisin

04	20M		
05	20M		
06	20M		
07	25	45	
08	05	25	45
09	05	25	45
10	05	25	45
11	05	25	45
12	05	25	45
13	05	25	45
14	05	25	45
15	05	25	45
16	05	25	45
17	05	25	45
18	05	25	45
19	05	25	45
20	05	25	45
21	05	25	45
22	05	25	45
23	05	38	
00	30M		
01	30M		
02	30M		

Pyhinä

05	00M		
06	00M		
07	00M		
08	00M		
09	00M	30	
10	00	30	
11	00	25	
12	00	25	45
13	05	25	45
14	05	25	45
15	05	25	45
16	05	25	45
17	05	25	45
18	05	25	45
19	05	25	45
20	05	25	
21	05	25	
22	05	25	
23	00	30M	
00	30M		

M = Hiljaisen ajan liikenteen reitti, katso sivu 128
MP = Hiljaisen ajan liikenne, perjantain ja lauantain välisenä yönä

Katso myös hiljaisen ajan liikenne reitti Y30 sivulta 131.

23 KESKUSTORI – Hervanta
9.8.2004 – 5.6.2005

Keskustori – Hämeenkatu – rautatieasema – Itsenäisyydenkatu – Salhojankatu – Kalevankankaan hautausmaa – Kalevantie – Messukyläntie – Hervannan valtaväylä – Hepolamminkatu – Tieteenkatu – Orivedenkadun silta – Insinöörinkatu – Opiskelijankatu – Ahvenisjärventie – **Hervanta**

Arkisin

03	55M				
04	50				
05	35	55			
06	15	35	58		
07	15	30	45	55	
08	05	15	35	45	55
09	15	35	47	59	
10	15	35	55		
11	15	35	55		
12	15	35	55		
13	15	27	39	51	
14	03	15	27	39	51
15	03	15	27	39	51
16	03	15	27	39	51
17	03	15	27	39	51
18	03	25	45		
19	05	25	45		
20	05	25	45		
21	05	25	45		
22	05	20			
23	10M				
00	10M				
01	10MP				
02	10MP				

KESKUSTORI – Hervanta 23
9.8.2004 – 5.6.2005

Lauantaisin

03	50M		
04	50M		
05	50M		
06	50		
07	55		
08	15	35	55
09	15	35	55
10	15	35	55
11	15	35	55
12	15	35	55
13	15	35	55
14	15	35	55
15	15	35	55
16	15	35	55
17	15	35	55
18	15	35	55
19	15	35	55
20	15	35	55
21	15	35	55
22	15	35	55
23	15		
00	10M		
01	10M		
02	10M		

Pyhinä

04	35M		
05	30M		
06	30M		
07	30M		
08	30M		
09	30		
10	00	30	
11	00	30	55
12	15	35	55
13	15	35	55
14	15	35	55
15	15	35	55
16	15	35	55
17	15	35	55
18	15	35	55
19	15	35	55
20	15	35	55
21	35	55	
22	35		
23	10M		
00	10M		

M = Hiljaisen ajan liikenteen reitti, katso sivu 128
MP = Hiljaisen ajan liikenne, perjantain ja lauantain välisenä yönä

Katso myös hiljaisen ajan liikenne reitti Y30 sivulta 131.