The Collaborative Production of Responses and Dispatching on the Radio: Video Analysis in a Medical Emergency Call Center

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Abstract: What happens when someone rings an emergency hotline for help? How is the emergency handled? How does the emergency service swing into action? Prompt and competent intervention and assessment of the gravity of the situation in a few crucial seconds: these are the quality standards that regulate the organization of emergency operations centers. For a number of years various groups of social science researchers have carried forward a program for the systematic study of work using ethnographic and naturalistic methods of analysis. An interest in work is certainly nothing new in the social sciences, and in sociology in particular. What is new, though, is the particular analytical viewpoint from which such research is now conducted. This program has dispensed with large-scale theorization and has concentrated on the empirical study of activities and practices, achieving an unprecedented level of detail and analytical fineness. Indeed, only by proceeding at this fine level of detail—made possible by the use of videorecordings —has it been possible to document the extraordinary and subtle collaborative production of work, and to do so at a level which extends well beyond the conscious awareness of people in their everyday routine. This aspect concerns in particular the capacity of the latest generation of studies of work to document the tacit procedures and forms of common-sense reasoning involved in the performance of tasks in concrete work settings. This paper focuses on the ways in which the dispatch is done in a medical emergency operation center. Although we know a great deal about the interaction between caller and call-taker from previous research, we know much less about the social organization that makes the dispatch possible. The data analyzed in this paper derive from a research project in which I have been engaged for a number of years on operation centers for the 118 emergency telephone number in Italy. Contrasting the data obtained from audiorecording with the data obtained from videorecording, I will show that a dispatch does not consist purely in information transfer, but is the outcome of intense coordination work among the actors involved face to face and through the mediation of technological apparatus.

Table of Contents

1. The Collaborative Production of Responses and Dispatching on the Radio

The paper examines the tacit collaboration practices used by participants in a particular workplace to handle communications with other people at a distance. It analyses in particular the collaborative practices connected with the use of a traditional communication technology, namely the radio. The data presented in the paper originate from research conducted over a number of years in an Italian operations center handling emergency telephone calls for medical assistance. [1]

The paper has two main sources of inspiration. The first is the body of inquiry known as "workplace studies." According to HEATH, KNOBLAUCH and LUFF (2000, pp.299-300),

> "these studies address the social and interactional organization of workplace activities, and the ways in which tools and technologies, ranging from paper documents through to complex multimedia systems, feature in day to day work and collaboration. They explore the ways in which artefacts are 'made at home' in the workplace, and demonstrate how the use of even the most seemingly 'personal' computer rests upon a complex social organization; an indigenous and tacit body of practice and procedures through which tools and technologies gain their occasioned sense and relevance within workplace activities." [2]

A substantial number of these studies examine so-called "centres of coordination" (SUCHMAN, 1993, 1996), that is to say, work settings in which vehicular traffic is controlled and managed, like the control tower at an airport (HARPER & HUGHES, 1992), the railways and underground control rooms of the London transport system (HEATH & LUFF, 1996), and the operations room of a medium-sized American airport (M.H. GOODWIN, 1995, 1996; C. GOODWIN, 1996; GOODWIN & GOODWIN, 1996). [3]

The other source of inspiration for the paper are the studies by ZIMMERMAN et al. on the social organization of emergency calls (WAKIN & ZIMMERMAN, 1999; WHALEN & ZIMMERMAN, 1987, 1990, 1998, 2005; WHALEN, ZIMMERMAN & WHALEN, 1988; ZIMMERMAN, 1984, 1992a, 1992b, 1998), and on the social organization of the dispatch (WHALEN1995a; 1995b). [4]

WHALEN and ZIMMERMAN (2005) have recently emphasized that management of incoming telephone calls to an operations center requires complex work of listening and sense-making by those who share the same work ecology as that of the operator speaking on the telephone. This complex work evades official registration and is therefore not recorded on audio tapes. As WHALEN and ZIMMERMAN (2005, p.311) write:

> "although it is typically the case that requests for help and emergency assistance are initiated by these phone calls, a great deal more is involved in the regular execution and production of 'calls' than the conversational exchanges. It turns out that for most emergency organizations, […] the occasion of a 'call' is not at all coterminous with

what transpires in talk on the telephone but rather is best described as an *ongoing and developing sequence of actions,* actions that may well be initiated in a phone conversation but have to then get systematically formed up, through the closely coordinated work of the organization's staff, into a certified organizational event—into a 'call'." [5]

The paper largely shares these premises. It seeks to show that even the management of apparently simple radio communications between the personnel of an operations center and the crew of a emergency vehicle on the ground requires intense collaborative work between physically co-present persons in the operations center. This work is one of the significant aspects of this type of work setting, and it is largely overlooked if consideration is only based on the audio recordings of communications. The paper also seeks to show how the characteristics themselves of the communications technology used—the radio— makes specific collaborative practices possible. Unlike calls by telephone, for example, incoming radio calls are not heard solely by the person at the receiver but also by all those in the vicinity of the radio set: everyone within earshot can listen to the communication without the use of special devices (like the loudspeaker button on a telephone). This is actually an authentic kind of "broadcast talk" (LUFF & HEATH, 2002). The availability of incoming radio calls to the ears of the participants enable the operators present in the center to easily overhear and monitor the on-going activity, often while other activities are in progress. The operators are able to judge the importance of the incoming call and act accordingly. The radio creates a sound environment which affords simultaneous courses of action by those present and facilitates co-participation in a specific task. [6]

Various studies have examined the distinctive features of communication via radio. SIMMONS (1973) has analyzed radio communications between airline pilots and air traffic controllers. His particular concern is to show firstly that radio communication exemplifies a specialized use of language, of a restricted code à la Bernstein, and secondly that the serial structure of turn-taking in radio communication is substantially different from that of ordinary conversation, a normal characteristic of which is the possibility that the speakers' turns overlap.[1] STREVENS (1984) has analyzed maritime radio communications. He too is interested in how the language used to speak on the radio is an example of the specialized use of language standardized into a specific variety: "Seaspeak." Also SANDERS (2000) has analyzed maritime radio communications in order to determine how the technological characteristics of the instrument constrains "spontaneous" communication (overlaps between speakers, laughter). MELLINGER (1992) has analyzed radio communications between paramedics at the scene of an accident and personnel at the operations center, viewing these communications as a practical example of the occupational culture of paramedics "in action." More recently, LUFF and HEATH (2002) have studied the use of radio by personnel operating a rapid urban transport system. The aim of their study is

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1   As SANDERS (2000, p.311) notes, "the radio technology makes it physically impossible for more than one person at a time to occupy the floor. Anyone transmitting cannot hear (i.e., receive) others who are transmitting at the same time."

to show how the participants organize their communication according to the constraints imposed by the technology. They highlight in particular a curious asymmetry in participation rights whereby the personnel at the operations center decide what incoming radio calls are to be accepted and initiated, and how this affects the formulation of the reason for the call. SZYMANSKI, VINKHUYZEN, AOKI and WOODRUFF (2006) analyze the way in which mobile radios afford a remote state of incipient talk between friends: that is, the ways in which participants can initiate, engage, disengage and reengage in a state of conversation-in-progress. FALZON (2008) studies the way in which communication between controllers in an Air Traffic Control Center and pilots on airborne flights is organized through verbal interaction mediated by VHF radio technology. [7]

Notwithstanding the specific properties attributed to communication by radio, compared to the telephone, all these studies describe radio communication as involving two people at each end of the signal. The purpose of this paper is to show that communication via radio can be considered the product of practices between two "parties," where one of the parties is not necessarily a single physical person. At the operations center studied, the radio is at the core of highly complex tacit collaboration practices performed by the operators. [8]

2. Three "Strange Cases"

In the corpus of audio recordings analyzed there were cases of radio communication like the following:

1 Radio	centrale da cinque tre uno
1	*central from five three one*
2	(9.0)
3 Alberto	avanti cinque tre uno
3	*go ahead five three one*
4	(2.0)
5 Radio	sono al box, puoi chiudere con undici chilometri,
5	*I am at the box, you can close with eleven kilometres*
6	mi dai il numero d'evento, poi ti invio i dati
6	*can you give me the number, then I will send the data*
7 Mario	evento cinque sette zero A
7	*event five seven zero A*
8	(2.0)
9 Radio	bene ricevuto
9	*ok, received*

Extract 1 (audio)

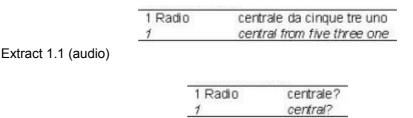| 1	((beep from the radio))
2 Marta	cinque quattro otto avanti.
2	*five four eight go ahead.*
3 Radio	(sì), mi dai l'evento?
3	*(yes), the event please?*
4	(7.0)
5 Giovanna	evento otto due quattro,
5	*event eight two four,*
6	otto due quattro.
6	*eight two four.*
7 Radio	(otto due quattro) può chiudere con:: ventinove chilometri
7	*(eight two four) can close with:: twenty-nine kilometres*

Extract 2 (audio)

1 Radio	centrale?
1	*central?*
2 Giovanna	avanti
2	*go ahead*
3	(.)
4 Marta	quattro tre cinque?
4	*four three five?*
5 Radio	eh sì, valuta se è il caso:::,
5	*eh yes, see whether:::,*
6	e::hm è fuori strada?
6	*e::hm, is he off the road?*
7 Marta	sì, confermo. ((Marta continua a parlare))
7	*yes, confirm. ((she continues to talk))*

Extract 3 (audio) [9]

The three extracts are typical and routine examples of communication via radio in the medical dispatch center analyzed. But they have a striking feature in common: contrary to what usually could happen, in these three extracts the radio communication is conducted by the two operators working in the same booth. Usually the use of the radio is the job of the dispatcher, whereas the call-taker is in charge of answering the phone. In the medical dispatch center examined, call taker and dispatcher share the same work space: they sit close to each other. Even if there is a strict division of labor, based on different functional tasks to be

carried out, there are cases in which the two figures shift from one role to the other. Being close in the execution of related tasks elicits a special kind of social interaction between the participants that we could call, rather than "face to face," "shoulder to shoulder." It is in such contexts, and at particular moments, that rather than being the concern of just one person, as one would expect, the radio communication involves the participation of both the operators. As we have seen, their joint participation in the radio communication assumes a specific sequential form. The radio caller contacts the operation center; an operator indicates the presence of a listener; the radio caller asks a question or makes a request; the other operator responds to the question or request. The collaboration does not imply the immediate and simultaneous attention of both the operators when the radio starts to call. There is no competition between them to open the channel or to answer the radio call. Even in dealing with the radio communication, we can see a division of labor between one operator and the other in furnishing the appropriate information to what the radio caller is requesting at that specific moment in the sequence. Their participation follows a distinctive pattern: when one operator is talking on the radio, the other does not participate; when the other is talking, the former engages in other activities. Moreover, in all three extracts both operators are engaged in other tasks when the radio caller contacts the operations center. [10]

A sequence made up of four turns can be identified in the three extracts. The first turn consists of a summons by the radio caller. The call may be only a sound (a beep emitted by the radio, as in Extract 2), or it may be both sonorous and vocal, as in the cases of Extracts 1 and 3:

1 Radio	centrale da cinque tre uno
1	*central from five three one*

Extract 1.1 (audio)

1 Radio	centrale?
1	*central?*

Extract 3.1 (audio) [11]

In the third extract the radio call consists solely of the vocal summons (*centrale?*), while in the first extract it consists of both a vocal summons and self-identification by the caller. [2] Typically, the caller self-identifies, not with a personal name (*sono Gianni*) but with a metonymic categorial self-attribution. In this case "531" is the code number of a car ambulance. [12]

The radio call solicits the opening of a communication channel and response by an interlocutor. As on the telephone, the communication proper does not begin until the call (the various ring tones) elicits a declaration of availability by the person called (typically with a response like *pronto?* in Italian, or *hello?* in English, see SCHEGLOFF, 1968, 1979, 1986). [13]

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2   For analysis of these and other aspects of the organizing of communication via radio at the operations center, see FELE (2005).

