"MAKING THE ORGANISATION COME ALIVE": TALKING THROUGH AND ABOUT THE TECHNOLOGY IN REMOTE BANKING.

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RUNNING HEAD: "MAKING THE ORGANISATION COME ALIVE"

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ABSTRACT

Organizations have increasingly been seeking to interact with their customers using more 'remote channels', such as telephone and computer based technologies. This process has been a part of dramatic technological upheavals as technology enters into customer interactions. This paper examines examples of this changing relationship, documenting the role of technology in delivering banking services over remote channels. We present details from two ethnographic studies concerning physical and digital representations of artifacts, talk and the organization of customer-facing work and their relevance in 'designing for the expanded interface'. In telephone banking, sharing of objects and reconciliation between different instantiations is achieved through conversation. In videoconferencing, despite visual access to the same artifact, operators still need to guide customers around objects, explaining what they are seeing, what is happening. We look at the use of *scripts* designed to standardize operator interactions; the *demeanour work* undertaken by operators to account for the behaviour of technology; discuss attempts to *configure customer* interactions and consider issues of *trust* in such technologically mediated communication.

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"people... *talk* their way to solutions, *talk* themselves into working agreements.... *talk* their organisational agendas .... through their talk they not only reproduce the institutionalised arrangements of the organisation and its environment, but significantly create and recreate fine distinctions that actually make the organisation come alive." (Boden 1994 :52)

1. INTRODUCTION:

During the last decade mass market financial service organisations such as banks have increasingly been seeking to interact with their customers over remote channels, such as the telephone, off-line software packages and more recently through such new technologies as on-line Internet banking and videoconferencing systems. Interestingly, while such interaction is geographically remote it involves a more direct link between the customer and the computer systems utilised by the bank. Indeed, the bank as represented

by technology, has become a more prominent feature of all forms of financial services interaction including that which takes place in high street branches. Where once interaction was through talk and the use of forms, credit slips and so forth, now it is common for customer and clerk to view and interact more directly with a computer system. To a certain extent paper artefacts have been replaced by digital representations however, these situations often still involve considerable mediation by an organisational representative. In telephone banking the system is a clear third party in the interaction with a strong influence on how that interaction progresses. In videoconferencing the customer may observe the operator's interaction with a system through various means while with electronic or Internet banking the customer interacts with their bank through the system.

This paper seeks to document and examine some features of this changing relationship between banks and customers through considering the role of technology in delivering services over remote channels. The main body of the work is occupied with two ethnomethodologically informed ethnographic studies of remote banking undertaken at two different UK banks, one of telephone banking and one of banking via videoconferencing. The telephone banking study provides an in-depth understanding of 'mature' practices employed by participants (particularly the operators) through which aspects of objects, artefacts and participants' interaction with them in each locale are made available to one another. For the purposes of this special issue we are keen to emphasise both that the method of investigation, ethnomethodology, and the types of practices uncovered are relevant and useful when considering conversations about objects in more 'cutting edge' CMC situations. In order to add weight to this contention our second study details banking via videoconferencing, which comprises a more experimental situation using recent technologies. We provide and discuss a few examples to show how we can compare and contrast practices for communicating through and about objects in a similar technology mediated situation but one in which both participants have a degree of shared visual access. The second study provides leverage for us to develop thematic issues for the study of such situations in general. Empirical data from the two studies is presented focusing on conversations about the technologies and artefacts being used, whether these are the banking systems, the communication technologies or chequebooks and so on. A common understanding of banking and banking requirements needs to be achieved through the customer-operator interaction to facilitate further interaction between operator and the system. This involves the reconciliation of the customer artefacts and requirements/perspectives and the interaction requirements of the banking system. In banking operations this entails the operator concerting activities through making their own work and that of the system 'accountable' and 'observable' such that customers can see what they are doing, and can adapt to it. Operators in particular have to *make visible* the identity of their actions and those of 'the machine', to enable customers to identify those actions, such that customers can response appropriately to them, and can integrate their own actions, reciprocally, in the complex pattern that they are jointly, collectively, engendering. In this fashion we document some of the ways in which the technology becomes what Berg terms " familiar yet never totally transparent, powerful yet fragile instruments of change." (Berg, 1997, pp178).

The concern to understand exactly how concerted activity can take place, how people manage to make their activities fit together whilst, and as part of doing those activities, is a central feature of ethnomethodological approaches. This concern with the 'accountable' character of work entails a detailed focus upon the ways in which the pattern of complex activities are 'made visible' to those carrying out those activities, the ways in which people figure out what is happening and how they fit their own activities into that complex. This includes both where the participant can directly monitor activities and, as described in this paper, when they are engaged in patterns of distributed activities, where they cannot immediately monitor the activities of collaborating, parties but need, nonetheless, to know in some more-or-less specific sense what those others are doing, so as to shape their own activity into the relevant pattern. In the activities documented in this paper operators perform as mediators of language between various forms of technical language (of the technology of the specialism) and the 'language of the lifeworld'. At the same time operators act as mediators of the technology - talking through the technology as they use it so as to make their actions accountable and thereby making accountable, making 'visible' the workings of the technology, making the technology 'at home with the rest of our world' (Sacks, 1972)[1]. As Lawrence et al. (1995) note:

> "We see the operator's task as mediating between two interaction contexts, one social and one technological. The two contexts are linked to two different forms of discourse - the discourse of everyday life and the discourse of technical interaction. To fulfill a directory assistance request, operators translate back and forth between the two interaction contexts and their related forms of discourse....operators mediate between everyday and technical discourse without ignoring or excluding the everyday portion".

When thinking about HCI design what we are really seeking to bring forward is the expanded notion of the interface that arises from this type of understanding of mediated communication and how this is relevant. Participants have a local interface with objects, systems and artefacts within their physical locale. For example, a customer may be simultaneously dealing with bills, statements, their bank cards while the operator interacts with the banking system, its screens, files and so on. A shared interface is achieved through interaction on the phone or by videoconferencing. The telephone in itself allows only partial direct access to the local interface with other objects while videoconferencing provides expanded but still partial access. These studies point to the fact that for dealing with remote objects in these banking situations there is no necessary superiority in greater visual access. In telephone banking, for example, we can see practices for dealing with objects that are entirely satisfactory for their purpose. We can also see that certain problems may arise through greater access. When designing we have to think, firstly, about what features of objects and the various interactions with them need to be made available to enable the achievement of pertinent activities using the technology and, correspondingly, what features we may wish to hide or make opaque. Making objects available may be achieved through training operators to interact with customers in a manner that makes details of their system and the interaction process available, or by designing support systems that facilitate this type of communication.

[1] As Sacks indicates, "The technical apparatus is then being made at home with the rest of our world. And that's a thing that's routinely being done, and its the source of failures of technocratic dreams that if only we introduced some fantastic new communication machine the world will be transformed. What happens is that the object is made at home in the world that has whatever organisation it already has."

Operators may also want to make system difficulties or inconsistencies invisible to the user or gloss over complex aspects of objects. Secondly, as shown in these studies, there are a wide range of ways in which participants can make available relevant aspects of objects even in situations where only partial shared views are possible and that of course, situationally appropriate subtle and complex practices develop over time.

2. SETTINGS:

Financial institutions were amongst the pioneers in the use of distributed computer systems. Recently, in response to increased national and international competitive challenges. In conjunction with major organisational changes, banks have begun to explore the increased use of IT to support decision-making, quality control, and customer services (Burton, 1994; Harper et al 2000). These systems are intended to facilitate *shared* work across the organisational divide. Such simple diagnoses of organisational change need to be subjected to close empirical examination. As Ducatel (1992) puts it:

> "The absence of an a priori direction in which the technology will take organisations makes the empirical investigation of how computer network technology is being implemented of the utmost importance and urgency" (Ducatel, 1992, 166).

