IT in Service Encounters
– Studying Conversations to Determine IT-enabled Actions

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Abstract

There are an ever increasing number of occasions and ways customers and companies interact. Different media, such as telephone conversations between people and interaction facilitated by IT-systems, is used for such purpose. An important quest is to determine in which actions, in the business interaction, IT is appropriate to use. In this paper recorded conversations are studied by the use of conversational analysis and socio-pragmatic action concepts in order to determine requirements on an IT-system. Recorded conversations represent rich descriptions of situations which form a good foundation to determine requirements for an IT-system when substituting a human agent for an artificial agent acting on behalf of the supplier. CA and actions oriented concepts fruitfully complement each other when coming to a standpoint of what conversations to manage with IT-systems.

Keywords: service encounters, conversation analysis, agent-based interaction, requirement analysis, action analysis, business interaction

1 Introduction

A characteristic of today's world of business is the ever increasing number of occasions and ways customers interact with companies. Personal contacts (face-to-face) and communication via e-mail, telephone or Internet are all examples of specific interactions, or service encounters, that customers have with companies (Bitner, Brown & Meuter, 2000). A service encounter is the time-frame during which a customer directly interacts with service providers (Surprenant & Solomon, 1987). A great deal of customers' evaluation of a service depends on how they experience these encounters (Bitner, 1990; Czepiel et al, 1985). The introduction of self-service technologies (SST), such as e-shops or multi-choice telephone systems, has however increased in relation to more inter-personal contacts. SSTs are technological interfaces that enable customers to produce a service independent of direct service employee involvement (Meuter et al., 2000). This has created new possibilities for both customers and companies. Customers can to a higher degree serve themselves and are not dependent on the working hours of companies. Companies on the other hand can decrease costs related to contacts with customers. For example the use of information technology in call centers give the personnel instant access to information about customers that call which make more customization possible (Gummesson, 2002). Rayport et al (2005) call this reconfiguration of customer interaction as the "front-office revolution". The replacement of inter-personal contacts does however carry some risks such as a lack of human involvement when an error occurs; a lack of personal relations; and decreased possibilities of additional sales (Dabholkar, 2000). In order to find a balance between inter-personal contacts and self-service there is a need to study service encounters in detail. As Salomonson and Lind (2006) argue a detailed study of what actually occurs in service encounters and especially in the conversations is a way to increase the understanding of what interaction should remain personalised and what could be computerised. What encounters that can be left to self-service also depend of the

type of industry and the number of encounters. For example a bank's success depends on many customers and that a few of them get personal service.

In this paper we will look into requirements put upon IT-systems as action systems by using conversations as a basis for making further analysis of what encounters are possible to transfer to an IT-system. The research is driven from the question of what basis is needed for making well-founded decisions about *which (instances of) business interaction could and should be supported by IT-systems*. We have chosen to use conversation analysis (CA) and information systems actability (ISAT) as the two approaches to analyse the conversations. ISAT uses SIP as the foundational ontology. SIP is to interpreted as the chosen ontology for understanding socio-instrumental action. These concepts are important in order to understand IT-systems as action and communication systems supporting organisational action. We therefore use the term SIP/ISAT in order to stress the ontological foundation for analysing conversations described by CA. Other scholars have also acknowledged the potential in combining analytical constructs from CA and pragmatic action theories, such as speech act theory (c.f. Goldkuhl, 2003). Goldkulh (ibid) mean that CA can be a theoretical foundation for language action approaches, and thus a basis for the study of communicative patterns. He (ibid) recommends researchers to look closer into possible contributions from conversational analysis as a complement to speech act theory. We argue, in accordance with Goldkuhl (ibid), that there is a need of more inductive approaches - detailed studies of actual conversations – instead of a too extensive use of pre-defined constructs.

We have chosen to use recorded conversation between customers and customer service representatives (CSRs) in a multinational industrial company in the building industry (BIAB). The CSRs are located in a Swedish subsidiary and the customers usually have long-term contracts with BIAB and call to place sub-orders within the frame of these contracts. The conversations thus take place in an institutional and work practice related context. Further we focus on conversations that (1) represent situations where customers order products; and (2) can, according to Salomonson and Lind (2006), be classified as "typing" or "talking/typing". These categories emerged from the use of CA in the analysis. The category "Typing" represents conversations that could be transferable to a SST, that is customers could serve themselves without contacting the CSRs. Examples of that are conversations where the customer place an order, has the correct information needed (displayed in the conversation) to do that (e.g. product name, product number, and where to deliver) and the CSR does not act beyond that information. "Talking/Typing" represents situations where a combination of a SST and the possibility to talk to CSRs is the most suitable solution. Examples are conversations where the customer has a lot of questions related to a possible purchase of a product. These questions indicate a lack of knowledge about the product or product related topics. A well formed SST can possibly give the answers customers seek but some customers instead prefer to get answers by talking to a CSR. A third category identified by Salomonson and Lind (2006) is "Talking" that represents conversations that are not preferably transferred to a SST due to the need of inter-personal interaction. Examples are conversations where the customer has a complaint and need an immediate solution or reassurance that it can be solved in the near future. We have chosen not to give an example of this third category since we in this paper focus primarily on conversations (or parts of conversations) that could be transferred to a SST.

