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Talking work: Argument, common knowledge, and improvisation in teamwork

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Introduction

This chapter examines collectivity in teamwork. The analytic concern is with how collective action is accomplished in team members' conversations. The example sequences were recorded in a multidisciplinary Child Development Centre (CDC) located within a large National Health Service (NHS) hospital in the United Kingdom. Multiprofessional teamwork is central to the provision of diagnostic and coordinated therapeutic services for children with developmental difficulties. At the time of the study, the physical surroundings of the Centre and its associated daily routines afforded many opportunities for informal discussion between team members concerning their work and case loads.¹

Multidisciplinary professional services for children

Multidisciplinary professional practice has been widely advocated in the British Isles for organizing the provision of services for children with complex developmental problems (Court Report, 1976; Warnock Report, 1978). It provides a "single gateway" to assessment and therapeutic services. Although widely taken up as a model of professional practice, there has been little evaluation of how such teams actually develop the ways of realizing their daily work activity in a multiprofessional manner. What research there is has either focused on the consultation process between professionals and their clients (e.g., Silverman, 1987; Sharrock & Anderson, 1987) or has examined the flaws in professional practice that surface as a result of professional jealousies and rivalries (Tomlinson, 1981). Such inter professional tensions are interpreted as detracting from good professional practice (Tomlinson, 1981). Research can also be found articulating an ideal that aspires to eliminate professional barriers and to equalize status relationships between professional expert and layperson (Gleidmann & Roth, 1980; Cochran, 1986; Wolfendale, 1986). The question of how multiprofessional teams develop modes of practice that are more than some arbitrary togetherness and ac-

tually come to realize their practice in a collective manner has, however, not been investigated directly.

Teams

"Teams" are an organizational concept. In the literature on "organizations" it is possible to find different kinds of accounts about their "nature" and organizational impact. Morgan (1986) and Jirotko, Gilbert & Luff (1992) have identified a whole range of images deployed as versions of organization, for example: organizations as hierarchical structures, networks, environments, information processors, coalitions, and cultures. Applied to teams, such images, or metaphors, frequently fail to account for a range of commonly acknowledged features central to the coordination activities in team practice, especially within multiprofessional settings. Such features include the trade-off between the informal and formally declared procedures, people's use of tacit and informal practices, the conventionalization of the formal from the informal, the handling of uncertainty and unpredictability, the improvisation of change, and the incorporation of innovation into existing practice.

Both Morgan (*ibid.*) and Jirotko, Gilbert & Luff (*ibid.*) note their images are all in their own terms plausible accounts of organizations that participants may use as part of their "doing organizational life." Morgan (*op cit.*) recommends that "effective managers and professionals in all walks of life, whether they be business executives, public administrators, organizational consultants, politicians, or trade unionists, have to become skilled in the art of "reading" the situations that they are attempting to organize" or manage (p. 11). For Morgan, such an "art" involves treating organizations as "text." Morgan (*op cit.*) argues for a "dialectical analysis" of organizational contradictions. Such an analysis is claimed as showing a way forward in handling "the management of contradiction" (p. 266).

Morgan's recommendations involve improved reading skills. The suggestion here is that the analysis should do more than that. It should allow both the participants and analysts the opportunity to examine how the dilemmatic features of organizational life become both a topic and a resource for doing organizational life. The analysis presented also aims to move beyond the sorts of organizational analysis of teams that is concerned with patterns of information flow, role demarcation, interprofessional jealousies, leadership, working cultures, etc. (see, for example, Levine & Moreland, 1989). The critical issue remains how to conceptualize team expertise and practice as accomplished in the social actions of team members in dialogue with each other rather than as some bureaucratic summation of individual expertise and how to study teamwork as the accomplishment of "dialogical" rather than "monological" expertise. To understand such dialogical expertise involves examining the way the team structure, patterns of coalition, information, etc. are formulated as matters of ongoing concern by

agents within organizations. How they become performed rather than merely read in the communicative action of everyday practice. Jirotko, Gilbert & Luff (*op cit.*) argue that it is necessary to examine how that interpretative work is done in order to produce a situated understanding of "doing organizational life."

Previous work

Although interest in communicative activity in medical and pediatric contexts has been the focus of previous research projects (see for example Beale, 1976; Davis & Strong, 1976; Rittenberg, 1986; Silverman, 1987) the range and nature of unscheduled communications ("corridor talk") had not figured in attempts to evaluate the nature of multidisciplinary teamwork (see for example Stacey, 1980; Crocker, 1982; Thomas et al., 1984; Bax & Whitmore, 1985). The precursor to the work reported here was a "diary" study to establish the extent and significance of what we termed "titbits and work-related gossip" for the creation and maintenance of common knowledge concerning details of current and past cases, and in the creation of interim solutions to unforeseen problems that occur in multidisciplinary teams (Middleton & MacKinlay, 1987). Team members logged their communicative activities over two one-week periods. Analysis of these schedules revealed extensive use of incidental talk in achieving working solutions to unanticipated problems. The majority of those problems concerned children who were additional to the children "officially" scheduled to attend for developmental assessment and therapy at the Centre. Initial examples of this type of conversation were recorded and the significance of incidental talk for the team's capacity to glean information and react in a flexible manner to unexpected issues was discussed.

Since that initial study, further examples of the team's conversations have been recorded. This chapter extends the analysis of these spontaneous and informal commentaries on team practice. As Rittenberg (1985) points out, citing the work of Garfinkel (1967) and McHugh (1968), team members in health care settings habitually collaborate in a process of defining their current situation without any evident self-conscious reflection. However, when problems arise, the work of defining what is currently happening becomes an object of debate and awareness (Kleinman, 1980). Rittenberg (*op cit.*) was concerned with identifying and illustrating the way locally realized situation definitions could extend to become part of, and indeed structure, the shared concerns and practices in a pediatric ward. However, in that study the consolidation of shared understandings concerning the culture of ward practice is drawn as one negotiating a consensus of agreement between members where argument is suppressed and quieted. The contrary position is adopted here. Argument is presented not as something to be resolved before negotiated understandings of what the current object of work practices is or should be, but crucially involved in the accomplishment and maintenance of

what team members take to be common understandings. This is not to argue that the generative potential of argumentation is necessarily and inevitably an instrument of positive consequence for team practice. Arguments can be deployed in both the "opening up" and in the "closing down" of options in team practice.