Both the organisations studied are major UK retail banks, and, to varying extents and with different emphases both have been engaged in programmes of systematic modernisation and investment in information technology. The main study takes place in a UK retail bank's Call Centre. 'Amicable Bank' has provided a telephone banking service for its customers since 1992 and indeed was the first UK bank to do so. Since then the Bank has seen a continual growth in the demand for services delivered by telephone. While the original range of services requested over the phone by customers was minimal and centred on balance and transaction information, it is now common for customers to request a fuller range of services, requesting transfers, loans, overdrafts and so on. In the last five years the Bank has extended its provision of non-traditional 'remote' delivery channels to include business telephone banking and electronic Banking via software packages, teletext and the Internet. 'Amiable Bank', is the organisation dealt with in the second (elaborative rather than comprehensive) study, embarked on a series of organisational, cultural and technological changes as part of a shift from an established 'administrative working culture to a 'service and selling' culture. A key part of 'Amiable Bank's' strategy has been the separation of front and back-office processing and the establishment of independent functionally-specialised units such as Lending Centres, Securities Centres, and Service Centres. In a more recent phase of restructuring, these independent units have been subjected to a further degree of centralisation, specialisation, and standardisation of function with the setting up of huge regional centres each responsible for millions of customers. This has necessitated the provision of distributed decision-support, using information and communication technology (ICT) to support shared work across organisational divides

3. METHODS:

Our approach to research, ethnomethodologically informed ethnography (Hughes et al. 1994) places methodological emphasis on the rigorous description of the situated practices through which a setting's activities are produced and accomplished. The rationale for the method resides in its uncovering and detailed description of the everyday, practical accomplishment of work activity; in making 'visible', the variety of often tacit and cooperative skills and informal teamworking through which work, in this case bankwork, is achieved. Our particular 'take' on ethnography - that of ethnomethodologically 'informed' or 'inspired' ethnography - involves an unprejudiced look at the phenomena of everyday working life and sets out;

> "to treat practical activities, practical circumstances, and practical sociological reasonings as topics of empirical study, and by paying to the most commonplace activities of daily life the attention usually accorded extraordinary events, seeks to learn about them as phenomena in their own right" (Garfinkel 1967)

Ethnomethodologically informed ethnography is the study of people who are engaged in practical action. In bank call centres, for example, their action is organised with respect to the necessities of practicality; in doing whatever it takes to get the job done. Our interest lies in identifying the *specific* activities in which people engage. The essence of practical action is the need to do whatever is to be done under *just these* circumstances, and therefore involves the adaptation of the course of action to the exigencies of its circumstances. Our studies can then be viewed as a means to inform requirements for new systems and/or processes, by producing accounts of the 'problem' to be solved, emphasising the *meaningful and practical human activity* involved in the orientation of participants to each other and to technology. Such descriptions provide a base line understanding into which new systems may have to fit.

We also use Conversation Analysis (CA) (see Sacks, 1992 and Levinson, 1983 for reviews). This ethnomethodological research orientation focuses on how social action and interaction is organised and achieved through talk. Our data for the main study comprise around 80 hours of telephone banking calls made to the Bank. Our collection of calls samples different operators, times of day and year. Calls are presented as detailed transcriptions. The calls that appear in this paper have been chosen to exemplify commonly occurring phenomena. The transcripts are enriched with observations derived from our ethnographic work. This is especially useful when an impression of the operator's ongoing activity in their workspace needs to be given to aid understanding of details in the transcript. For example, an especially long silence in a recorded call can often be accounted for in terms of the operator's engagement with tasks at hand in their workspace. As in previous work (Bowers et al., 1996) we have found ethnographic analysis to be an essential complement to transcript analysis. In an earlier paper (Bowers & Martin, 2000) we presented some of this material but focused particularly on documenting the details of the whole calls; how they were opened, closed and how financial services were actioned. As part of this analysis we were concerned with how the social interaction between the caller and operator was interleaved with the human-computer interaction between the operator and the accounts database. In this paper we present a different but related perspective. Here we are concerned with how both callers and operators communicate information about objects, artefacts and the information contained on them to one another. We are also interested in how artefacts and

information are presented, packaged (re)represented, transformed and reconciled. By understanding this type of activity (now fairly mature and commonplace) conducted using an established communication medium we hope to present a orientation to research that may be useful for conducting similarly focused studies of activity utilising new computer mediated communication (CMC) and computer supported cooperative work (CSCW) technologies.

4. AMICABLE BANK: TECHNOLOGY & TALK

We now turn to our main study of telephone banking, a 'mature' and more traditional form of remote interaction. In these calls we can see a number of quite sophisticated practices through which participants bring objects into view, interact with them and reconcile different versions of them[2]. The Amicable Bank uses a central computer database known as 'the mainframe'. This contains, for each account, details of all the transactions affecting it for the last several years, including transactions which have been reported to customers as paper statements, those which have not yet appeared in this form and those which have not yet formally 'cleared'. Transaction types include cheques, electronic payments, direct debits and so on. Date information, transaction type, beneficiary and amount are all available (where appropriate) from the mainframe for each item there is a current record of, sometimes with other information (e.g. cheque number). At the outset of our study (September 1996), operators used a DOS-based client to retrieve customer information from the mainframe. Essentially, at the outset of a call a security screen presents itself with fields for account number, sort code and for two selected digits from a personal code associated with the customer (the 'security' or 'pass' code). The account number and selected digits (on each call customers are asked for just two of the numbers selected at random) have to be entered before the next screen appears containing transaction information. These details are presented in a 'statement-like' time-ordered list, one screen at a time with navigation to 'earlier' screens governed by function keys. Along with the occasional use of function keys, navigation through account information is prominently by means of operators typing in strings of digits that identify screens of information. For example, 5.1.2 will take one to the screen that supports the initiation of inter-account transfers. After initial training, most operators are able to fluently remember and use these codes.

4.1 Analysis of telephone talk

Our analysis of calls pays particular attention to the talk about objects, artefacts and the information contained on them. The primary artefact talked about and oriented to by the participants is the operator's system, however other artefacts, both to hand and absent, enter into and have purpose in the conversation.

Overall Call Organisation

[2] That is, objects (bills, computers etc.) which are present at one location may be talked about, **but** also to-hand textual representations (electronic or paper-based) of them **and** they are also talked about when not present (the 'virtual' cheque in the post!)

To give a picture of the overall nature of calls and our transcript conventions consider the following.

Example 1 (Corpus 1 Tape 4 Call 6)

1. O: Good morning customer services Stella speaking (0.2) may I help you?
2. C: Hello I'd like to make a payment please for my Visa Card
3. O: (1.2) Right can I have your secur eh sorry ha your account number
4. C: Yes oh * *[3]<k-> * ****** * Romford oh ***** (2.0)<-k>
5. O: And your name please
6. C: Mrs Smith
7. O: Could I have the second character in your security number please Mrs Smith
8. C: Four
9. O: (<k>) (0.2)And the first character please
10. C: One <k> NO[4] two sorry
11. O: (0.3) <k> Okay (0.4) that's fine .hh[5] a bill payment to (0.4) your Gold Card was it=[6]
12. C: =That's right
13. O: (0.3) Right your Gold Card number ending * ** * *
14. C: That's it
15. O: Okay and how much you wishing to pay
16. C: Ahundred pounds please <k->
17. O: Ahundred (2.5) <-k>
18. O: Okay that's been actioned it'll be about two days before it hits your Gold Card account
19. C: Lovely thanks a lot
20. O: You're welcome
21. C: By:e=
22. O: =Bye

This opens with a greeting from the operator (O) followed by an offer to help. The caller (C) returns the greeting then indicates that she would like to make a credit card payment. An authentication sequence follows after a 1.2s silence during which C's account number, name and second and first characters of her security number are asked for in turn (lines 3-11). C initiates keying in the account number after the first two digits have been received, (line 4) <k->, and ceases typing after a 2s silence after C has finished the last digit, <-k>. C then attends to providing the service O has requested. This is accomplished by restating her understanding of O's request (line 11). The restatement is confirmed by C, the on-screen information enabling O to elaborate that C's Visa Card is in fact a Gold Card. A further check takes place of the card's number before O asks for the amount. This is echoed by O as she keys it in (line 17). O then confirms that she has actioned the payment and indicates the delay to expect before this payment will appear in the account (line 18). A four turn closing sequence follows consisting of a thanking-acknowledgement pair followed by a pair of 'byes'.

Markers

The most talked about artefact in the calls is the mainframe system used by O. Broadly speaking O talks about the artefact and their interaction with it in a number of ways. The most common conversational devices are *markers*. Markers are used by the O to signal upcoming or on-going interaction with the system, for example, to search for some information. See examples below:

Example 2 (Corpus 1 Tape 4 Call 2)

O: Yeh hold on .hh change from number one to number two account (0.3) okay somebody's um (0.3) dealt with that last month (0.4) let me just have a look for you .hhh it doesn't come out till the third so it comes out tomorrow

[3] Asterisks have been used to replace sensitive information such as account numbers
[4] Louder talk is indicated in capitals
[5] .hh indicates an intake of breath
[6] = is used to illustrate when one portion of talk latches onto another

Example 3 (Corpus 1 Tape 4 Call 4)
O: =Umm, the base rate Gold Card is (0.5) I can get you the rate for it (.)[7] bear with me (.) but um we keep the rate really low but there is an annual fee on it which is uhundred and twenty pounds a year or you can choose to pay ten pounds per month

In example 2 O indicates their upcoming interaction with the system with the utterance *"let me just have a look for you"*. In the examples we have variations on *looking* for things and *getting* things as commonplace *markers*. Other markers indicate on-going interaction with the system. Illustrative of this is example 3 where we see O state *"bear with me"* as the search and reporting of information continues.

Conveying The System: Interaction Requirements

One of the most common ways in which operators indicate information requirements for their interaction with the system is to simply request particular information from the customer. This is particularly notable in the authentication sequence at the beginning of calls.