Although there should always be a listener in the dispatch center, radio communication cannot commence without authorization from the operations center.[3] This is what happens in the three cases:

3 Alberto	avanti cinque tre uno
3	*go ahead five three one*

Extract 1.2 (audio)

2 Marta	cinque quattro otto avanti.
2	*five four eight go ahead.*

Extract 2.2 (audio)

2 Giovanna	avanti
2	*go ahead*
3	(.)
4 Marta	quattro tre cinque?
4	*four three five?*

Extract 3.2 (audio) [14]

The response by the operator (usually the dispatcher) to the radio call essentially performs three functions: it confirms that the channel is open (it establishes a connection); it shows that there is a receiver ready for communication; and it gives authorization to proceed. The response by the operator to the radio call is a signal of the direction in which the operator's attention is now oriented. Whatever happens at the operations center (to which the caller has neither visual nor auditory access), the response testifies to the caller that the attention of the operator is now directed to the incoming communication. This also explains the "typical" delay in response to a radio summons, as opposed to the simple physical availability of the receivers, who are literally at arm's length from each other and within immediate auditory range. For something to count as a response, this physical availability must correspond to a commitment as ratified participants in the communication being requested.[4] [15]

In the second extract, the authorization by the operator identifies the interlocutor on the radio (with a typical categorical identifier: *five four eight go ahead*, line 2) by means of the luminous display on the radio console without the speaker on the radio having identified himself (the call is only auditory). In the third extract, the operator's response (*go ahead*, line 2) is repeated immediately afterwards by the

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3 It is not infrequent that the cases in which the radio communication "jumps" the phase of authorization by the operations center and the reason for the call is immediately stated, are subjected to some form of repair, the most usual being that a request for the reason of the call to be repeated.

4 To provide an example from everyday communication via telephone, a situation of this kind—given the due proportions—is when we hold the ringing telephone in one hand before properly answering while we finish what we are doing: talking to someone face to face, or swallowing a morsel of bread that we are eating, etc. In this way we demonstrate our future commitment to the incoming call although we are still engaged in a previous activity. Banally, answering the telephone is more than simply lifting the receiver. This aspect can also be illustrated by considering what happens when a small child answers a phone call.

second operator (*four three five?*, line 4) when the reply via radio is not forthcoming. It seems that once the channel has been opened and a listener is paying attention, the response must be produced next.[5] If the response by the caller is not produced, a series of repair practices are activated to ensure that the communication continues. The structure of the second operator's turn exhibits a "recognition minimization" principle in operation (SACKS & SCHEGLOFF, 1979). When a minimum signal (e.g. *go ahead*) does not receive a response, the next turn may be an expanded component of that signal, which in this case consists of categorical recognition (*four three five* in interrogative form). In this way, it is not a generic authorization signal that is emitted but a specific signal to a specific inter-locutor. Thus signaled is the importance that one particular addressee may take over as the next speaker.[6] These are turns in which the current speaker uses a specific identifier to nominate the next speaker among the many possible. [16]

Only when this authorization has been issued can the radio communication continue. This is the point at which the reason for the call is given, as illustrated by these three extracts:

5	Radio	sono al box, puoi chiudere con undici kilometri,
5		*I am at the box, you can close with eleven kilometres*
6		mi dai il numero d'evento, poi ti invio i dati
6		*can you give me the number, then I will send the data*