Argument and argumentation

A distinction can be drawn between individual argument and social argument. Billig (1987) points out that there is an ambiguity in the meaning of what we understand by the word argument. It can refer to a piece of reasoned discourse that any individual may elaborate in establishing a particular case or point of view. As Billig puts it, "(A)s one articulates a point of view, one can be said to be developing an argument" (p. 44). Equally, the argument can also refer "to a dispute between people" (p. 44), wherein "opinions, or individual chains of reasoning, clash in the context of a social argument" (p. 44). Billig exploits this variability in usage of the term to demonstrate that "any individual argument is actually, or potentially, a part of a social argument," in that any individual argument is potentially controversial in the social arena. Equally, in team talk, although people can put up individual lines of justification for plausible ways of proceeding, these can lead to socially constituted disputes; the move to consensus is one created through argumentation. This chapter examines how such social argumentation provides the basis for team practice that has collectivity and joint accountability as a primary focus of concern.

Team talk

Talk by team members about their work is of interest because as "situated action" (Suchman, 1987) it is used both to construct versions of what the team is currently doing and constitutes ways to act that respond to those versions. Accounts of past practice in the present become a resource in defining future practice. There has been no shortage of discussion in a range of literatures on this point; see, for example, discussions of "situated action" (Suchman, 1987); "cognition in practice" (Lave, 1988); "distributed cognition" (Hutchins, 1985, 1990); and computer-supported cooperative work (CSCW, 1986, 1988). All these discussions have argued for detailed ethnographically informed data as a basis for understanding the nature of communities of practice. Some (e.g., Suchman, *op cit.*) go further and have incorporated insights drawn from ethnomethodology (e.g., Garfinkel, 1967) and conversation analysis (e.g., Sacks, Schegloff, & Jefferson, 1974; Atkinson & Heritage, 1984; Drew & Heritage, 1992). Insights from ethnomethodology are also to be found in the discourse-analytic orientation of this chapter (Gilbert & Mulkay, 1984; Potter & Wetherell, 1987; Billig, 1987; Edwards & Potter, 1992). They highlight a significant inversion in the study of

human action. What it is to know is just as much a concern for the subjects of any analysis as it is for any analyst. The way participants construct and account for what they do is a resource and a topic for both participants and analysts. The analytic perspective adopted here examines "team practice" as a topic of concern within teams. This involves taking account of the way members formulate what is "to do" the teamwork they find themselves involved in.

Dilemmas in teamwork

In dealing with uncertainties in the representation of practice, team members' talk gives voice to contradictory and dilemmatic aspects of team practice. Attempting to evade or resolve such contrary themes can be seen to involve argumentation in the way speakers accounted for their practice and were able to distance themselves from the contradictory consequences of their accounts. The overall suggestion here is that teams should be understood performatively as constructed in and through the multiple occasions on which members define them and debate their definitions. Such kinds of definitional work can be found as a routine part of work. This is illustrated in the following transcription of a sequence of teamwork talk recorded within the multidisciplinary Child Development Centre referred to earlier.²

Sequence 1

Context: Sister's (nurse's) office used as a general meeting room. Sister (S) and one of the unit physiotherapists (PTU) discussing a problematic case.³ PTC refers to community physiotherapist, a physiotherapist who works within the community who has a base within the CDC. PTD refers to the district physiotherapist, the person in overall charge of physiotherapy within both the community and the CDC.

S: (...) teacher at um at (school) (&)

PTU: um

S: (&) and {1} she had a child that was (condition) (&)

PTU: um

S: (&) and {2} she was wanting more physio {3} she took the child off to get a private physio involved and Jane (PTC) {4} said {5} well if another physio's involved then I can't be {6} because (&)

PTU: yes yes

S: (&) {7} we both probably will be doing different things saying different things {8} she has not the team approach and I don't think that it should be done and I think that {9} you should involve Anne (District PT) certainly Jane (PTC) did and I think Jane (PTC) was saying exactly what you're saying about this case exactly what you're saying and I feel um you ought to go through it with Jane (PTC) (&)

PTU: she did actually talk to Anne (District PT) about it

S: she is {10} a very dynamic lady and um it's extremely difficult I think Jane (PTC) had quite a few sleepless nights over it

PTU: um

S: but uh she was sticking in exactly the same way as you were and I I think if you have a chat with her and a chat with Anne (District PT) I am quite sure that uh

PTU: yeah

S: OK

This sequence displays a number of rhetorical resources for "doing" team work. For example, the notion of what it is to be a "team" is used {8} to argue for a particular course of action in relation to this problematic case. "(T)he team approach" is identified as a distinctive feature of this organizations practice. The Sister focuses on the team's practice and objectifies it as a feature that illustrates a potential distinction between the individualization of private practice and the collective nature of their state-funded team practice.

Being part of a team is more than a bureaucratic resource; it is a discursive resource in the argument over the direction of future practice in that problematic particular case. The Sister, in representing a previous case, engages in acts of (re)presentation in working up and arguing her view of a potential line of action that might help to resolve current difficulties. Such acts of (re)presentation form an important feature of creating a "working intelligence" concerning practice that is crucial to teamwork as collective action. This point will be discussed in more detail shortly. For the moment, the issue is the way this example represents a series of arguments concerning what might be an appropriate course of action in a particular case; at the same time, a version of what constitutes organizational life and team practice is constructed. The communicative work in the example involves the Sister improvising the grounds for recommending possible lines of action in a particular case: seek the advice of another physiotherapist (PTC); consult with the district physiotherapist in overall charge of the physiotherapy service in the area. The Sister employs a number of rhetorical devices to support her recommendation, one of which is to formulate organizational life and the obligations that make it up, as constituted by "the team approach." In using such devices, the Sister's (re)presentation of the situation attends to a number of overlapping dilemmas of practice: parental versus professional rights; individual versus team provision of service; state versus private practice; egalitarian versus authoritarian decision making. However the participants do more than a passive reading of "preexistent" ideological and practical dilemmas (Billig et al., 1987). Their conversation provides the basis to elaborate the significance of the dilemmas of practice they currently face. If we extend beyond the notion of "reading" their organizational circumstances, they can be characterized as "authoring" a way forward (Shotter, 1990).