Example 5 (Corpus 2 Tape 1 Call 6)
1. O: Good morning customer services Lisa speaking may I have your account number please
2. C: =Yeh its ** ** ****
3. O: (0.6) May I have your sort code please
4. C: Eh its Blackburn
5. O: (8.0) Can you confirm your surname for me please
6. C: =Yeah **
7. O: Mister ** may I have the second digit of your pass number
8. C: Two
9. O: Thank you, may I have the fourth digit
10. C: Seven
11. O: (1.0) How may I help you today mister **

Example 5 exemplifies this with O greeting C with a request for their account number (line 1) (as became the ubiquitous *scripted* greeting for Os). Indeed, the whole authentication sequence is oriented entirely to the demands of the system for speedy access to C's account details. In this case the C seems particularly oriented to these requirements as they smoothly provide the requisite details as requested[8]. Sometimes operators will explicitly describe some aspect of the system. Often this will be in response to some difficulty or when the operator feels particular need to explain something, as in the case of a new customer or caller. The example below shows this:

Example 5 (Corpus 1 Tape 4 Call 2)
1. C: …..could I transfer fifty (1.5) in:to the number one account
2. O: Which account number haha is that the one ends nineeightohtwo (.) yes
3. C: Uumm nineeightohtwo is number one account
4. O: =You see it doesn't actually say on screen number one account
5. [numbe][9]r two account so this is what's confusing for[us]
6. C: [I know] [yes]
7. C: =Number one is my oldest one (0.3)[I'v]e had for a long
8. O: [yeah]
9. C: =time[and number t]wo is my new one
10. O: [I thi- yeah]
11. O: =I think um the way round it perhaps is uh in future if you say thewi the one with the Swindon sort code is your number one account (0.4) [a]nd the one with the
12. C: [mm]

[7] (.) is a micropause
[8] As noted in an earlier paper (Bowers and Martin, 2000) this suggests that C in this case is a mature user of telephone banking and thus practised in the procedures of telephone banking (and by extension the system requirements).
[9] Overlapping talk is indicated by square brackets

13. O: =central sort code is your number two account
14. C: Right okay then

During the call considerable confusion occurred concerning which account on O's screen (known by account numbers and sort codes) *"number one and number two accounts"* referred to (lines 1-10). Previously the caller had identified number one as being the older account, however even this information would not be readily available to O. In the above snippet we see O explicitly state *"....it doesn't actually say on screen number one account"*. She offers a resolution through describing the accounts via sort code area as something shared and understood by both parties Lines 11-14). This example shows clearly the different perspectives on banking that can be held by customers and the bank (as personified in their systems). The customer thinks of their accounts in terms of when they were opened and by 'one' and 'two'. The bank uses rather larger numbers to identify accounts.

In the following example (6) we can see O state that *"we do need a security code"* a couple of times, to gain access to C's accounts. C is slightly objectionable as they say (line 2) *"No I'd like to close my account…."*. The code is required to access the system. In the following sections C initially provides *"one, two, three, four"* as their code, before the O states (line 8) that *"...we can't have consecutive numbers for security reasons"*. The security measure is instantiated on the system meaning the O could not even successfully enter it as a code. In this way the O actually explains details about the system they are using through trying to authenticate the customer. Ironically, the customer may consider this requirement to be simply obstructive (line 17) - *"Bloody Hell"*.

Example 6 (Corpus 1 Tape 5 Call 1)

1. O: …we now need to take a security code from you (0.6) which is a four digit number that you make up yourself (.) and it just confirms your identity when you phone us (0.3) so would you like to give me a number now
2. C: No I'd like to close my account I've been trying to close my account now for over a month and I want to discuss with someone how to close the account
3. O: Right okay but before I can do that we do need to have the security code
4. C: What security [cod]e
5. O: [ehm]
6. O: Well as I say it's the number that you make up yourself a four digit number (.) an it just confirms your identity (0.3) so if I can load this number for you (0.8) if you can make up a number
7. C: One two three four
8. O: Well we can't have consecutive numbers for security reasons
9. C: I-I can't it's no wonder that I want to close my account there's never (trails off)
10. O: Hello (0.2) are you still there
11. C: YES
12. O: Yep yeah it's just before I can do anything on your account do have need to have the security code
13. C: You can have eight seven six (.) oh you can't have it backwards can you either
14. O: No
15. C: Eight
16. O: You can't have consecutive
17. C: Bloody hell (0.4) so one three * *
18. O: So that's one * * *

Conveying The System: Interaction Process

Often, through the talk of operators, information about their process of interaction with the system is available. In the following example we are provided with information about the method of search for cheques carried out by O, and, by extension, something about the nature of the interface. We cannot be sure what information the customer in this case (or other similar ones) picks up, however it is available.

Example 7 (Corpus 1 Tape 1 Call 3)

1. C: …I'd like y- to tell me eh what cheques have cleared between fifty one and sixty five
2. O: Fifty one and sixty five
3. C: Mmhm
4. O: (0.6) Sixty two
5. C: Yes
6. O: Fifty nine
7. C: Yeah
8. O: Sixty
9. C: Uh huh
10. O: (1.2) Fifty seven
11. C: Ye:s
12. O: Fifty si:x
13. C: Yeah
14. O: And then that goes up to statement (.) page seventy seven (0.2) where fifty one (.) fifty two (.) fifty four and fifty three [have a]ll come off
15. C: [ri:ght]
16. C: Right so they've all come out
17. O: Yes they have
18. C: Right em can you give me a list of all the direct debits and what dates they'll come out please
19. O: Over the pho:ne

C asks whether a series of cheques have come out of their account. As O counts the cheques off (lines 4-14) this is done by generally decreasing numbers indicating that she is *looking backwards* through the account details on screen and picking them. The method of search highlighted in this excerpt is complemented by our ethnographic observations. Other interesting aspects of this call are that O references (line 14) *"statement (.) page seventy seven"* and the final O utterance. Mentioning the statement page is common when detailing transactions, and links the conversation to the artefact that has been sent to C. In the final line the O emphasises *"pho:ne"* in reply to a further request for a listing of direct debits. We might assume this to indicate a disinclination to carry out *this* task using *this* medium as it requires a further backwards search through the whole statement. Indeed, other banks (such as the other in this paper) charge specifically for such a service because of its time (and hence money) consuming nature.

In the next case we can see a different conveying of the interaction process with the system. In this case it is not implicit in-and-through the listing of items by O but an explicit statement of what happens when a security number is requested and entered.

Example 8 (Corpus 2 Tape 2 Call 8)

1. O: Thank you mister ** the reason I ask we have a security system
2. C: =Right
3. O: =Whereby we ask our customers to have a pass number
4. C: (0.2) Right cos I take it you know I'm one of your new cus[tomers yes]
5. O: [That's right] yes you are so-o could I ask you now to choo:se[10] a four digit number for the future
6. C: W-wo[uld]
7. O: [And] then each time you ring would what happens is you choose a four digit number now that you know you won't forget
8. C: Yeah (clears throat)
9. O: =And then when you ring in the future .hh the computer prompts it will say please can I have the first digit and the fourth digit
10. C: Right
11. O: Cos the operators then don't have access to it

Here O states the number as related to *security*, however envisions for C a future instance of their calling the bank. O then states (line 9) how the *"...the computer prompts it will say please can I have the first digit and the fourth digit"* which indicates to C what

[10] A stretched sound is shown by a : (e.g. fi:ne)

occurs at the interface. O also explains (line 11) how not even the subsequent Os will be able to access the whole number and that consequently the customer will need to remember it, *"that you know you won't forget"*.

Conveying The System: Interaction Outcomes

After interacting with their system the operators report back the outcomes of this interaction in a number of ways. Most commonly this consists of reporting back the requested information or confirming that a transaction has been completed.

Example 9 (Corpus 2 Tape 1 Call 13)

1. O: Yes you can how much are you wanting to transfer
2. C: Four thousand pounds
3. O: (8.0) Is that save direct
4. C: That's it yeah
5. O: (0.2) ~Ri:ght~[11] (9.0) ~that's four thousand pound (?) money~ (33.0) and that was four thousand wasn't it
6. C: Yep
7. O: (1.4) Okay that will be in your current account within the next (1.0) few minutes sir

We see the O confirming a request for a money transfer in the first line reported. O checks the account for the transfer and the amount with this talk interspersed with rather long gaps in conversation (8, 9 and 33 seconds) which are indicative of system interaction (lines 3-5). To indicate that the transaction has been completed O states (line 7)*"Okay that will be in your account within the next (1.0) few minutes sir"*. When a transaction has been completed it is common for operators to provide assurances of actions having been carried out, upshots and information on when actions will be completed. This is often done spontaneously (Bowers and Martin, 2000).

Operators also convey information about their system interaction when this has not lead to a fruitful outcome (see example 10). O states they cannot see an expected transaction (a direct debit) (line 2)*"=No I don't think it comes out of this account I can't see it coming out previously"*. In this example O conveys information about both their search (back through the statement details) and its outcome.