In this paper we first introduce action concepts (SIP) for understanding IT-systems. Following that we describe conversation analysis (CA) and information systems actability (ISAT) as the two approaches that are used in the paper to analyse the conversations. Then we exemplify and analyse (in accordance to CA and SIP/ISAT) three conversations that are typical for these

telephone encounters. The paper is concluded by summarising findings regarding requirements to put upon IT-systems when going towards IT-enabled actions in conversations. The concluding part of this paper also consists of reflections of combining CA with SIP/ISAT.

2   Action concepts for understanding IT-systems

Several scholars within the information systems field put attention towards human action when conceptualising information systems (c.f. e.g. Goles & Hirschheim, 2000; Baskerville & Myers, 2004). Goldkuhl (2005, p. 1) claims that "[…] technical artefacts should be a prominent phenomena to study together with the humans surrounding them. There are things and subjects to study. What is also important is what the human subjects do with the artefacts; i.e. the actions of development and usage". In an organisational setting it is thus important to understand the notion of organisational action as the basis for deriving a notion of IT-systems. Goldkuhl & Röstlinger (2002) have developed a notion of socio-instrumental action (SIP) for understanding organisational actions performed by different types of agents, as for example human beings and IT-based artefacts.

The basic concept of socio-instrumental action is action. An action is a purposeful and meaningful behavioural of a human being. A human being intervenes in the world in order to create some differences. An important distinction is made between the result and the effects of the action (von Wright, 1971). The action result lies within the range of the actor and the action effects may arise as consequences outside the control of the actor. An action is performed in the present based on a history and aims for the future (Goldkuhl & Röstlinger, 2002). A social action is an action oriented towards other persons (Weber, 1978). The action can be a communicative act, e.g. someone saying something to another person, or material. Material acts count as social actions if they are directed to other persons (Goldkuhl, 2001; Goldkuhl & Röstlinger, 2002). Actor relationships between the intervening actor and the recipient are established through social actions (Habermas, 1984).

A generic model of social action including both communicative (Austin, 1962; Searle, 1969) and material acts is presented by Goldkuhl (2001) and Goldkuhl & Röstlinger (2002). E.g. an order from a customer to a supplier is a communicative act. The delivery of goods from the supplier to the customer is a material act. These both actions are performed by one business party (an "interventionist") addressed to the other party (the recipient). Since they are actions directed from one actor towards another actor they must both be considered as social actions. Language is not the only medium for interacting with other people. The delivery of a product to a customer is not only to be seen as a change of place of some material. In this context it must also be considered as a fulfilment of a request and a promise made earlier. Actions are often multi-functional. One example of multi-functionality is that a customer order both represents *request* to the supplier to deliver something and a *commitment* of paying for the delivery. There also exists a duality of actions. The performer, as e.g. a human being or an artificial agent, of an act (in an organisational context) both acts on behalf of himself and on behalf of the organisation that the performer represents (Ahrne, 1994; Taylor, 1993). Further, acts are multi-consequential. This means that a certain act can trigger several acts. Since there exists a duality of acts and that these are multi-consequential one can distinguish between inter-organisational acts, i.e. directed towards a party in another organisation, and intra-organisational acts.

For the performance of most actions people need instrument of different kinds. The language is used as one instrument when performing business communicative acts. For performing material acts there is often a need for an external instrument, which then extends the ability of an actor. Goldkuhl & Röstlinger (2002) have made a distinction of three different roles of artefacts and their corresponding type of action; *Static tool* (artefact-supported human action), *Dynamic tool* (human-artefact co-operative action), and *Automation* (human-defined artefact action). Different media could be used to support the "transfer" of the communicative act between the parties' involved in the communication. One such media is inter-organisational IT-system aimed to support (instances of) business interaction.