The Sister, in identifying some actors who do and some who do not have the

team approach, and enjoining PTU to liaise with someone who does, is doing more than merely discursively representing the organization. She is recommending courses of action and associations between actors that would literally create a new organizational form. This analytic perspective views organizations not as some object of an ostensive definition that we might know of in spite of the ignorance of participating agents, and more the outcome of a series of trials and contests in which various parties (analysts included) lobby each other for the version of team organization that they wish to have stick. "Teams," then, becomes performatively defined [cf. Latour's (1986) discussion of the powers of associations and "actor network theory"; Grint, 1991].

Team members' talk continually handles uncertainties concerning their work; for example: what should they be doing next in relation to problematic cases?; are there any misunderstandings of purpose between the various professionals involved and between team members and the families?; what further information might be required to cope with an emergent problem?; whose responsibility might it be to instigate and monitor a recommended line of action? Solutions to such issues are always only provisional. The children's needs and family circumstances change. Uncertainty can always return and this gives team members talk about their work its contradictory and dilemmatic quality. Dealing with contrary themes of practice can be seen to involve argumentation. Dilemmas are a topic of concern that unfold in ways that reveal speakers attending to those dilemmas without falling prey to them while accounting for practice. Team members' talk about work therefore gives voice to contradictory and dilemmatic aspects of team practice.

Common knowledge and "working intelligence"

As stated earlier, the analytic intention of this work is to examine and illustrate the way collectivity in team practice is accomplished and organized for in the argumentative structuring and content of conversations between team members. Two specific issues will now be discussed. The first concern is the way the rhetorical structuring of informal conversations between team members affords the generation and maintenance of common knowledge for current cases and procedures. The analysis then moves on to illustrate the rhetorical resources available to team members for improvising interim solutions to unexpected problems.

What might be understood by "working intelligence" or "understandings held in common"? "Classically," cognition refers to representations and the transformations that representations undergo. This is very clear in contemporary cognitive science, where terms such as "know," "think," "believe," and other "mental language" are unpacked by reference to operations on representations of the world that occur, in some sense, "inside" agents or "inside" the organizations

that agents make up. Not only does this raise the issue of how organizations or agents can be individuated so that we might speak of their "insides" in contrast to their "outsides" (cf. Cooper, 1986), we cannot invoke representation nonproblematically (Woolgar, 1988).

Consider again Sequence 1. It has already been pointed out that the topicalization of "teamwork" is a rhetorical resource for handling dilemmas of practice. Closer examination of the sequence reveals ways in which uncertainty of representation are managed rhetorically. The line of the Sister's argument leads to her establishing grounds that are borne of the experience of other team members in equivalent cases. The (re)presented experiences of other team members becomes a resource for establishing equivalence between current and past circumstances. Such equivalence is crucial in justifying the lines of action being recommended by the Sister.

She has to find grounds on which to establish her claim that there exists an equivalence. In so doing we see an invocation of the team's "working intelligence," the working of a distributive reasoning of problematic circumstances through renarration embedded in the voice of another team member of the particulars that establish that equivalence (4: *Jane (PTC) said well if another physio's involved then I can't be because . . .*). Rather than accept a number of voices of equivalent status of acceptance, the Sister's talk addresses the possibility that other competing representations might be possible. This is achieved by accomplishing a relation between voices that brings off a construction of equivalent cases. The Sister, in recruiting another team member as a potential ally, so frames her recommendation that it can be heard as not just hers. To defeat this recommendation, PTU would now have to undo not merely the words of the Sister but also of the Sister's rhetorically invoked ally, Jane. In this way, her talk handles the potential defeasibility or undoing of her claims for equivalence.

We represent the world in contexts where we might be opposed as others mobilize alternative versions of events, objects, and agents and try to assemble support for them. In addition to constructing the argument through the voice of another person, a variety of other devices are deployed in handling uncertainties of representation. Initially, the Sister's argument is couched in terms of formulating another's circumstances, intentions, and actions as equivalent.

The initial focus of the Sister's recorded intervention involves the use of others to establish some form of equivalence between the present case and a previous case. A comparison is made to the mother with equivalent circumstances from a previous case the team had handled. Three aspects of the cases are argued to be equivalent: that "she" (the mother) is presented as having an equivalent "*child that was (condition)*" {1}; that her motives are equivalent because "*she was wanting more physio*" {2}; that she followed an identical course of action "*and took the child off to get a private physio*" {3}. In this way, representing the cases in terms of circumstances, intentions, and actions, and establishing the perti-

nence of just these features of the cases will head off, for all practical purposes, the possibility of further disagreement.

But this will be the case for only so long as the Sister's formulation of circumstances and issues invoked are taken as reliable and not contestable. Here again, the recommendations' rhetorical base is made larger and more secure. To disagree would now involve undoing three more things (sets of representations) over and above a claimed equivalence: the Sister's account of the circumstances, actions, and intentions of the mother in question.

It was at that point that the Sister used the voice of the person whom she was recommending should be consulted to further bolster the claim that the cases are comparable and merit comparative consideration as a means of moving beyond a "sticking" point.