Example 10 (Corpus1 Tape 4 Call 2)

Tape 4 Call 2

1. C: Hang on lemme just think (under breath) **,people's phone phone (.) TV licence (.) mum (0.4) ah (normal) my loan (.) forty four pounds (1.2) has that come up between last payday and this payday
2. O: =No I don't think it comes out of this account I can't see it coming out previously
3. C: (u.b.)OhGoduh, (n) um ERRR that should come out (0.5) of that account (0.5) but I think (1.2) because last month this happened

Transforming and Reconciling Objects

Examining the calls in greater depth it is possible to see that a fair amount of talk concerns transforming objects and artefacts, the products of these transformations and the reconciliation of artefacts introduced by the caller with records contained on the operator's system. For example, when the Bank sends out a letter to a customer the Bank maintains a record of this artefact on its system. Furthermore, when a customer writes a cheque this eventually has an instantiation on the Bank's system and a further instantiation on a paper statement sent out to the customer. To introduce this topic we can examine example 11 below we see C introducing a letter that he has received *"this*

[11] Softer speech is enclosed by ~

morning". This proves to be enough information for O to locate the letter on their system which is shown after a *marker* with *"...right that was on the thir-thiteenth of August..."*. Through reconciling the artefact in C's possession with the system record the participants are able to establish a shared understanding for the conversation to proceed.

Example 11 (Corpus 1 Tape 1 Call 8)

C: Well I get this letter through this morning from um some central accounts department somewhere

O: Okay let me just have a look at that for you (.) eh (.) right that was on the thir- thirteenth of August em in the on the morning of the thirteenth of August when the letter is produced em that was what your b- your balance would have been had you not transferred the hundred and sixty pounds into the account on the same day

In example 12, C states they have noticed a particular item on their *statement* that they are unable to recognise (line 5)*"...I just wondered if you've any more information as to what Rotherham V E Limited is"* . This provides information for the operator to conduct a search of their *records* on a particular date, *"....twenty sixth of the sixth.."*. O indicates their search with the marker *"see if we've got any more information than that"* and provides *"Opticians"*. From this C is able to recognise the item as *"Vision Express"*. In the subsequent omitted sections C and O share a joke about the fact that C is actually wearing the purchased glasses. C's understanding of an item on an artefact is elaborated by O and reconciled with C's knowledge of their transactions.

Example 12 (Corpus 1 Tape 4 Call 5)

1. C: …on a statement that I received from you some little time ago but I hadn't looked closely at there's one entry
2. O: Um hmm
3. C: Umm an this is dated the umm the transaction on the twenty fifth of the sixth and the posting on the twenty sixth of the sixth as Rotherham V E Limited
4. O: Mm hmm
5. C: Two hundred and twenty nine pounds twenty four (0.2) I just wondered if you've any more information as to what Rotherham V E Limited is
6. O: Right I'll just have a little look for you
7. C: Thank you
8. O: See if we've got any more information than that
9. C: Yep
10. O: Sometimes they're not very specific
11. C: No well [I've] I've racked me brains it's quite it
12. O: [(inaud)]
13. C: =could well be an order but I-I
14. O: Mm hm
15. C: =You know I you don't often query them but this one I thought well I for the sake of a phone call I will
16. O: =sure it's quite a large amount isn't it
17. C: =y-yes
18. O: (2.5) Opticians
19. C: Ah if it's that's it
20. O: Yepp
21. C: Vision Express

A straightforward matching between artefacts and records is not always possible. In the following example we can see a less convivial conversation in which reconciliation between objects sent by the C and their subsequent (lack of) representation on O's system causes problems. The excerpt begins with C listing a series of actions they have undertaken to close their account, *"I've cut up the cards...."* noting along the way that she has *"...written to you three times..."*. O places a *marker* indicating their upcoming interaction with the system (line 5), *"...okay right I'll just read the notes on your file just bear with me"*. In the subsequent lines intertwined with conversation centering on the actions required to close the account a clear complaint from the customer emerges. C states that she sent three letters with all the necessary details to close the account. As this builds, around the middle of the excerpt (line 12) C states *"(1.6) AND I wouldn't mind an explanation why I never get a reply to any of my letters..."*. This prompts O to state that

they only have a record of one of the letters (line 13), *"Well the last letter we have any records of was on the fourth of September. "*. O then details the notes concerning the letter off the system. C responds by asking *"why didn't I be replied to you from that"* and again stating (line 16) *"I've sent two more letters since then"*. In the subsequent turn the O says that they have no records of the other two letters, while C replies by asking *"Have you any records of replies to me"*. O in turn responds to this by reading the record *"……according to our details you've just asked them to close the account so all we've done is put a block on the account"*. This produces a rather forceful response from C who begins by loudly emphasising (line 20) *"I WROTE…"*. She then proceeds to list the three letters and their contents before checking the O's version, *"...and you said you only got one"*, and asking (again) whether the records show any reply. When the O confirms that there are no details of a reply this provokes the C to ask explicitly for the call conversation to be recorded on the system, *".....I'd like to put I'd like to make you to make a note on my fi:le tod:ay saying that I have phoned and said that I have written three times"*. The O assents to which the C continues stating what she would like on the record (line 30) *"And I am disgusted that nobody ever bothers to answer my letters"*. The O then says that she will see the lady who entered the record on the system and that she will get her to reply if they still have the actual artefact (the letter).

Example 14 (Corpus 1 Tape 5 Call 1)

1. O: …so you say you've been trying to close the account
2. C: =For over a month (.) I've cut up the cards (.) I've repaid my balance (0.4) my balance is now in credit (.) I've written to you three times (.) to ask you to do to do two things (0.4) one to transfer enough to cover a loan account with the Amicable bank to close that
3. O: Yep
4. C: =and the rest to send me the balance
5. O: Yep (.) okay right I'll just read the notes on your file just bear with me (4.3) You have a credit balance there of fifteen pounds sixty so d'you want us to send you a cheque for that credit balance
6. C: If y'd if-if anybody had ever read any of the letters that I'd sent and I've sent about three (0.7) the last letter that I've sent which obviously just goes straight into a dustbin somewhere (.) said would you please transfer a small amount to cover a loan account which I have with you can I give you the number
7. O: Yes please
8. C: The number of the loan account is nine ** * that might beee not too sure if oh its four * * * * * ** ** * * * * * *
9. O: (0.8) Right okay I'll transfer that over for you (.) .hh em so what do you want us to do with the rest of it d'you do you want us to [(unheard)]
10. C: [Just send me a cheque]
11. O: Right I'll do that for you Mrs **
12. C: (1.6) AND I wouldn't mind an explanation why I never get a reply to any of my letters (.) where do they think they go do they go into some bin (.) I did address it to the a-a lady who had sent me a letter so presumably it wasn't to somebody anonymous that I wrote to
13. O: Well the last letter we have any records of that was on the fourth of September [(unheard)]
14. C: [and what did that sa-]
15. O: =that's saying that you weren't happy with the eh (unheard) refund the thirty pounds [we charged]
16. C: [and why]didn't I be replied to you from that (.) I've sent two more letter since then
17. O: We uv got no records of the other two letters (unheard)
18. C: Have you got any records of replies to me
19. O: I'll just (.) I'll just read the notes on your file about this one (.) just bear with me (2.0) theum'll according to our details on that letter you've just asked them to close the account so all we've done is put a block on the account
20. C: I WROTE two a letter to say I was not happy about returning a cheque
21. O: Yeh
22. C: I wrote a second letter with the cards cut up
23. O: Yeh
24. C: =And I wrote a thi:rd letter asking you to transfer this money over from the loan from the other account (0.7) and you said you only got one
25. O: I've only got details of one letter (0.3) yeah
26. C: And have you got any details of any reply (0.6) (unheard)
27. O: No they haven't put anything about a reply no
28. C: =N:o (.) because you don't give any replies and I'd like to put I'd like to make you to make a note on my fi:le toda:y saying that I have phoned and said that I have written three times
29. O: Yep

30. C: And I am disgusted that nobody ever bothers to answer my letters
31. O: Okay what I'll do see if (unheard) the lady that dealt with you last on the fourth of September and I'll ask her to send out a reply if she still has that letter

This snippet demonstrates some interesting insights into objects, their transformation and reconciliation. At the beginning the O is most concerned with carrying out the required activities (interactions with C and the system) to close the account. The persistence of C in pursuing the issue of the lost letters forces O to attend to this. O's insistence on sticking to what the record shows and failure to explicitly acknowledge either the existence of the missing letters or to apologise seems to lead to an escalating problem. Furthermore, C asks about the lack of reply three times before getting an answer. It is likely, however that Os are trained to stick to the accountable information on the system and to not apologise unless the records warrant it. Essentially the missing letters do not exist from the Bank's perspective and notably O states that now a reply has been explicitly requested she will ask the person who dealt with the letter originally to reply *but only if she has the physical letter*. Interestingly we can see a degradation in the status of objects at work here. If the bank has a physical letter from a customer in its possession it must be held accountable to that, if only records exist it is only accountable to these and if it has no records the object essentially does not exist.