3 Using conversation analysis and pragmatic action concepts

3.1 Conversation analysis (CA)

CA is an attempt to describe people's methods for producing orderly social interaction (Silverman, 2001). Hutchby and Woffitt (1998, p. 13) describes that CA "[…] is the study of talk. More particularly, it is the systematic analysis of the talk produced in everyday situations of human interactions: talk-in interaction". Our study is directed towards an institutional and work related context. Institutional interaction normally involves the participants in specific goal orientations which are tied to their institution relevant identity - in our case customers and customer service representatives. Institutional interaction also has constrains on what will be treated as allowable contributions to the business at hand and is associated with inferential frameworks and procedures that are particular to specific institutional contexts (Heritage, 1997). Drew and Sorjonen (1997, p. 94) concludes: "Analysing institutional dialogue involves investigating how their orientation to and engagement in their institutional roles and identities is manifest in the details of participants' language, and their use of language to pursue institutional goals."

CA is closely related to ethnomethodology which is a naturalistic view with a purpose to understand how social order is created and shaped through conversation and interaction (Gubrium & Holstein, 1997). It is the study of the methods that people use in their everyday life in order to shape and maintain social order (Garfinkel, 1972). Reality is considered as something the members continuously have to recreate and uphold which is done through social interaction. Researchers using CA does not speculate about the conversationalists' intentions (Heritage, 1984). A researcher is assumed to have the same possibility as the conversationalists to interpret the interaction (Norrby, 1996). CA has been very important in underlining the need for real empirical studies of conversational interaction (c.f. Allwood, 2000).

Two important concepts in CA are turn taking and adjacency pairs. Turn-taking is how the conversationalists take turns in talking. The turn is the basic unit in the conversation and can be very short as a yes or no. It can also be a longer statement as a full sentence. When combined these turns lead to a conversation. Each turn must be adapted to the situation and the specific context. Lepper (2000, p. 135) describes turn taking in relation to institutional contexts: "[…] institutional relevance is sustained and worked upon on a turn-by-turn basis through the recognizability of the procedurally consequential actions of individual speakers who organize their turns within a framework of locally relevant rules of exchange". The institutional turn taking system can thus be seen as a product of the participants' orientation towards their task related roles (Drew & Sorjonen, 1997). Boden (1994, p. 15) mean that

"[…] through a turn-by-turn analysis of organizational talk, it is possible to gain insight not only into how everyday business gets done at the level of talk, but also the interactional and organizational business that is accomplished through that talk."

According to CA an adjacency pair is two communicative actions, a first and a second, that together represent an exchange of words produced by two speakers. Examples of adjacency pairs are question-answer, offer-acceptance/rejection, invitation-acceptance/rejection and complaint-response (e.g. Schegloff & Sacks, 1973). After an utterance, for example a question, an answer is expected. However the second part of the adjacency pair does not necessary have to follow the first part. Other communicative actions can come in between. For example a question can be followed by a clarification by the person who stated the question. We regard turn taking and adjacency pairs as two important concepts in order to understand the conversations. When transcribing conversations, in accordance to "pure" CA, the researcher among other things needs to indicate pauses (and length), interruptions, raised voices, intonations and overlapping talk. This can be of importance for example to indicate stress, hesitations, pauses of thought. Our purpose with the transcriptions (as depicted in section 4) is not to present the conversations with such detail (see Silverman (2001) for further comments about transcriptions). In this setting we instead focus on aspects of the content in order to strive towards well-founded decisions about which (instances of) business interaction could and should be supported by IT-systems.

3.2 Information Systems Actability (ISAT) founded in Socio-Instrumental Pragmatism (SIP)

Information systems are closely related to human action. Such social and organisational issues are handled within linguistic (Dietz & Widdershoven, 1991; Goldkuhl & Lyytinen, 1982; Winograd & Flores, 1986) and semiotic perspectives (Stamper, 2000) for understanding information systems. Lyytinen (1981) claims that a substantial part of a practice is the business language, which includes vocabulary as well as rules for communicative action.

Goldkuhl (1995) base his view on information systems on a communicative action perspective. This view is based upon, but transcends, the notion of e-message proposed by Langefors. "A communicative action perspective gives an alternate definition of information and information systems. This definition transcends a narrow objectivistic view of information; i.e. just seeing information as reality descriptions. Information and information systems are parts of action games in organizations" (ibid, p. 77).