The voice of the physio accomplishes further argument in relation to the identity of the cases and also to suggest what the nature of the sticking point in the present case might be. The evidence evinced in the voice of the physio is also couched in directly argumentative terms "*well if*" {5} qualified by a reason "*because*" {6}. The Sister introduces through the voice of the physio a completely new line of comparison that relates to the practicalities of servicing any particular case: the difficulty of having more than one therapist of the same kind involved on the same case ("*well if another physio's involved then I can't be because*" {5}). This difficulty is justified because two therapists might "*be doing*" and "*saying different things*" and thereby violate the consensus and unitary nature of recommendation and action that are the hallmarks of team practice.

It is only after the concluding comment in the voice of the physio that two persons should not be included on this particular case that the Sister puts forward a suggestion of her own. It is only now that speaking "matter of factly" about a course of action becomes feasible. The Sister's suggestion is immediately qualified using a further argument based on equivalence with the previous case: "*I think that you should involve Anne (District PT) certainly Jane (PTC) did,*" the District Physiotherapist being the person in overall control of the physiotherapy service in the whole of the health district in which the hospital is situated. This then is a plea to involve a higher authority in seeking a resolution to any impasse in this particular case. But even that recommendation is only stated in terms of a conditional modality ("*I think*") and the way forward is located in the action of another ("*you should . . .*"). In this way, a voice is adopted that, while handling current uncertainties through speaking factually, is not so committed that future outcomes could not be articulated in terms of a revised inequivalence between the two cases.

This controversial work is the arena in which improvisatory interim solutions to recurring problems are argued for in terms of the uncertainties of representation that are only provisionally managed at any particular point in time. This provisionality arises through the uncertainties being ineradicable. However, it also

allows for flexibility in how future outcomes might be dealt with and represented in their own turn. From these examples, we see how accounts of teamwork should allow for the emergent rhetorical means by which the uncertainties of representation get managed. In addition, and this seems to be particularly significant in framing an approach to collectivity in practice, just "how far" the management of uncertainty proceeds needs to be understood in terms of how much future practical and representational flexibility is required. We must not construct an authoritative voice now if the refutation of its certainties at some time in the future would then leave the team "voiceless." Not only are representations future directed (e.g., through leading to the specification of courses of action) but so are the strategies themselves by which uncertainty is managed. This suggests that the management of uncertainty is always provisional, and as uncertainty can always potentially return, everyday life often has a dilemmatic quality (cf. Billig et al., 1988). This entails understanding representation performatively.

Rhetorical emergence of common knowledge

Further examples will now be discussed to illustrate how a multidisciplinary team talk about work accomplishes an up-to-date "intelligence" concerning the current activities of the team. This common knowledge or "working intelligence" can be seen to be collectively accomplished in the team's conversations. The second conversational sequence illustrates the rhetorical organization of uncertainties concerning the status of current information relevant to team activities. Teams such as the ones working in CDC's are continually having to incorporate into their program of work new clients for assessment and therapy, address issues relating to established cases on their "books," and adapt to staffing changes both within and around the unit that are an endemic feature of hospital organization. In Sequence 2 the Nursing Sister in Charge of the daily running of the CDC had just finished a phone call. As she terminated the telephone conversation she indicated to whom she had just been talking. The colleagues she addressed were not assembled in the room for the purpose of being told that information.

Sequence 2

Context: Sister (S) at the finish of a telephone conversation addresses physiotherapist (PT) and nursery nurse (N).

- 1 S: (name) from the (name) School
- 2 PT: who?
- 3 S: (name) from the (name) School
- 4 N: I thought she was retiring
- 5 PT: no she's not its the school nurse isn't it?
- 6 S: the school nurse has gone
- 7 PT: has she gone?
- 8 S: yes

Here we see the passing on of current information concerning links with the outside world. The rhetorical structure and content of this sequence derives from the way people argue for their version of what they argue to be the status of the world beyond the Unit. The Sister commentates her recent activity in naming whom she had just been talking to (line 1). This is queried by the physiotherapist and that elicits a repetition of the commentary (lines 2–3). The subsequent exchanges establish that the particular person is still potentially in place and that another member of the school staff had in fact retired. It is the conditionality of the nursery nurse's interjection, "I thought" (line 4) and the conditionality of the physiotherapist's interrogative response, "Isn't it?" (line 5), that gives both the exchange as a whole and individual contributions their argumentative structure and content. The physiotherapist's contribution is interesting because in the same utterance she argues both for a particular version and then opens up the possibility of an alternative construction on the circumstances. Neither the nursery nurse nor the physiotherapist are trading bald statements of "fact." They give and take around possible uncertainty. There is also a rhetorical ambiguity in the physiotherapist's question, "Has she gone?" in response to the Sister's statement, "The school nurse has gone." The Physiotherapist's response has the potential of being read both as questioning the "facts of the matter" concerning who has retired and at the same time affording a confirmatory reply – "yes" – by the Sister.

This exchange is an example of the collective realization of a working intelligence. The outcome is a product of the joint construction of a version of what is happening in an external institution. An apparently simple mismatch of information that crops up in an incidental conversation serves to keep the status of the unit's common knowledge of the world of professional personnel beyond the Centre up to date. There is nothing extraordinary about this information nor about the fact that the team includes it in their talk to each other. It is in consideration of how team members commentate that very ordinariness that we can explore further the way in which argumentation is implicated in the construction of shared common knowledge concerning what is going on within and beyond the team.

Common knowledge in commonplace dilemmas

Later in this chapter, the improvisatory consequences of team talk will be discussed. However, the constructive and generative consequences of talk need not be improvisatory. Indeed, with respect to the function of these sorts of conversations in establishing a working intelligence in the unit, it is more usual to find that the conversational activity focuses on prosaic aspects of the unit's work, such as comments on a phone call, noting the birth of a child to one of the parents who already attends the unit, and arranging the timetable of appointments. Billig (1987) cites how, in discussions of rhetorical argumentation to be found in

the classical literature, "common places" (*loci communes*) and points of "invention" (*loci inventio*) are two important aspects of argumentation. The collective (re)presentation of commonplaces in team activity is one way the common knowledge of what is currently happening and has happened is made available and maintained. For there to be argument, there does not have to be the invention, improvisation of new procedures, or innovative interpretation of past cases. The collective (re)presentation of the team's activity can be argumentatively structured around the dilemmas of representations concerning mundane and commonplace features of team practice.