Our final example (14) shows various interesting phenomena either encountered in previous examples (or in ones in our corpus but omitted due to space restrictions) before O and C work together to reconcile and resolve the details of where a gas bill should be paid. We begin with O confirming to C *"...and you wish to pay your gas bill"*. In their next turn O signals a time out to check the system after a *marker* and states the current details on the system asking for confirmation, *"...and its currently going through to North Eastern Gas is that correct"*. C indicates that they are unsure *"You could be right"* before stating that *"its got British Gas on the top of it…"*. This orients O to the fact that C may be holding the bill which she asks of C and gains confirmation. Of interest here is that O directs C to state a particular detail on the artefact - *"...your customer reference number..."*. Within our corpus we see numerous examples of Os using their knowledge of banking related artefacts such as chequebooks and bills to direct customers to recover the information required for their system. C provides the number, O indicates that she types in these amended details then repeats the number for confirmation (omitted section). O then requests further bill details phrasing the question in different ways for C's search - *"billing address"*, *"billing reference"*, *"the place at wh-which the bill is produced"*. C states an address in Leeds which O appears to take up and start inputting, however in the meantime C communicates a continuing search of the artefact, *"...I'll just have a quick shooftie* **(look)** *over the (.) page to see whether there is anything"*. The search by C yields a result that causes her to crisply interject *"=Hang on a minute the u-on the back of the um (.) gir- payment slip"*. This indicates something about the payment slip (or colloquially, giro) that turns out to be the correct payment area address which gets checked, accepted and entered before the end of the call (some lines omitted) by the O.

Example 14 (Corpus 1 Tape 1 Call 6)

1. O: …and you wish to pay your gas bill
2. C: =Yes please
3. O: =Okay let me just check that for you (1.7) and its currently going through to North Eastern gas is that correct
4. C: You could be right[um] its got British Gas on the
5. O: [right]
6. C: =top of it at the mo[ment]

7. O: [its]got British Gas at (0.2) you've got the bill there have you
8. C: Yes
9. O: What's your customer reference number on that bill please
10. C: Eh one ** **

In this omitted section the caller delivers the number, the operator states that they are amending the bill payment details then repeats the inputted number back to0 the caller for confirmation -

11. O: Okay (0.3) and does it have a billing address on there or a billing reference (0.2) as in the-a the place at wh-which the bill is produced or does it just say British Gas
12. C: It says British Gas home energy and then P O box two eight seven Bridge Street Leeds which I think is [the]
13. O: [Leeds] okay
14. C: =gas number I'll just have a (.) quick shooftie over the (.) page to see whether there is anything but I think this is (0.3) if its come from British Gas that will be
15. O: Right (.) that's okay I've got the (.) that's fine it looks like the billing office is Leeds and I've got your new reference number
16. C: =Hang on a minute the u-on the back of it the um (.) gir- the payment slip
17. O: Ye:s
18. C: Says British Gas Trading Limited eh payment area three Higgenshaw Lane Oldham
19. O: Oldham (0.2) right
20. C: O L 9 4 1 A E
21. O: Okay what I'll do is I'll check those details against the new details we've been supplied with by British Gas

This example shows interesting variations from other corpus examples. Here, O orients originally to C's possession of the artefact and indeed directs a search of the artefact for required information for her system (lines 9-12). However, what is interesting is that what may be taken as indefiniteness about the billing address on the part of O provokes further search from C that leads to later reconciliation of details from the bill with system requirements.

Summary

In the sections above we have detailed many of the practices employed by participants (particularly the operator) in bringing forward and discussing various 'physical' and 'digital' artefacts and representations in telephone banking. In the first sections we demonstrated the ways in which the operator seeks to convey their interaction with the banking system - through signaling upcoming and ongoing interaction via markers, and through explicitly and implicitly requesting information required for interaction with the system. Also through providing details of the interaction process and outcomes. All of this, conversationally, makes details of the banking system, how it appears and how it functions available to the customer, which helps orient the customer to banking process as instantiated on the system. Building on this analysis, we then described the ways in which reconciliation (or not) is achieved between 'physical' artefacts in the possession of the customer and 'digital' representations on the system. Through talk, participants attempt to match details on, e.g. paper statements, bills and so on with the digital record. This is not always a straightforward matter as there may be difficulties in finding and matching differing representations. In one case we see a dispute over the lack of digital representation. Finally, we see an example of how operators even guide customer's manipulation and reading of artefacts from distance by using their knowledge of these banking related objects.

5. AMIABLE BANK: talking through the technology - the work to make the video-link work:

The first case study dealt with a technology and an organisational setting - a telephone call centre - that is common to the majority of financial service organisations. This next case study, in examining the use of video-conferencing, despite the relative maturity of the technology, draws on an organisational and technological arrangement that is much less commonplace. However, what is notable are some of the similarities in the emphasis on orienting customers to various objects - account statements, card details, screens and so on - that are implicated in and essential to the ongoing interaction. Our second study provides an opportunity to elaborate and compare the practices and issues that arise when dealing with the manipulation and communication of objects in a related remote banking situation. We have already charted the artful ways in which participants describe objects, aspects of them and their interactions with them in the mature, more conventional situation that comprises telephone banking. We particularly drew attention to the skillful methods employed by operators to achieve the type of mutual understanding required to promote more successful and succinct achievement of banking activity. Using the following smaller study we have the opportunity to compare a more 'cutting edge' but experimental form of remote banking, utilising newer and more archetypal CMC/CSCW technologies; videoconferencing and shared applications. Do the practices seen in telephone banking translate to this situation, are they different or differently instantiated and what are the resultant issues? Whilst building on an abundance of work in video-mediated communication (Finn et al1997; Anderson et al 1997; Heath et al 1995 there are clearly novel points within our analysis that is a product of both the domain and our approach. Our method of looking at the "lived world" of banking and the moment-to-moment negotiations of this context illuminate issues that need to be designed with specific reference to this context.

Like many other financial institutions in the UK, faced with increasing competition in the financial markets, AMIABLE BANK implemented a transformation of its organisation of banking services to enable the organisation to become more competitive. Such a move was also attuned to recognised developments in information and communications technology (ICT), managerial philosophies, and changes in working practices. In addition to significant organisational development, there were a number of IT initiatives, such as RATE (Remote Access To Expertise) which explored the commercial possibilities of remote access through video link to specialist advice and the electronic transfer of documents between the Bank's highly distributed sites. RATE was a pilot project intended to explore the use of a commercial videoconferencing package in addressing a number of issues consequent on organisational change. There was a particular concern that the centralisation of knowledge and expertise and the 'deskilling' that accompanied it would mean that the local, 'high-street', Branches would be unable to deal with customer queries. RATE was a response to management's belief that the customer needed to feel that they were speaking to an 'expert', thereby building confidence in the Bank which would hopefully then be extended to the purchase of other bank products. There was also some interest in whether the 'face-to-face' contact provided by the video link would represent an improvement on the telephone in facilitating sales. The video link was consequently introduced to alleviate some of the problems produced by the re-organisation of work by providing instantaneous, direct access to expertise.

The main component of Project RATE was the telemedia kit - a commercial, ISDN-based, desktop videoconference system, with dedicated database and communication software - which had been installed in the 'Telehelp' section of the Insurance section of the Bank. The role of the 'Telehelp' team was to provide insurance advice. The video link was set up between the Insurance Centre and ten local Branches. (The project was later extended to try to improve communications between the different specialist units, Lending Centres, Service Centres and so on). As part of the pilot project potential customers were encouraged to try the equipment at the branch and a series of action sheets outlined the process for branch staff to introduce the equipment to the customers, containing such advice as;

"Greet the customer: "use your normal day to day dialogue when greeting the customer and include .. the purpose of using the videolink .. the benefits of using the videolink .. the interview is confidential .. you will be with them during the interview"

Familiarise the customer with the equipment: "Reassure the customer that they dont have to press any keys or use a mouse - you will be doing all of that.. give the customer time to adjust to seeing themselves on screen ..explain that the microphone will pick up their normal voice volume - no need to shout!"