According to Goldkuhl & Röstlinger (2002) a computerised system is an action system. It is both an instrument for performance of action and a support tool for humans to perform their actions. Information systems should be actable. IS actability (ISAT) is defined as "an information system's ability to perform actions, and to permit, promote and facilitate the performance of actions by users both through the system and based on information from the system, in some business context" (ibid, p. 6). SIP (c.f. section 2) is the ontological foundation for ISAT. The theory of information systems actability has two essential ingredients. The first one is the distinction between three type of IS usage situations; *Interactive usage situation* (where users performs actions interactively together with and through the system), *Automatic usage situations* (where the system performs actions by itself based on predefined rules), and *Consequential usage situations* (where users performs actions based on the information from the system).

Sjöström & Goldkuhl (2002) have further related these different usage situations to different types of actions. They (ibid) claim the need for focusing on social actions and the action relationships between the involved actors instead of focusing on usage situations. Thereby the focus is aimed towards human-to-human communication in which the IT-system takes part. The different types of actions that Sjöström & Goldkuhl (ibid) acknowledge in this context are *interactive action*, *automatic action* and *consequential action*.

The second ingredient is the interpretation of an IS as consisting of (Goldkuhl & Röstlinger, 2002) an *action potential* (a predefined and regulated repertoire of actions), *actions* performed through and by the systems, an *action memory* (a memory of earlier performed actions including prerequisites for actions), and *messages* and *document* (where some documents are action media for user's interactive actions).

4 Analysis of three different conversations with CA and SIP/ISAT

We have chosen to focus on conversations that represent situations where customers call CSRs in BIAB to order products. We analyse each conversation by first using CA and then SIP/ISAT in order to reason about the implications of going from human-to-human conversations to human-artefact interactions.

4.1 Conversation 1

The first conversation represents a situation where a customer, Monica (M, a wholesaler), calls Anna (A) at the customer service department at BIAB to order a product:

1   A   BIAB, Anna
2   M   Hello, Monica, A-Company.
3   A   Hello Monica.
4   M   I would like to order 3810646 ((Product number)), RK-products ((Product name))
5   A   Hm : : ((Anna makes a note in her notebook))
6   M   Four items to our central warehouse
7   A   Hm : : ((Anna makes a note in her notebook))
8   M   The customer number is 186-2795475
9   A   Yes. ((Anna makes a note in her notebook))
10 M   And then you send it to our central warehouse.
11 A   Sure, we arrange that.
12 M   Good. Thank you for that.
13 A   Okay. Thank you. Bye.

The conversation is rather short and only lasts for about a minute. The length can be seen as an indicator of the complexity of the situation. In turn 2 the customer mentions her name to Anna and what company she is calling from. In that way Anna right away can find the customer in the ERP-system if needed. Anna's response ("Hello Monica") in turn 3 indicates that she has talked to the customer before. In turn 4 the customer right away indicates what she wants without any hesitation or additional questions. She also contributes with additional information about the product number. This gives the CSR an opportunity to find the requested product right away in the ERP-system. Anna confirms the she has heard the requests with two prolonged "Hm" and a short "Yes". In turn 8 the customer mentions the

specific number that identifies her (among other customers). She also makes two requests (turn 6 and 10) that she wants it delivered to their central warehouse. A repetition could indicate the importance and/or that there have been some previous problems. At the end (turn 11) Anna confirms the order and that the company ("we") will arrange it. The use of "we" indicates that Anna sees herself as part of BIAB and will act as a representative of the company. The analysis shows a conversation without any hesitations or additional questions from Anna. There is simplicity in the turn-taking and no repairs/explanations from either conversationalist. Since the customer only wants to order a product (turn 4) and make a request about place of delivery (turn 10) the interaction could therefore seemingly easy be transferred to a SST. The conversation can be classified as "typing".

Let us reason about what it would mean to regard this conversation from a perspective of using actable IT-systems as instruments for supporting the interaction between the two parties. IT-systems are to be regarded as systems embedded with pre-defined actions. In the BIAB-case we study what implications it would be to substitute a CSR with an IT-system as an agent acting on behalf of the supplier and a mediating agent between two or several parties. In a business interaction situation it is natural to regard the customer's interaction with the organisation, as well as the organisation's interaction with customers, as interactive usage situations. In the table below we have analysed the different actions performed in relation to the different utterances specified in the conversation above. For each type of action we have commented considerations regarding using an artefact as an agent acting on behalf of a customer/supplier.