The following Sequence 3 has these properties. On this occasion, the issue that emerges focuses around the relative rights of team members to determine the nature of the case load of other members of team. At first reading it would appear to be a simple matter of coordinating an appointment for a child to see the consultant, but it turns out to be more complicated than that.

Sequence 3

Context: Sister's office, which is used as a general meeting area. Participants include a community physiotherapist (PTC) who works out of the unit, a unit physiotherapist (PTU), a nursery nurse (N), and the Sister of the unit (S).

- 1 PTC: um please could we have an appointment for (Forename Surname) to see Mr. (Consultant)
- 2 PTU: ah ah (&)
- 3 ? : ah yes
- 4 PTU: (&) I was just coming say she has got one for next week I did not realise
- 5 PTC: oh has she (...) she's got (condition)
- 6 N: she has got an appointment (&)
- 7 ? : yes
- 8 N: (&) and she should have one 6 months ago and we are waiting for a referral letter for Mr. (Consultant) and as soon as that's done she has got an appointment and it is provisionally in for next week
- 9 ? : yes
- 10 ? : 24th?
- 11 N: and all we need oh sorry a week on Tuesday
- 12 PTC: I am going to ring mum (...) to forewarn her
- 13 N: do you think you ought to yet (&)
- 14 S: (PTU) have you had words with (PTC)
- 15 N: (&) I think you might worry her
- 16 PTC: (...) needs to be monitored (...)
- 17 N: um because I think if you ring her before she sees Mr. (Consultant) she going to whittle for fortnight
- 18 PTC: (...) next Tuesday
- 19 S: (PTC) I think (PTU) needs to talk to you

- 20 PTU: yeah
- 21 S: to have words with you
- 22 N: (PTC) a week on Tuesday 24th
- 23 PTU: oh a week on Tuesday sorry
- 24 PTC: oh that's that's alright then I shan't bother (...)
- 25 N: so who's doing the referral letter (1) are you
- 26 PTC: I I'll do it (1) I don't mind
- 27 N: thank you I didn't realize that you were seeing her and I asked (PTU) cos she used to so I'm sorry
- 28 ? : (...)
- 29 PTC: 24th
- 30 N: um
- 31 PTC: (...) and I'll do the letter

This sequence starts with the community physiotherapist (PTC) requesting an appointment for a child to see a consultant at the hospital because a particular condition is suspected (lines 1 and 5). The condition had not been confirmed with the parents via any medical consultation with a consultant who dealt with the type of condition. This evokes a response from one of the unit physiotherapists (PTU) that the child in question has indeed got an appointment but that she "did not realize" that this had been made (line 4). This query is taken up by the nursery nurse who recapitulates details concerning appointments for the child (line 8). The full significance of the nursery nurse's contribution to the working intelligence of the team only becomes apparent toward the end of the sequence (line 27). Only at that point is it explicitly revealed why there might have been confusion over the making of the appointment. The nursery nurse declares that she had not realized that the community physiotherapist was already seeing the child and that she had gone ahead and made a provisional appointment with the consultant in the name of the unit physiotherapist rather than in the name of the community physiotherapist.

Again we see a conversation constructed in accordance with the dilemmas of uncertainty in teamwork activity. A commonplace in the team's culture of teamwork concerning who has appointments when and for what purpose is not just a simple exchange of information, it is information evoked interactionally in conversation that handles delicate problems of taking responsibility without usurping the authority or democratic rights of other members of the team. Three inter-related aspects of team practice are handled in this exchange: potential confusions of demarcation over therapeutic responsibility and the initiation of a consequent letter requesting that the consultant make an appointment for the child; a practical confusion over the actual date of the appointment (it was in two weeks rather than one week); and, finally, the manner in which the mother of the child should be forewarned of the potential significance of the child's handicapping condition. The nurse's position on the confusion over appointments and the advance information to the mother involves some delicate footwork with respect to her initiatives both in terms of initiating appointments (the general spacing of

appointments in time, when they are specifically, who is the responsible therapist), and in terms of advising a therapist as to the probity of a particular course of action.

The nursery nurse's initial contribution concerning the letter of referral manages a potential conflict of interest between the two physiotherapists that was a consequence of an initiative that she had taken on behalf of a child attending the Centre. Her actions have only been of a provisional nature though, "it is provisionally in for next week" (line 8). It can be argued that is that very proviso that keeps her initiative in check. Provisionality provides acceptable grounds for taking initiative that is the hallmark of an egalitarian team ethos while at the same time leaving open for a later date the process of ratification that acknowledges the rights and privileges of other team members.

However, before the uncertainty of role demarcation and situated authority can be resolved, an inaccuracy in the way that nursery nurse reported the date of the provisional appointment creates the conditions for the subtopic introduced by the community physiotherapist. She gives warning that she will attempt "to forewarn" (line 12) the mother of the child as to the possible outcome of the consultation. The nursery nurse employs delicate footing (Goffman, 1981)⁴ of personal pronoun, person shift, and conditionality in warning the community physio against telephoning the mother of the child ("do you think you ought to yet I think you might worry her um because I think if you ring her before she sees . . . she is going to whittle . . .") (line 13). The nurse is constructing a plausible argument for and against a course of action that skirts around baldly telling someone what they should or should not do. She distances herself from that recommendation by representing it as a possible thought of the person she is addressing ("do you think"). That attributed thought is only conditional though ("you ought"). Finally, the conclusion of the argument is conditionally accepted as her own ("I think") but it is stated in terms of the consequences for a third person's mental state – the mother ("she is going to whittle").