"Explain to the customer the 'odd' behaviour of the video window"

Clearly in this case we can see in the text of the action sheets that staff were encouraged to act as guides to the shared technology (the application and screens) and the local reality of this for the customer. For example, by telling customers how to interact with it, explaining what they (the operator) were doing and what was occurring in the shared interface (particularly *'odd'* - unexpected or problematic - behaviour of the application). An example of the system's use is presented below in a simplified extract from the ethnographic fieldnotes;

Next.
1. Using phone (has phoned back to branch that has customer waiting to use link) -
using videolink - introductions - host at branch; customer.. Operator using headset (problem of feedback when using speakers) - customer using speakers
2. Using screen - filling in details on form - asking customer questions - name; initials; ate of birth, occupation; post code - then tells customer address - street/road - (say that this impresses customers) asks for house number
3. Transfers policy information over - explains that this will take a few seconds and will make her image break up/go fuzzy a bit - asks to check if its OK.
4. Goes through policy - filling in form on screen - and asking customer questions - building and contents; rebuilding costs; accidental damage; contents; accidental damage; insurance for items when taken away from home..
5. Transfers quote over - explains again about the image breaking up.
6. Goes through the figures - gives details on policy - what it covers in addition - cycles; frozen food; £2million owners liability; - and outlines repayment details (over 12 months; £6 credit charge)
7. "Do you know roughly what you are paying at the moment?"
8. Offers to print out quote - to take away and compare.
9. Takes daytime telephone number - "in case we need to contact you for any reason"
10. Gives 'official data protection script - reads from card placed on desk in front of screen.
11. Transfers 'features and benefits' of policy
12. Ends

The original RATE technology included a video link; document sharing and a whiteboard. However, over time experience with the kit resulted in reducing usage to a simple video link and screen transfer of documents. This gradual modification was the product of the perceived necessity of skilfully and 'seamlessly' weaving machine usage into the everyday work of giving advice, conveying information and selling policies[12]. As Randall and Hughes (1994) note of such 'customer-facing' technological contexts;

[12]For example, and most obvious to the observer, while the expectation of the video link was that it would provide valuable 'face-to-face' contact with customers, the location of the camera on top of the monitor made this impossible. In order to continue to maintain what was regarded as the commercially important

"...one of the major problems with the screens is that the information they display is structured according to a flow of transactions, not to the flow of enquiries.... The orientation brought to a given enquiry by a customer, however, will be driven by particular relevances that are the concern of that customer. The problems of taking these into account in an elegant way often disrupts the flow of competent work ...."

Another, highly visible, feature of the work with the video link was the extent to which the staff were required to 'talk through the technology', to prepare the customer for the technological experience. This necessitated, for example, alerting the customer to what was going to happen next; that 'the screen will go fuzzy'; that 'it will take a couple of seconds for this information to be transferred to you' and so on. This required giving an 'account' of the ongoing transaction in a manner that could be easily understood and accepted. It also involved explaining the everyday meaning of technical insurance terms; staff act as 'mediators of language'. Both of these activities, and the use of 'scripts' to alleviate the problem, are illustrated in the following abbreviated fieldwork extract:

Next.
1. Preparing PC1 for use. - in response to call from branch
2. Call through on link - talking about problems of call (?) - 'what can I do for you?'
3. Branch intros customer
4. Takes customer details - using screen - filling in form on screen - surname, initials, postcode, house number
5. Transferring info - explains about picture 'going fuzzy'
6. Buildings insurance - asking questions - rebuilding costs etc
7. Transferring info - explains about screen 'going fuzzy' again - talks about 'features and benefits' - additional insurance. freezer food; 2 million owner liability etc - makes postman and slate 'joke' again.
8. Outlines payment methods (appears on screen) - 'what are you paying now?'
9. Printout - 'to take away and compare' - gets daytime telephone number 'in case we need to contact you for any reason' (??)
10. Transferring 'features and benefits screen

Apart from preparing the customer for the screen 'going fuzzy' the operator also deploys one of the standard 'jokes' for explaining the importance of a £2million owner-liability feature in the policy. In so doing she mediates between the technical insurance and legal language of 'owner liability' and the everyday world through the device of *"what would happen if one of your slates fell on the postman's head when he was delivering?"*. The operator thereby contextualises, through the use of a mundane example, the circumstances in which the conversation is being conducted. Of course such issues of 'translation' and of coping simultaneously with both the technology and the customer happens with other technologies and in other contexts but the difficulties that ensue should not be underestimated, as Randall and Hughes(1994) note;

"interaction with the screens in the course of the interview caused a number of difficulties....officers report that they have considerable difficulty in conducting smoothly flowing conversations with their clients. In the words of one of them: 'It's the seconds in between... you have to make conversation and keep it going even when you make a mistake otherwise your customer loses confidence in you. But the screens strike you dumb..... all of a sudden you've got this THING in front of you'"

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appearance of 'looking at the customer', staff needed to look at the camera on the monitor rather than the customer on the screen and were consequently unable to see any customer responses to their questions or suggestions. Similarly, when initially customers had 'shared' the document/form as it was being prepared by staff, spelling mistakes had tended to erode customer confidence in the 'expert'; and consequently at the time of the study customers were only shown the finished details for confirmation

What seemed significant about the video link was the sheer *frequency* and *regularity* of this kind of 'demeanour' work. Accomplished use of the technology required that much of the operator's time was essentially occupied with reassuring the customer and navigating them through the work. This is not, particularly, to criticise the technology but to recognise the skills involved and to suggest that any commercial evaluation of the technology would need to recognise the considerable investment in training that would be required.

The extracts also document the considerable amount of 'work to make the Video Link work'. For the operator this principally consists of demeanour and 'face' work to make the customer feel at ease. Throughout the operator is engaged in extensive and skilful 'demeanour work' consisting of exaggerated smiling, nodding and facial gestures as well as varied conversational asides and 'jokes', maintaining a sensitivity to the customer's reception of both the technology and the information on insurance. This is accomplished whilst the operator is simultaneously completing the insurance details. This is a complex task since in order to 'look' at the customer the operator has to orient herself to the camera on top of the screen and cannot actually see much of the screen - containing the customer's image and the document - in front of her.

Giving an account of the ongoing transaction so that it will be understood and accepted includes conveying an impression of the bank's policies as 'quality' policies, (and therefore not the cheapest). That this is not a simple or straightforward process is illustrated in the next fieldwork extract when the operator suddenly finds herself dealing with an 'awkward customer'. In this instance the operator effectively and noticeably 'freezes' her 'body language' but begins to engage in extensive explanation and justification of the details of the policies, and thereby displaying her 'expertise'.

1. Phone - 'live' call (a 'real' customer' not a training exercise)
2. Puts on headset - brings up screen of branch and assistant.
3. "Hello ...(looking at camera)..turn the screen slightly"
"My name is...I need to take some information (gives standard script on information)..is that OK?" (Some problem here - later emerges that the customer said "No" and "if you send me details of any insurance I'm going to contact my PFA (Personal Financial Adviser) (At this stage the operator 'freezes' and becomes very formal and exact in what she says)
"Obviously that's why we ask at the beginning"
4. Explaining about transferring information and picture freezing
5. Asking for details and filling in screen - surname; initials; date of birth; occupation (mature student "what subject are you studying"); postcode - gives street; number of house.
6. Explains what the insurance is - not connected to Life Insurance Department.
7. Transfers information over - "Can you just check that that's correct?" - explains about postcode and address - stores it at this end.
8. Going through details - rebuilding costs; buildings and contents; accidental damage; items taken away over £1000; total taken away from home at any one time - "we have a minimum sum of £2500 - I'll quote you for that" "I'll transfer that - its just a premium indication and may be subject to future ..(Interruption - asked question - answers "not at the moment")
9. Paying the policy - "I can print off the quotation - put some details on the screen in front of you - some of the benefits..
10. Going through screens - printing options.
11. Asked question - answers "what do you mean? - if you have an alarm - if its an alarm with a service contract you can have a 5-10% discount..Is it approved by NACODS? - then you can have a 10% discount. There is an endorsement you must sign - that the alarm must be switched on - then there is a theft excess of £250 - some people don't like it.."
12. "I'm going to amend your quote to have the discount for having an alarm"
13. Customer asks question about letting out another property - "Is it let to professionals?"
14. Gets details of properties.
15. Customer asking questions - operator explains about going back to amend policy.
16. Asked question - "There is another one I can use." - using screen - cover choice - for house that is let.
17. Transferring data.
18. General chat about video link - "You wouldn't want to see me full size"
19. "Printing off quote for you now"
20. Answering questions - "H.(branch assistant). will give you one of our information packs.."
21. "Good-bye" - call ends.
22. "What a prat" Explains what the customer (a Physics postgraduate) was saying about the kit - that the mike was too big; the

picture too small; he didn't like the delay; felt it was outdated. "I didn't like him..I let my feelings get the better of me.."

These examples of customer-operator interaction using remote videoconferencing technology at Amiable Bank should serve to familiarise the reader with some of the practices employed banks and by operators when interleaving interaction with customers and technology. Amiable (as with other players in the sector) seek to standardise interaction and prepare operators by employing the use of scripts. Staff must talk through the technology and mediate between customer and organisational perspectives (often instantiated on the technology). They engage in demeanour work to maintain a meaningful interaction with the customer while attending to the interactional demands of the system. From the perspective of this special issue these excerpts raise some interesting points. Although not dealing with quite the same fine grain detail as seen in the telephone banking study, these examples clearly help crystallise more thematic issues. In telephone banking we were dealing with objects that only either participant had visual and tactile access to - sharing of objects and reconciliation between different instantiations of objects (e.g. a statement and a computer record) was achieved through conversation. In the case of the videoconferencing we have a situation where both participants have visual and tactile access to the same artefact. However, what is interesting is that the operator needs to work at guiding the customer around the object, telling them how (or not) to interact with it, explaining what they are seeing, what is happening. In some ways this is no different to telling a customer what statement items mean or where to find the billing reference on the bill. The operator is a skilled user, the customer often is not. Moreover and more problematically, however, the videoconferencing situation requires immediate attention and accounting on the part of the operator for whatever is occurring. This places a greater pressure on operators when glitches and mistakes occur (as they would and do). More is not necessarily better in this case. Is the benefit of the visual link important *in this case*? The Amicable Bank consistently scores high on customer satisfaction for telephone banking. We are not being Luddites here, but suggesting that just what activities are appropriate for multi-media CSCW technologies should be carefully considered. If visual access to remote objects is required there may be a need for videoconferencing *but* in this situation would shared access to documents with a telephone link not be enough? Particularly with the benefits that might be gained through operator control of just what the customer can see, for example by delaying the presentation of details to customers? The resource for achieving these lies in the sophisticated conversational practices already developed by operators.