Turn #	Type of action	Communication direction	Artefact as an agent for interactive usage situation?
1	Identification	Supplier → customer	Embedded when the customer enters the IT-system.
2, 8	Identification	Customer → supplier	Necessary to ensure that the speaker is the speaker
4, 6, 10	Request and specification of content (proposition)	Customer → supplier	Must be possible to perform a request and specify the propositional content of that request
5, 7, 9	Interpretation (confirmation of that the listener understands the communicative act)	Supplier → customer	Feedback from the IT-system
11	Commitment	Supplier → customer	Could be done given that confirmation is done based on actual (available) capacity
2, 13	Greetings & Good bye	Supplier → customer	A nice feature – but necessary in an agent-supported interaction?
3, 12	Greetings & Good bye	Customer → supplier	A nice feature – but necessary in an agent-supported interaction?

Importantly pre-defined actions need to follow each other dependent on which actions that are performed by the customer. In this example the customer specifies product number, product name, amount and delivery place before the customer number is stated. In a situation when the actions are performed by the supplier or by the customer via an IT-based agent there is a need for either flexibility from the IT-system to let the customer specify the propositional content of the request in different order or to standardise the action pattern in which such request is specified.

This conversation is concluded by that Anna says that she will "arrange that". In a situation when there is no human-to-human contact would the company be happy with not getting an explicit counter-commitment from the customer? This makes the identification and security issues vital. On the other hand – an information system for a long-term relationship framed by frame contracts, such counter-commitments might be regulated on "upper-level" agreements.

An essential part of the business transaction is to ensure that valid expectations are set up. Turn 11 in the example above establishes that the customer should have the expectations of having a certain amount of products/goods delivered to a certain place. Therefore there is a need to ensure that the commitments made, i.e. the established expectations, are valid before making such commitments. Since IT-systems consists of human-defined and pre-defined actions to cover many business situations there is a need to ensure that the there are actions to ensure realistic and desired actions. Humans can make judgements of the occurrence of a certain situation. Computers cannot without being pre-programmed.

Another important issue often raised in IT-systems for e-commerce is when the products are to be delivered. It seems that this issue is taken for granted in the conversation above, i.e. that the products would be delivered immediately. Such a clarification would probably need to be informed through the IT-system.

4.2   Conversation 2

The second conversation represents a situation where a customer, Karl (K, a wholesaler), calls Ulrika (U) and at first seems to want to order a product:

1	U	BIAB, Ulrika
2	K	Hello, Karl, B-Company in Spånga
3	U	Hello hello.
4	K	I'm thinking of ordering Tool B to Södra Länken ((Name of building project)). 300 pieces, 06632219 ((Product number)).
5	U	Mm : :
6	K	And then you send it to the usual address.
7	U	Mm : : yes. Is it the usual address?
8	K	Yes. Now there is surely a delivery cost when it's such a small sum?
9	U	Yes it is.
10	K	How much?
11	U	Well- I have trouble estimating what that- It usually shows on the order ((in the ERP-system)) when I'm registering it.
12	K	It is maybe easier to bring it to us and then we send it further- Are you passing us tomorrow?

13	U	No, I don't think so.
14	K	I think we bring it via us.
15	U	You shall have it to you?
16	K	Yes, we take it via us.
17	U	Mm : : Okey.
18	K	Then you will get an order soon.
19	U	Yes you send it on the fax machine.
20	K	Yes.
21	U	Okey. Thank you.
22	K	Bye.
23	U	Bye.

In this conversation the adjacency pairs request-response and question-answer are used to carry the conversation further. The customer makes a request to place an order and Ulrika's response is a short "Mm" which is an indication that she has acknowledged the request. The customer makes another request in turn 6 and Ulrika uses the same response. However, Ulrika also asks "Is it the usual address?" which is a way to make sure that the products are delivered to the right destination. The address is not mentioned which indicate an understanding between them. The phrase "usual address" indicates previous encounters between them and that Ulrika is familiar with the customer's wishes. In turn 8 the customers asks about the delivery cost. Ulrika answer "Yes it is" triggers another more precise question from the customer. Her answer is that she however can not answer that before the order is registered in the ERP-system. The customer does not ask more about that instead he indicates, announces, that he wants the products delivered to him. In the same turn he asks her a question about if *she* is passing *us* (the customer) the next day. The use of "she" can be interpreted as the customer identifies Ulrika as an actor in the company. In turn 14-16 there is a sequence of request-question-answer where the customer decides to have the products delivered to him. In turn 18 the customers announces that he will place an order soon. Ulrika's response is to answer if the order will be sent on the fax machine. What at first seemed to be an order by the telephone ended with a future order with a different medium. In the sequence turn 1-7 the customer does not explicitly state that he wants to order a product. Instead he uses the more vague "I'm thinking of…". Ulrika's response and her following question indicate that she anyway regard it as an order. In the sequence 8-11 the customer wants know the delivery cost but Ulrika can not answer that. This sequence of questions-answers does not end with an answer that informs the customer about the price. In sequence 12-16 the customer initially asks then states a change regarding place of delivery. The structure and turn taking in conversation 2 can thus be seen as a bit more complex than conversation 1. Although there are some more questions-answers conversation 2 can overall be seen as quite straight forward. The conversation can thus be classified as "typing".