Finally, when the immediate timing of the appointment has been worked out and the appropriate course of action in respect to the mother determined, (line 24) then the original "commonplace" of getting a referral letter written comes back into focus. The nursery nurse couches the initiative in such a way that does not place her in the position of making the decision. She essentially asks for a volunteer ("So who's doing the referral letter") (line 25). This is qualified with the question "are you?" It is couched in diplomatic terms of "are you doing this already" rather than "will you do this in the future." When the referral letter has been resolved, we see articulated the very issue around which this working intelligence was constructed. The nurse apologizes to the community physiotherapist for having involved the unit physiotherapist without prior consultation. She would not have done this had she known that the community physiotherapist was already seeing the child as a client. Her action had been premised on the fact that

on previous occasions the unit physiotherapist had also seen the child. Her apology is structured in the form of an argument addressing uncertainties of demarcation (line 27) ("I didn't realize . . . I asked cos . . ."). The emergent common knowledge made available in their conversation is accomplished through the management of contingent uncertainties concerning who may or may not have organized the commonplace action of making the appointment.

The analysis now moves on to examine the way common knowledge necessary for collectively accountable team action both emerges and is maintained in repair through team members' arguments to resolve variations between different accounts of details and procedures. Such common knowledge is more than the sum of any recollections individual team members might bring to the work situation. It is a property of the team's conversational rememberings concerning details of those cases and previous activities and outcomes of the team (for a more detailed discussion of remembering as a jointly realized activity see Edwards and Middleton, 1986; Orr, 1986; Middleton, 1987, 1991; forthcoming; Middleton & Edwards, 1990; Edwards, Middleton, & Potter, 1992). Again, the main point to note in this context is that both aspects of the collective nature of the team's working intelligence are emergent aspect of handling uncertainties in accounting for the apparent "facts of the matter."

Situated improvisation and innovation in teamwork

Teamwork has to be improvisatory if it is to succeed in flexibly coping with a changing case load of frequently idiosyncratic cases within general procedures and expertise. Such improvisatory flexibility is discussed in the work of Sharrock and Anderson (1987). Their concern was to account for opportunistic handling by pediatric consultants of the specific and idiosyncratic issues of particular cases they dealt with. They examined how the flow of work in a pediatric clinic is realized through the routine orderliness of everyday forms of talk and conversation that constrains and gives form to the work of the clinic. Their studies were concerned with the way work "flows" out of the orderliness of conversational exchanges in pediatric settings. Improvisation is dealt with in terms of the specific orderliness of work tasks. Such tasks have no predetermined order. Sharrock and Anderson aim to demonstrate how they come to have specific order in the particular circumstances of a particular situation, what they term "situational contingencies." Their suggestion is that "it is in the opportunistic handling of such contingencies that the routine character of work resides" (p. 250). Sharrock and Anderson put forward an account of how the work of the consultation process can be improvised within the orderly flow of expected aspects of the consultation situation. "The same orderliness which characterizes their (participants in a consultative exchange) organization in talk, is on view in the way in which they are used to organize work tasks" (p. 259).

It is a matter for further speculation whether such flexible opportunisms, borne of situational orderliness, can provide a full account of the total range of novelty and difference that is handled in the routine work of such clinics. The social constitution of work activity in these contexts must surely extend beyond what is to be expected. The examples presented here are an attempt to demonstrate that there are other features in the improvisatory process of work activity. Talk about work is of interest as situated discursive action that is used both to construct versions of what the team is currently doing and constitutes ways to act that respond to those versions. Accounts of past practice in the present become a resource in defining future practice.

Innovation as part of mundane practice

It is important to note that no special status is being accorded to "innovatory" practices as distinct from mundane features of team member's social relationships and "normal" working practice. "Innovation" in organizational practice is examined not as some extraordinary and potentially "endangered" marginal feature of the changing social organization of work but as formulable as part of the "commonplaces" of improvisation within ordinary everyday practice.

Improvising potential innovations in practice

In addition to the generation and maintenance of common knowledge constituting working intelligence, it is possible to examine how arguments focused through dilemmas of uncertainty provide a basis for the improvisation of new procedures and, as will be outlined next, the articulation of interim solutions to problems confronting team practice. The aim is to illustrate how the team's incidental conversations open up "spaces for the improvisation" of possible interim solutions in the light of plausible arguments concerning the future. Of particular interest are the specific rhetorical resources available in ordinary conversation for achieving improvisations in team practice.

Sequence 4 is an example of rhetorically structured improvisation. It also demonstrates that such talk can lay the basis for innovations in practice. The conversation was recorded on a different occasion from Sequence 2 but in the same general meeting place at the Child Development Centre, the Sister's office. "P," a pharmacy assistant, entered the room and immediately addressed "N" one of the nursery nurses on the team.

Sequence 4

- 1 P: Sally I have split it into two bottles and given two syringes
- 2 N: yes
- 3 P: one for school and one for home
- 4 N: that's great thank you

- 5 P: and I didn't split the tablets because with it being a twice daily dose I presumed they would be taking both doses at home
- 6 N: yes yes yes I would think so thank you
- 7 P: OK then (about to leave)
- 8 N: I'll put them in that cupboard (indicating one in the room) Dad might come straight round to you for it because I think he usually does normally we give the prescriptions and leave it and he is picking it up tomorrow so I'll I'll lock it in that cupboard so if he turns up
- 9 P: do you want me to take it back to the pharmacy
- 10 N: he is more likely to come straight to you for it
- 11 P: alright then as long as long I don't want him somebody want somebody just to pick it up (&)
- 12 N: you didn't want somebody not to explain
- 13 P: (&) without explaining but if we keep it it will be
- 14 N: if you keep it you will make sure you explain it
- 15 P: yes and if ever they want to write that you know to split it in two its OK
- 16 N: will you be open tomorrow it is Good Friday (possible holiday) is the Pharmacy open
- 17 P: no no
- 18 N: I'd better ring him and ask him to come up for it this afternoon then alright
- 19 P: yes do you want (offering the drugs back)
- 20 N: I will give him a ring now I'm just um when I have finished talking I will ring Dad and ask him to come up this afternoon but I won't be here
- 21 P: right so collect it from us then (&)
- 22 N: so it is best at Pharmacy
- 23 P: (&) and we explain that
- 24 S: alright then thanks
- 25 P: OK thanks a lot (leaves room with drugs)

Neither of the two participants had planned this exchange. The pharmacy assistant had brought over some prescribed drugs to the Centre. The nursery nurse happened to be the person who was available to discuss the logistics of getting the drugs to the family and the reason for why the drugs and the syringes had been packed in the way they had.