6. DISCUSSION: Talk and the organisation of customer-facing work.

In this paper our ethnographic studies have supplied some detail of technology mediated interactions in an organisation that is moving towards more and more intensely IT-mediated work. Despite varying accounts of such practices as either threatening or, alternatively, empowering consumers our analysis is altogether more mundane. What we document is the extent to which the very different technologies become tools to achieve 'business as usual'. The relevance of these studies lies not in any simple list of design requirements but in the recognition and detailing of the complexity of the domain. The introduction of new technology in financial services, whether telephone banking, video-links or Internet banking, especially in the context of customer-facing work, has not re-

written the relationship between the bank and its customers but necessitated the development of new routines and competencies in 'talking through the technology'. These competencies are part and parcel of the continued maintenance of customer trust.

While space precludes discussion of all relevant strategies, the extracts highlight some of the salient features of talk in customer 'facing' work using various kinds of technology. They specifically relate to issues involving the unpredictability of customers and the concomitant need to maintain customer confidence. As we have indicated, these characteristics of 'customer facing' work evidently do not relate only to face-to-face encounters. Everyday work in financial service institutions has been technology mediated for a very long time and even relatively 'state of the art' technologies such as video conferencing are utilised in the context of some quite traditional interactional arrangements. Our interest is in how talk and interaction is conducted, not simply as a result of new technological constraints and affordances, but rather how it is organised in response to new and inseparable constellations of technology *and* work practice.

In the two very different studies reported in this paper we have had an opportunity to compare two forms of the delivery of financial services via 'remote' channels. One, the telephone banking study reports on a well-established service using a familiar technology, the phone. The second study describes the use of new and fairly unfamiliar (at least in banking) technology. In respect of this, in the telephone banking we have an opportunity to bring to light artful practices that have been developed both deliberately and through experience by the bank and the operators for interleaving interaction with both the customer and their system. With the videoconferencing system we can see a situation where the technology is a more problematic participant in the interaction between operator and customer.

It is a commonly observed feature of customer service work (in a variety of settings) that each customer necessarily has to be approached without knowing in advance what their requirement will be. This applies not only to the *nature* of a request, but also in the way in which requests are *structured*. Customers structure their requirements in a variety of ways that are relevant to them. This might include making a series of requests at the beginning of their encounter with the operator, inserting 'oh, by the way' questions into the course of their interaction, or alternatively waiting for the completion of the processes associated with an initial request before making a second. Customers cannot be relied on to produce their questions in a fashion that is predictable or consistent with the institution's order of things, nor can they be relied on to furnish all relevant information. Interactions with customers can, then, be hugely unpredictable. This simple fact has relevance not only to face-to-face interaction but also to telephone enquiry and other forms of computer mediated communication. In all these interactions trying to keep the customer satisfied is a matter of juggling a quite complex and potentially conflicting series of demands (Randall and Hughes, 1994).

6.1 Designing for the Expanded Interface

In the studies we sought to draw attention to the fact that when considering remote interactions, whether using more traditional technologies such as the phone or recent

CSCW technologies such as videoconferencing, it is important to realise that we are dealing with an expanded notion of the interface. This is not a single user and a single computer but rather in these cases we have two users who share a common interface (e.g. a phone line) but also interface with other objects (artefacts, systems etc.) within their locale. They may wish to communicate details of the object and their interaction with it (or withold them). *The design issue is to sort out what should be available to both in the common interface or what should be allotted to which participant. This process is aided by the type of study reported here, where the operation of the socio-technical system is analysed in detail allowing for features of the interaction with and around objects to be teased out and used to inform design.* For example, we have already suggested that the *real-time* sharing of documents and the visual access in the videoconferencing study may be problematic or unnecessary. The important features that the common interface seems to require is some sharing of documents and a vocal channel. Another example to contextualise our argument comes from the telephone banking study. Here we documented how the some of the work of the calls is focused on the translation and reconciliation of different representations of objects and data on different media. For example, where an operator directs the caller to find and aids them in producing details off a bill or when another caller demands to know why the bank has no system record of a letter they *know they have sent*. The design question becomes whether one wants to attempt to facilitate such translation and reconciliation and how to do it. One might try to reciprocally design both the artefacts sent to customers and the systems used to support them such that, for example, paper statements closely match up with screens on the telephone banking application.

6.2 Scripting

As has been reported before (Bowers and Martin 2000) banks employ the use of scripts as a means for operators to organise their interaction with customers. While some might feel some consternation at the fact that the organisation exerts this much control over the interactions its representatives has with its customers banks are strongly committed to them and see a number of advantages in them. Firstly the use of scripts means that when customers interact with their bank the interaction has, at least in parts, a standard form. Secondly, scripts are considered to help prevent staff slipping up or engaging in organisationally problematic talk with customers. Thirdly, forms of scripting may be used to streamline processes. Below, for example, a standard set of scripted responses from AMIABLE BANK is detailed, designed for maintaining a conversation and overcoming common objections to a personal financial review. In each case of a 'common objection' the conversation is maintained by 'asking it back' ("are you too busy?" etc) followed by phrases to play down the importance of an objection and provide a reasonable, plausible explanation.

Objection	Consider whether you can 'ask it back'	Opening phrase	Explanation	Confirm Satisfaction

'Not interested'	Consider whether you can 'ask it back'	Thats alright many of ou customers have fel exactly the same way However.. (Play down importance)	Having met with .. ou PFA, they can see tha there is real worth i having a financial reviev every 12 months or so..	Surely that sound reasonable doesnt it?
'Can't afford it'	Consider whether you can 'ask it back'	I can appreciate why tha would concern yo however (Handling) they do go through a ful income and expenditur breakdown to ensur funds are available (Apparent agreement)	This is advice.. of th highest standard withou any obligation or you part.	That sounds reasonable doesn't it?
'Too busy/no time'	Consider whether you can 'ask it back'	I can appreciate hov busy you are however. (Play down importance)	. our adviser will visi you at a time convenien to yourself. A quick review will only tak around 45 minutes	How does that sound?

Table 1: Example of a script used by the Amiable Bank.

In the telephone banking study reported here scripting is only explicitly used during the authentication sequence, although operators are extensively trained in an on-going process as to how they should interact with customers. Such scripting is designed to minimise the time taken to authenticate the customer (Bowers and Martin 2000). Previously operators were trained to open calls with a greeting and an offer of help, when the scripts changed they were told to open the call with a request for the customer's account number. The new script was designed explicitly to elicit from the customer the information required by the system to authenticate in the minimum amount of turns. This minor change which essentially only lead to the omission of a couple of turns of talk per call was considered by the bank to have positive effects on the overall call handling rate when multiplied across the thousands of daily calls. *The kinds of scripting that we have documented in this study can then be regarded as a form of training for the interaction required in a situation that can be characterised as having an expanded interface. The scripts variously are designed to bring forward or conceal details of artefacts and their operation or to gear customers into the functioning or interactional requirements of systems being used by the Banks.*

6.3 Demeanour Work

Customer confidence comes from the seamless and apparently unproblematic way in which bank operatives are *manifestly*, demonstrably, able to do the work necessitated by customer demands and thereby to produce an orderly flow of transactions. For operators to be seen as competent requires them to engage in a significant amount of demeanour work - routinely explaining as they go along the steps they are taking, what enquiries they are making of the screen, to whom they are telephoning, and so on. Competence is evident in the way the flow of interaction is maintained by the operator, without palpable gaps, in the routine and minute by minute interactions. Maintaining interaction with customers whilst at the same time using information screens, involves rendering the technology invisible by seamlessly weaving its use into the interactional flow. However, navigating through the technology can be time consuming and can lead to considerable difficulty in conducting smoothly flowing conversations. Whilst customer satisfaction

remains an issue, operatives, whether on the telephone, or using video conferencing systems, will still have to contend with various sources of unpredictability. Hence efficient use of the technology and interaction with customers has to be successfully managed simultaneously. In the act of processing transactions, the competent operative must routinely 'weave' use of the technology into the flow of interaction with customers such that the relevant expertise and skill is made visible. *Such 'demeanour work' is therefore produced in response to the expanded interface and is designed with reference to the different types of interface (or objects, or artefacts), how they are structured, manipulated, what is produced, what is shared and so on.*

In the telephone banking calls reported here we do not see a lot instances where the technology causes problems for the operator that must be covered up or explained to the customer whereas this demeanour work is clear and prevalent in the operators work in the videoconferencing interactions. There appear to be a number of reasons for this. Firstly, there is the fact that in telephone banking the customer cannot see the system or the operator's interaction with it. In the videoconferencing situation, if the system is slow, breaks down, if the operator makes a mistake, if there are some anomalies or bad features in its design, these are all visible to the customer. This in turn means that there is a pressure on the operator to account for any of these, whether by apologising, making a joke, explaining and so on. In telephone banking, although explanations are made the fact that the system and the operator's interaction with it is not on visual display means that the operator can for example, conceal their mistakes and cover over with talk a problem with system response times. A second reason for the differences can be said to lie with the quality and maturity of the technology involved. The Amicable Bank's mainframe was not an innovative new system however it performed well enough for its purposes. Accessing customers' accounts, carrying out transactions and retrieving information was all mostly pretty quick. With the videoconferencing system the technology was fairly untried and the performance more variable thus giving rise to the extra need for demeanour work. Interestingly, as reported in our previous paper (Bowers and Martin 2000) the introduction of a new 'selling' front end to the mainframe at Amicable that had a number of performance problems lead to a marked increase in demeanour work by operators. This was demonstrated by such phenomena as operators repeating customer requests and introducing conversational devices to fill in the gaps in talk as they waited on their system.