In the table below a similar analysis is made of the conversation as in conversation 1. From the table it can be seen that there are more dimensions involved to consider in conversation 2.

Turn #	Type of action	Communication direction	Artefact as an agent for interactive usage situation?
1	Identification	Supplier → customer	Embedded when the customer enters the IT-system.
2	Identification	Customer → supplier	Necessary to ensure that the

			speaker is the speaker
4, 6	Potential request of a certain content	Customer → supplier	Possible to put forward a hypothetical request and specify the propositional content of that request?
8, 10	Question about (part of) the customer's potential commitment	Customer → supplier	Possible given that the criteria for determining cost are clear
9, 11	(Vague) answer	Supplier → customer	It would be desired if the IT-systems could deliver different costs for delivery dependent on delivery place
12 – 17	Clarification about delivery conditions	Customer → supplier → customer	The customer must be able to state different delivery addresses
19	Question about desired media	Supplier → customer	Desired to let the customer place order through other media?
5, 7, 19, 21	Interpretation (confirmation of that the listener understands the communicative act)	Supplier → customer	Feedback from the IT-system
18, 20	Commitment	Customer → supplier	About placing an order
2, 22	Greetings & Good bye	Supplier → customer	A nice feature – but necessary in an agent-mediated interaction?
3, 23	Greetings & Good bye	Customer → supplier	A nice feature – but necessary in an agent-mediated interaction?

Putting this conversation in relation to conversation 1 (see section 4.2) it can be noted that it starts out and concludes in the same way. In this example we could also see that the IT-system needs to be able to handle exchanges of requests and commitments between supplier and customer. Another dimension that also comes forward is the possibility of being flexible concerning the delivery address given that a delivery cost could be specified.

4.3 Conversation 3

The third conversation represents an order situation where the customer, Anders (A, a wholesaler), and Ulrika (U) make several corrections about information in the ERP-system:

1 U BIAB Ulrika.
2 G Hello Anders L-company.
3 U Hello.
4 G I need some S-products again.
5 U You need some S-products again yes. (2.0) ((Ulrika makes a note in her notebook)) Yes.
6 G Two xx-meters' R-package E-format.
7 U Mm : : Yes. I will just check that- What did you say the company name was? It is called-

8	G	Göran Jensén Entreprenad.
9	U	Let's see. (1.0) ((Ulrika make a search in the ERP-system)) There we have it. And you want it to the address in Arneby?
10	G	Aneby. Otherwise it was right.
11	U	I thought it looked strange yes. ((laugher)) Okay. Then I will change it. Let's see. Two items you said 200-xx yes. Mm : :
12	G	And you also send my cellular number because there is always something that goes wrong.
13	U	Yes exactly.
14	G	073-123456
15	U	Yes. Then we will do that.
16	G	They are hopeless.
17	U	They are that yes.
18	G	They need a road description.
19	U	Okay. I can try to get them to deliver with Schenker instead.
20	G	Yes,
21	U	But the zip code is correct or? 57894 or?
22	G	That is correct.
23	U	That is correct yes.
24	G	Lindberg.
25	U	Li- That was very- Then we will change that also. Mm : :
26	G	Do you have it in stock?
27	U	Let us check here- (1.0) ((Ulrika make a search in the ERP-system)) Yes that is no problem.
28	G	No problem?
29	U	No. It will be delivered from me tomorrow.
30	G	Great.
31	U	Mm : : Yes.
32	G	Perfect.
33	U	Okay.
34	G	Thank you.
35	U	Thanks. Bye.