This brief sequence of dialogue illustrates the importance of such conversations in the socially coordinated activity of the hospital. However, it is more than a simple exchange or transfer of information concerning a particular case and set of circumstance between individuals representing the CDC and the pharmacy. The interactional accomplishment of the conversation is the improvisation of a solution that was a best fit to what were plausible interpretations and representations of the father's expectations of where the drug would be made available, and the wider constraints of an impending public holiday. It is this interactional work expressed through argumentation as to what might be a plausible resolution of the practical dilemma of coordination that is of particular interest: how to get the drugs to the family with the appropriate instructions. That rhetorical work han-

dles a range of uncertainties within the situation and lays the basis for future innovations in working practice with respect to coordination between the team within the CDC and the pharmacy department.

The whole sequence was obviously part of a rolling "co-text" (Brown & Yule, 1983) of shared understanding concerning that particular family's immediate requirements. The pharmacist made no effort to contextualize what she said and the nurse demanded no such background. Their interaction commences with the pharmacist informing the nursery nurse of what they have done (lines 1-6). But through that declaration a discursive context is established that affords the possibility of joint argumentation concerning the reasons why they have done what they did for one set of drugs but not for the other. Even the statement elaborating the reasons for the idiosyncratic method of dispensing the prescription is couched in the form of an argument ("I didn't... because," line 5). This argumentative structure is extended to the "presumption" that a "twice daily dose" would not entail the necessity to "split" the tablets.

For the moment, the concern is with how the argumentative structure and content of the exchange allows for an elaboration of what it was necessary to do in order to achieve effective coordination in the handing over of the drugs. The plausibility of the argument expressed in the pharmacy assistant's assertion is accepted by the Nurse - "... yes I would think so" - as a likely condition or assertion. Interestingly, further considerations are raised by the nursery nurse just after the pharmacy assistant is on the point of departure - a standard conversational location for raising ancillary or contingent concerns (Schegloff, 1972; McHoul, 1986).

The conditionality of what "might happen" is taken up by the nursery nurse: "Dad might... does normally... if he..." (line 8). This expression of conditionality is a commentary couched in the form of an argument about the specific intended operation of placing the drugs in a convenient cupboard. The argument in the commentary works on the plausible implications of a course of action that involves allocating the responsibility to the Centre for realizing the handing of the drugs to the father: the father would normally be handed a prescription for the drugs by the Centre, which he would pick up at the pharmacy department. This in turn opens up the possibility of another course of action that embodies an alternative allocation of responsibility: return the drugs to the pharmacy for collection by the parent. That was expressed in the pharmacist's specific suggestion (line 9) of "take it back to the pharmacy."

In accepting that as a possibility, a second problem was identified: who should take responsibility for explaining the idiosyncratic way the drugs have been prescribed. The pharmacy department has the local "intelligence" for "dispensing" both the reason and the drug. It was jointly ratified in the conversation that it was essential to have those idiosyncratic circumstances explained by someone who was in the know: "you did not want somebody not to explain" (line 12); "if we

keep it it will be" (line 13); "if you keep it you will make sure you explain" (line 14). The locating of the drug with the appropriate department creates the conditions of realizing a solution of successfully communicating the information to the family.

It is at that point in the local improvisation of solutions that manage uncertainties in the situation that a potential general principle or interactionally situated "script" is formulated concerning coordination on future occasions is raised. Out of the specific details of this case, a general innovative principle is suggested: "Yes and if you mention to the doctor that if ever they want to write that you know split it in two that's OK" (line 15). This principle is not "written" into any "code of practice" outlining the procedures to be adhered to in the prescription of drugs in a nonstandard manner; it inheres in the rhetorical organization of the situated interaction of the current circumstances.

However, at that point another set of specific conditions becomes apparent, the impending public holiday, and the "innovation" of routine is not taken up as a topic of further concern. A practical contradiction becomes apparent. Allocating the responsibility to the pharmacy for giving both the drugs and the information about their use could mean the parent coming on a day when the pharmacy was closed: "will you be open tomorrow...?" (line 16). Again the specific operational logistics are thrown into the melting pot of the discussion: "... do you want" (offering the drugs back) (line 19). A resolution is suggested in line 20 with the nurse agreeing to telephone the father immediately and to get him to collect the drugs "this afternoon but I won't be here" (line 20). That sealed the logistics of how to achieve both the giving of the drugs to the father, that afternoon, and informing him of the reasons concerning the manner of their prescription: "so it is best at the Pharmacy and we can explain" (line 22). The reasoning is not contingent upon individual perceptions or cognitive schema concerning what people might have done in the past, or may do in the future, but is jointly constructed as part of the social reasoning of their talk about their work.

The important point to be made about the foregoing analysis is that a possibility for future practice was formulated precisely when an anomalous circumstance was identified. In this respect, a potential innovation in practice was proposed as an upshot of improvisation. In turn, an improvised solution was required exactly because uncertainty returned over how a course of action should be formulated and over what Dad might do. Thus, uncertainty is far from being the enemy of innovation. On the contrary, its return within everyday practice is both innovation's resource and provocation.