6.4 Configuring The Customer

One of the professed aims of the strategic planning of financial service organisations has been the reconfiguration of customers such that their behaviours and interactions are rendered reasonably predictable. With the growing amount of information compiled and used at a bank-wide level there is a commensurate attempt to formalise and standardise the formats for the presentation of information (Randall *et al.*, 1995) and efforts to ensure that customers behave in a way that will facilitate such a uniform approach. At the heart of this 'configuring the user' (Woolgar, 1991) lies the notion that both customers and staff can simply be trained to behave in an ordered fashion. In the case of customers this amounts to ensuring that they join the right queue, make single enquiries, ask questions 'in the right order' and so on. However, such a belief runs counter to the commonplace

everyday observation that, even if not all customers are awkward, many are. Customers 'typically' make multiple enquiries involving moving in and out of a range of screens and software packages. They typically 'forget' then 'remember' enquiries, digress, 'waste time' and generally behave in ways that cannot be accounted for by any simple process model. The 'art' of operator work resides then, in the accomplishment of a customer's individual requirements and making these fit with the more standardised requirements of the bank. A great deal of that work, as we have seen, is conducted through talk. More specifically, it is accomplished through acknowledging a customer's needs and then presenting an appropriate formulation of these needs for the customer to ratify.

Much of the talk about objects in telephone banking, both done explicitly by the operator and implicit in their utterances, works towards configuring the customer to a developing modern banking ethos. Managers routinely talk about how the organisation is keen to configure its customers to the bank's way of doing things; aiming to *"train the customer to do the work of the bank"* viewing the customer as *" a partial employee of the bank"*. Bank clerks and operators have traditionally performed a mediating role between the customer and the bank, explaining, translating and so forth. This too is clearly visible in the studies reported here. In the modern climate, with banks attempting to be as competitive as possible they are keen to get as much value for money from their resources as possible. People are an expensive resource and the more work they have to do as a mediator the more this costs the bank. Consequently banks are keen to configure customers to their way of conducting business. It is preferable to the bank if a customer phones up with their details ready to hand and formulates their requests in such a manner that the operator can carry them out without need for clarification. Rather than have the operator wait on the phone while the customer goes looking for their chequebook. Across many calls efficiency should rise if customers are well configured. Furthermore, this ethos can be seen to be practically reasonable when one considers that banks are looking to migrate customers onto electronic banking, a situation where a mediator may not be present at all.

As we have seen in the study reported above, in their telephone interactions with customers operators make available various information about the system, their interaction with it and about banking processes and so forth. While in the course of a call this may be about achieving the call in the longer term, across repeated interactions this can configure the customer such that they are more readily prepared for the interaction. In the examples shown we have seen how the operator indicates their interaction with the system and how they instruct the customer as to what information is required to carry out a search, or a transaction. This may simply be achieved through asking a question or may be explicitly stated as a requirement. Operators also provide details of the system and their interaction with it. For instance in example 8 the operator both explains why a security code is required and how it is keyed in whereas in their delivery of cheque details in example 7 information on the operators backward search through transaction details is available in their delivery. Operators also provide information on banking processes, terms and so forth. As discussed in our previous paper, after carrying out transactions it is common for operators to explain when they will be completed. They also explain what is and is not possible over the phone, direct customers where to find information on bills, chequebooks and so on. All this information helps to configure the

customer as to what is required for smooth interaction, how information should be packaged, what services are possible, how they are delivered and so on. *We can clearly see that configuring the customer is a thoroughly a matter of creating a mutual perspective on artefacts, their structure, functionality and so forth. However this is not achieved through working towards an intermediate position but rather, through interaction, the customer is strongly enjoined towards the institutionally preferred way of doing things.* In a number of calls in our corpus we can see examples of who we might call *configured customers*, customers who have all the required information with them and achieve their business in a very compact manner. As reported previously, some customers even appear to time their utterances to coincide with the end of the sound of operator keystrokes!

6.5: Conclusion: Remote Banking, Technology and 'Trust'

The points made in this paper concerning how an orientation to technology is mutually accomplished, how working features of a technical system are presented and explained have a much wider interest. As work becomes increasingly distributed and technology mediated, and as technology and organisational culture necessarily changes so issues of trust and related notions such as risk (Gambetta (1990); Luhman 1979; Fukuyama 1996) become interesting and notable. The change from the 'classical' model of bank work epitomised by face to face trust relations (Smith and Wield 1988) is readily apparent and acknowledged by banks themselves, not least in their advertising campaigns. While there are a number of different theoretical approaches to studying trust, our particular interest resides in Luhman's (1990) point that many current approaches fail to pay attention to the *social process of trust production*, leaving unspecified *"the social mechanisms which generate trust"* (1990:95). Our study takes seriously Luhmann's recommendation to look at trust accomplishment as a social process and begins to address some of these issues by explicating features of the accomplishment of mutual trust within technology mediated systems and how this trust is achieved and supported (or undermined) by the technology. While, as Shneiderman (2000) suggests, *"there is no relationship of trust with a computer"*, our paper suggests some of the ways in which technology becomes 'trustable' through its accomplished embedding in-and-through interactions, in the ordered world of organisations and customer service. Trust is carefully and laboriously woven into the fabric of everyday organisational life - the workaday world - as part of a 'taken for granted' moral order (Garfinkel 1967) and our paper explicates some features of how trust is accomplished as a mundane feature of working with and through technology. Trust is generated and maintained through action and interaction. We show how *(and how not)* artefacts and 'physical and 'digital' representations are manipulated, brought forward, concealed, become shared, become interwoven smoothly *(or not)* in customer service interactions. Rendering these objects, artefacts and representations as familiar, shared and as a natural, unobtrusive, unremarkable feature of accomplished interaction is important in the creation and maintenance of trust. The study presented here, examines the relationship between organisations and customers as captured in actual interactional instances and focuses on the role of technology and artefacts in these. This helps us examine components of trust production in a detail that allows us to tease apart features and difficulties that merit particular attention for technology and work design.

NOTES

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FOOTNOTES

(Make a copy of all footnotes on a separate page here. This only has to be done for the final submission for production. During the review process, it is okay to just have footnotes at the bottom of pages.)

1. As Sacks indicates, "The technical apparatus is then being made at home with the rest of our world. And that's a thing that's routinely being done, and its the source of failures of technocratic dreams that if only we introduced some fantastic new communication machine the world will be transformed. What happens is that the object is made at home in the world that has whatever organisation it already has."

2. That is, objects (bills, computers etc.) which are present at one location may be talked about, **but** also to-hand textual representations (electronic or paper-based) of them **and** they are also talked about when not present (the 'virtual' cheque in the post!)

3. Asterisks have been used to replace sensitive information such as account numbers

4. Louder talk is indicated in capitals.

5. .hh indicates an intake of breath

6. = is used to illustrate when one portion of talk latches onto another

7. (.) is a micropause

8. As noted in an earlier paper (Bowers and Martin, 2000) this suggests that C in this case is a mature user of telephone banking and thus practised in the procedures of telephone banking (and by extension the system requirements).

9. A stretched sound is shown by a : (e.g. fi:ne)

10. Softer speech is enclosed by ~

11. Overlapping talk is indicated by square brackets

12. For example, and most obvious to the observer, while the expectation of the video link was that it would provide valuable ‘face-to-face’ contact with customers, the location of the camera on top of the monitor made this impossible. In order to continue to maintain what was regarded as the commercially important *appearance* of ‘looking at the customer’, staff needed to look at the camera on the monitor rather than the customer on the screen and were consequently unable to see any customer responses to their questions or suggestions. Similarly, when initially customers had ‘shared’ the document/form as it was being prepared by staff, spelling mistakes had tended to erode customer confidence in the 'expert'; and consequently at the time of the study customers were only shown the finished details for confirmation