At first the customer announces that he needs a specific kind of product (again) and Ulrika repeats that in the next turn. By repeating the question the customer gets a chance to correct misunderstandings. In turn 6 the customer mentions the number of products and what format. Ulrika confirms that with a prolonged "Mm". In turn 7 she ask the customer to repeat the name of the company. The customers answer is interesting since the company's name is not the same as mentioned in the beginning of the conversation. Since the customer is a wholesaler one can assume that instead it is the customer's customer. Ulrika therefore must have been in contact with this customer before since she does not do a correction in the next turn. She also asks if the place of delivery is correct. This can also be seen as a kind of assurance. The customer responds that the town is misspelled. Ulrika's initial reaction in turn 11 is laughter together with "I thought it looked strange yes". Laughter can be seen as a way

to "save" the situation. In turn 12 the customer requests that Ulrika also send his cellular number because there is always something that goes wrong. She agrees which indicate that there is a problem. In turn 18 the customer gives a further explanation to what the problem consists of. The customer shows dissatisfaction in two turns (12 and 16) and Ulrika offers a solution to this in turn 19 which the customer accepts. Then there is a sequence (turn 21-25) where other information about the customer is checked and corrected. In turn 26 the customer asks if there are products in stock. Ulrika confirms that and makes a commitment that the products will be delivered the following day. The customer expresses acceptance and reinforce that with "great" and "perfect". The conversation also illustrates CSRs' need of information from the customer to register the order. The conversation can be classified as "talking/typing".

In the table below a similar analysis is made of the conversation as in conversation 1 and 2. From the table it can be seen that there are more dimensions involved to consider in conversation 3.

Turn #	Type of action	Communication direction	Artefact as an agent for interactive usage situation?
1	Identification	Supplier → customer	Embedded when the customer enters the IT-system.
2, 8, 24	Identification	Customer → supplier	Necessary to ensure that the speaker is the speaker
4, 6, 12, 14, 20, 26	Potential request of a certain content	Customer → supplier	Possible to put forward a hypothetical request and specify the propositional content of that request? Note that the propositional content continuously becomes more specific!
5, 7, 13, 15, 17, 23, 25, 31, 33	Interpretation (confirmation of that the Listener understands the communicative act)	Supplier → customer	Potential feedback from the IT-system as an agent acting on behalf of the supplier
7, 11, 21	Clarification about the customer's identification	Supplier → customer	Should not be needed if the customer as identified herself properly
9	Proposal of delivery place	Supplier → customer	The IT-system should be able to give proposals of "missing" parts of the customer order
10, 20, 22, 28, 30, 32	Interpretation (confirmation of that the Listener understands the communicative act)	Customer→ supplier	Answers to be specified by the customer
16, 18	Evaluation	Customer → supplier	Possible for the customer to make evaluations of earlier experiences from former transactions
19	Proposal of transport	Supplier → customer	The IT-system should be able to

	company		give proposals of "missing" parts of the customer order
27, 29	Commitment	Supplier → customer	About the delivery
3, 35	Greetings & Good bye	Supplier → customer	A nice feature – but necessary in an agent-mediated interaction?
2, 34	Greetings & Good bye	Customer → supplier	A nice feature – but necessary in an agent-mediated interaction?

This conversation shows that there is a lot of clarifying discussions going on between the two parties. In this conversation, as it also does in conversation 2, the request becomes more and more precise and "filled" with the propositional content needed. When the customer has stopped specifying the request, the supplier (which could be an IT-system) continues to ask questions for the customer to specify. Two other dimensions are also put forward in this conversation, one is the possibility to "save" the situation by laughter, which could be hard to implement in an IT-system. The other one is the possibility to specify evaluations of experiences developed from former transactions.

5   Concluding discussions

When looking at the recorded conversations a number of requirements can be put upon an IT-system supporting these interactions. Some of these are:

- Identification of the supplier and the customer
- Possibility for the customer to place an order
- Getting an answer of delivery conditions
- Flexibility regarding delivery place
- Possibility for the customer to update "personal data" in the IT-system
- Possibility for the customer (and the supplier) to register assessments of performed transactions

It should be noted that the BIAB-case is based on long-term relationships between customers and the supplier in a B2B context. This means that there are usually frame contracts between them. A possible IT-system could then be seen as an extranet that the customers log onto and that meets the demands of the customers. The customer can via the system be identified, place orders and so on. The functions provided by the extranet can also to a high extent be customized to suit each particular customer. This makes the determination of IT-enabled actions slightly simpler than in a B2C situation since the customer then needs to identify herself and is not known to the supplier.

In the BIAB case we have looked into the situation when an IT-system acts on behalf of the supplier. As identified by Goldkuhl (2006) other scenarios concerning the role of IT-systems in supplier-customer interaction could be identified. IT-system could be seen as an agent acting on behalf of the supplier, on behalf of the customer, on behalf of both parties or as a trusted-third-party acting to facilitate the communicative exchanges between suppliers and customers.

In this paper we have used conversational analysis and socio-instrumental pragmatism as ontological foundations for understanding ongoing conversations and to reason about

potential IT-enabled actions. Both concepts emphasise the need for acknowledge what is actual done, i.e. conversational actions. In the table below we have derived a number of analytical constructs acknowledged in each foundation in order to understand the potential in combining the two foundations for the purpose of deriving IT-enabled actions. We have also been inspired by Allwood's notion of social activity (c.f. Allwood, 2000).