Conclusion

The aim of this discussion has been to demonstrate the implications of the rhetorical nature of talk about teamwork for mediating the way multiprofes-

sional teams accomplish common understandings of their work activity and in the way they improvise interim solutions, and sometimes new procedures, for dealing with the unique aspects of their case loads. It is unnecessary to accord any special status to "innovatory" practices as distinct from mundane features of member's social relationships and "normal" working practice. As indicated earlier, "innovation" in organizational practice can be understood not as some extraordinary marginal feature of the changing social organization of work but within the "commonplaces" of improvisation that occur in ordinary everyday practice. Such a performative perspective points us to the analysis of social practices and the way in which they produce and reproduce individuals and social forms.

The organization of this team talk, frequently unplanned "corridor talk," centers on how to represent and account to others the relationships between different professionals and between professionals and their clients. The arguments people have in their attempts to resolve or evade the dilemmas that emerge in representing and accounting for their working life appear crucial to the coordination of team practice, as are the maintenance of past experience as the working intelligence for that practice, and the definition of appropriate ways forward in particular cases and in terms of team procedures in general.

The suggestion that team conversations constitute a key element in multidisciplinary practice is not to suggest that such conversations provide a route to the "real" structure of the organization or definitive versions of team member's beliefs and identities. The critical point is that conversational argument both constructs a jointly ratified version of events and achieves some coordinate action in response to that version. Variation in the lines of argument managing the dilemmas of practice opens up options for future team practice – a product of collective deliberation. In addition, variability in the way versions get instantiated opens up the possibility of improvising a variety of means of going from given circumstances to new. The accounts constructed in the conversations of team members are the resource that is locally grounded and is drawn upon in their subsequent action.

The argumentatively constructed accounts of team practice afford not only the possibility of a productive and flexible creation of the *object* of team activity but also the constitution of team activity as a collective enterprise (see also Lerner, 1993). Collectivity is afforded because arguments, whether embodied in the statements of individual team members or in disputation between team members or between the team and its clients, express opinions or positions that are controversial in some social arena. Consideration of the interactional organization of team talk and the rhetorical work team members engage in order to evade or attempt to resolve the dilemmas of team practice elaborates the notion of any socially constituted joint cognition in team practice.

The consequences of all this is that approaching team practice from such a discourse-analytic perspective changes the focus of the research enterprise. Instead of studying teamwork as an unambiguously definable activity or process that has determinate functions or effects, teamwork is studied as something shaped by peoples' attempts to grapple with the uncertainties of presentation and representation associated with their work as practitioners and experiences as participants. The way they interactionally (re)present their work in talk, and engender a variety of discursive positions and devices to accomplish membership in teams, is a major resource in accomplishing collectivity in teamwork.

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Notes

- 1 The team occupied one L-shaped wing of a single-story building adjacent to the Paediatric Outpatients Department of the hospital. A significant feature of the building was a 3 m wide corridor. This corridor gave line of sight access to a large waiting and play area near the main entrance. The corridor space was used by children, parents, and unit members as a place to congregate and converse. This resulted in an extensive amount of unscheduled contact between people visiting and working in the unit.
- 2 At the time this study was conducted, the team consisted of 11 core members whose principal work at the hospital was based within the Child Development Centre. These include a Sister appointed to be in daily charge of the management of running of the unit, staff nurse, nursery nurse, occupational therapist, speech therapist, two physiotherapists, two clerical assistants, a pediatrician with overall clinical responsibility for medical decisions, and a clinical child psychologist (half-time). In addition, the unit housed associated medical services offering optometry, audiology, dentistry, neurology, and further pediatric services. It also provided a base for a variety of community workers who attended the unit on a part-time basis to coordinate services including physiotherapy, health visiting, and social work.
- 3 Transcription conventions. Numbers in { } are reference markers for use in subsequent discussion. (.) Indicates pause less than 1 second; () pause in seconds; coincident speech; (&) continued speech; (details) substituted; (. . .) indecipherable talk; italics indicate emphasis; ? signals question intonation irrespective of grammar; (:) extension of vocalization, i.e., u.m.
- 4 Goffman (1981) has discussed this general phenomenon in his discussion on "footing." He pointed out that commonly "words are heard as representing in some direct way the *current* desire, belief, perception, or intention of whoever animates the utterance" (p. 147). Many utterances are not of that form. Although speakers may represent themselves through "the offices of a personal

proun, typically 'I,' that 'I' can be diactically displaced within the utterance in time and place. We can both quote ourselves as situated in other times and places and we can quote others to animate our words. Such displacements are more than a matter of convenience and variety in the organization of talk; they reveal its rhetorical and argumentative organization.

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The collective construction of scientific genius*

Chandra Mukerji

Issues of mind and rationality in science are routinely discussed by philosophers of science but not so often by social scientists studying the practice of scientists.¹ There are obvious reasons for this. Mind and rationality as individual attributes seem particularly asocial, perhaps understandable through the tools of individualist psychology but not techniques developed for understanding the collective qualities of human life. Leigh Star² has made an effort to look at how the construction of the brain as a site of mental activity is structured collectively by brain researchers, and students of cognition have considered how thought enters into the social processes of problem solving,³ but most work by social scientists has given secondary importance to mind and rationality as elements of science. Their work instead has focused on the social nature of knowledge, its character as part of the culture of human groups, not individual minds. Thinking that is not communicated to others cannot be science; it can be smart and observant about the natural world, but it cannot be part of science unless it enters the social world of scientists through some collectively understood medium. Similarly, the processes of determining the differences between good and bad science, whether the decision-making structures for making these assessments are rational or not, are fundamentally social activities; scientists will not usually begin to consider the epistemological standing of a scientific claim until it is claimed as scientific. There is obviously much work for students of the social to do in teasing out how forms of association become central to the establishment and power of scientific knowledge, focusing on the social nature of science both as an activity system and a tradition of knowledge.⁴

This tradition leaves out something in the practice of science, however, that will be addressed in this chapter: how mental acuity (and to a lesser extent, individual rationality) are made into social attributes of chief scientists through the activities of laboratory workers. Part of what research teams do is collectively produce a "scientific knower" at the same time that they produce scientific

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