Extract 1.3 (audio)

| 3 Radio | (sì), mi dai l'evento? |
| 3 | *(yes), the event please?* |

Extract 2.3 (audio)

5 Radio	eh sì, valuta se è il caso:::,
5	*eh yes, see whether:::,*
6	e::hm è fuori strada?
6	*e::hm, is he off the road?*

Extract 3.3 (audio) [17]

In two cases, in Extracts 1 and 2, the radio call is from an ambulance which has finished its period of duty. In the first extract, one member of the ambulance crew tells the operators that they have returned to the car park, informs the personnel in the operation center how many kilometers must be entered into the database, and asks for the number of the "event," i.e. the progressive number automatically assigned by the system when the operations center initiates an "event"—i.e. an

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5 At work here is some sort of asymmetry between the rights to speak of the parties to the radio communication. Whilst the caller may wait before receiving authorization to speak, the authorizer must rapidly receive the response by the caller in the next turn. The operations center has the right to dictate the response timing.

6 Of course, in these cases the speaker may be a collective subject, a "party," rather than a single individual—as in the case of an ambulance crew.

intervention (not necessarily urgent)—which the ambulance crew must record in their case file. In the second case, a member of the ambulance crew only asks the operator at the center for the number of the event. In the third case, a member of an ambulance crew just sent to the scene of an accident asks for further information about the assistance required. In all three cases, communication by the ambulance crew contains a request for information. Even in the case of simple communication which does not require specific action by the operations center (notification of the kilometers covered during a mission by the personnel of an ambulance), the operators nevertheless communicate via radio that they have received the message. Action by the operations center is expected to follow next. If the operations center staff is unable to respond, the radio caller may be uncertain whether the communication has been really received and understood. In the extracts given, the radio communication requires the operators to provide more than a simple signal that the message has been received and understood. In the first, second and third extract, the operators do reply to the question asked by the ambulance personnel.

7	Mario	evento cinque sette zero a
7		*event five seven zero a*

Extract 1.4 (audio)

5 Giovanna		evento otto due quattro,
5		*event eight two four,*
6		otto due quattro.
6		*eight two four.*

Extract 2.4 (audio)

7	Marta	sì, confermo. [continua a parlare]
7		*yes, confirm. [she continues to talk]*

Extract 3.4 (audio) [18]

In the first and second extract, the response by the operators consists in notification to the ambulance crew of the number assigned to the event by the system. In the third case the operator provides confirmation (Extract 3.4, line 7) of the caller's guess produced in the form of a question (Extract 3.3, line 6). [19]

In all three extracts, the operator who responds to the ambulance crew's question or request is different from the operator who authorized the radio communication. One would expect communication of this kind to be essentially individual work between two single interlocutors. And this is what usually happens in such a setting, apparently confirming a standard assumption of communication theory. But in this case the communication is indeed between two "parties," where one of the "parties" consists of two speakers. This is a form of the collaborative construction of communication: both speakers jointly construct the coherence, consistency and intelligibility of communication. Rather than being the responsibility of single persons, communication is the product of joint effort by

two people at one end of the line. Both operators are active participants in the communication via radio: each produces a component in the sequence of the talking. Both are "on stage," where they take turns to assume the role of speaker, and both assume responsibility for the action. The collaborative production of ordered communication consists in the fact that, at one point in the sequence, a second operator can furnish the appropriate item for the communicative sequence. [20]

Several studies have examined the joint production of a collaborative sentence or sequence. One form of collaboration reported is between the speaker and an audience of listeners.[7] In the present case we instead have a form of collaboration "internal" to the role of one "party" to the communication. In the case of the operations center, we observe a tacit functional division of tasks between the operators: one opens the channel, the other answers the question. [21]

A series of analytical problems arise as to the way in which the two operators coordinate their actions so that they can produce the appropriate action at the right moment. [22]

3. Forms of Collaboration

In order to analyze forms of collaboration between the operators, it is necessary to leave the official audio recordings and examine what happened in the booth between the operators at that particular moment. To do so, I shall analyze the video recordings made during the field research. In all three cases, the radio communication arrives at the operations center when both operators are engaged in other tasks. [23]

3.1 "Could you take the five three one, there, 'cos I am busy here"

In the first extract we encounter Mario and Alberto[8] who are checking scheduled events completed and those still to be done. The two operators are sitting in front of their work screens. It can be seen from their positions in the booth that Mario (in the foreground) is the call-taker, while Alberto (in the background) is the dispatcher, i.e. the operator responsible for all communications via radio.