Concepts	Acknowledged in CA	Acknowledged in SIP/ISAT
Speaker (Interventionist)	X	X
Listener (Recipient)	X	X
Utterance/turn (social act)	X	X
Turn taking	X	X
Adjacency pairs (within and between exchanges) → sequencing	X	X
Communicative function		X
Communication media (instrument)		X
Contextual factors		
Actions / activities		X
Roles		X
Conditional situation		(X)
Consequential situation		(X)
Environment (social, physical)		(X)

The notion of socio-instrumental action (SIP) put forward in the section above highlights a number of different characteristics concerning social actions. There are always at least two parties involved in a social action – the interventionist and the recipient. Social acts come in pairs and do have relation to each other meaning that the issue of turn taking is acknowledged within SIP/ISAT. Such turn taking also means that actions are organised in patterns of initiatives and responses, where one response also serves as an initiative for another response. Such initiatives and responses are the basis for exchanges (communicative and material) both within a particular exchange and between different types of exchanges. Each utterance also has a communicative function (c.f. speech act theory's analytical constructs such as illocution and proposition). Put in relation to SIP/ISAT there are also a number of contextual aspects (such as other activities, roles, conditional and consequential situation, and environment) that are important to take into consideration in order to form a good conception of analysed patterns of social acts.

CA is a way to describe and analyse people's methods for producing orderly social interaction. Trough the detailed analysis where such basic concepts as turn taking and adjacency pair have a central role the researcher is able to tap into how the conversationalists create a mutual understanding and what is accomplished through the talk. The focus is thus on single and combinations of utterances made by speaker or listener. The institutional direction of CA acknowledges that the conversationalists have specific goals related to their institutional identity, i.e. they act on behalf of the organisation they are a part of. Thus their utterances can be related to the specific context. However sometimes they "leave" their defined roles and become more personal. The role concept is however not used in CA as an analytical tool such as for example turn taking or adjacency pairs. It is more part of the

context that the institutional oriented CA researcher can relate to when discussing what goes on in the conversation. The concept context is in the more "pure" interpretation of CA related to that every contribution in the conversation is both context renewing and context dependent, i.e. an utterance is related to previous utterances but also influences the following contributions in the conversation. The context is developed on a turn-by-turn basis. The context can thus not be taken for granted. From the analysis put forward in this paper we can acknowledge that CA creates good foundations for making further analysis of the conversations based on action-oriented analytical constructs put forward in SIP/ISAT. As we have illustrated in the table above there are both similarities and differences between CA and SIP/ISAT. Both acknowledge basic analytical concepts such as turn taking and adjacency pairs and that there is at least a speaker and a listener in the conversation. One important difference between CA and SIP/ISAT is that SIP/ISAT also acknowledges other acts than communicative acts. Social acts mean that there is attention paid at communicative as well as material acts as social acts.

Following Goldkuhl (2003) we can conclude that CA and actions oriented concepts fruitfully complement each other when coming to a standpoint of what conversations to manage with IT-systems. We can also conclude that by studying recorded conversations in this way we can get a deep understanding of what actually happens in the interaction between customer and supplier. As we have put forward and illustrated in this paper CA and SIP/ISAT can be used to analyse interaction in a detailed way. The conversations we used are categorized as "typing" or "talking/typing" situations that possibly could be transferred to self service systems. As Salomonson and Lind (2006) conclude there are conversations that are more complex in structure and sequence, i.e. categorized as "talking", that are much more complicated to be transferred to a system. A starting point when deciding if a system could take care of some customer-supplier interaction is recurrence - to quantify the conversations that are categorised as "typing". It must of course be worth the cost of implementing a system. However human interaction is often of complicated nature in the sense that a conversation can change completely if there suddenly are misunderstandings and need for clarifications. It is also not to take for granted that the whole interaction could be implemented in an IT-system, parts of it would be more equivalent to handle with human interaction, i.e. "talking/typing". One should also take in consideration that some relations are more important than others and the supplier must offer the possibility of personal conversations. Another issue that not is focused in this paper is the role of preferred vs. dispreferred second pair part in turn-taking sequences. In coming studies it would be good to deepen the analysis of such differences between the characteristics of the second pair part. Further studies would also be to investigate recurrence empirically. This is also closely related to the development of tools that customer service representatives need to serve customers more efficiently and to capture occurrences.

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