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7   See e.g. GOODWIN (1979, 1986), LERNER (1992, 1993).

8   Names are changed for the sake of privacy. I take the opportunity to thank all the personnel at the medical emergency center in which I conducted the research for their helpfulness, curiosity and kindness during my visits. I am indebted to them.

Figure 1 [24]

Mario is asking Alberto for information about an event involving the delivery of blood. Just as Alberto has started replying to Mario, a radio message comes in.

Extract 1.1 (video) [25]

Mario is making a statement (line 1: *blood has still to be brought*) while looking at the screen in front of him. He thus invites Alberto to confirm or disconfirm his

statement. That a reply is required of Alberto is also indicated by the fact that Mario shifts his gaze from the screen to Alberto while making his statement (Figure 2), and then turns his eyes back to the screen (Figure 3).


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                              . . . . _____ . . . . ((looking at Alberto))
01 Mario:        c'è da portarghe il sangue, ancora, mi pare
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Figure 2

Figure 3 [26]

Alberto responds by disconfirming the statement (line 2: *no, it's already sorted*). During this exchange between Mario and Alberto a message comes in on the radio, overlapping with the second part of Alberto's turn (line 3: *central from five three one*). [27]

Alberto, who is the person in charge of handling radio communications, does not immediately act. The exchange between Mario and Alberto continues. Maybe

because the second part of Alberto's turn has been slightly obscured by the incoming radio message, Mario asks Alberto for confirmation that the event, which he thought was still pending, has in fact been completed (line 4: *is it sorted?*). Alberto confirms that the matter has been dealt with (line 5: *yes*). At the same moment Alberto leaves the keyboard and places his hand on the radio button ready to respond. Alberto and Mario have completed a sequence of four moves. With four moves they have confirmed that there is no misunderstanding between them and that the point to be reached is shared and understood beyond doubt (SCHEGLOFF, 1992). Alberto continues to be engaged in two tasks as he sets about responding to the radio communication—reading the screen in front of him, and responding to his colleague's request—while at the same time he is in the position of answering to the radio communication. At this point Mario continues the interaction (lines 6-7).

```
06 Mario        =mi cambi il sangue, poi me lo cancello,
06              =could you change the blood, then I'll cancel it

07              (ci faccio un segno)
07              (I'll make a note)

08              (0.2)

09 Alberto      l'ho::, l'ho associa-, (aspe-)
09              I have::-, I have associated it, (wait-)

                _____ . ((gaze at the Mario's screen))
10              vardame mo' la cinque tre uno, là,
10              could you take the five three one, there

                . . . . ((back to his screen))
11              che son chi occupa'. (.)
11              'cos I am busy here.

12              avanti cinque tre uno ((alla radio))
12              go ahead five three one ((on the radio))
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Extract 1.2 (video) [28]

Mario again asks Alberto to perform an operation in the system database. If the event relative to the "blood" has been concluded, the relative information file in the system must be closed. The closure of an event requires a number to be given to the event in the system's database. Mario asks Alberto to make this change (lines 6-7: *could you change the blood, then I'll cancel it, (I'll make a note)*). Alberto is still engaged in reading the screen in front of him while he keeps his hand on the radio button waiting to speak. Alberto begins to respond to Mario's new request after a short pause (line 8). Alberto's turn contains a series of turn production hesitations (line 9: *I have::, I have associated it, (wait-)*). Uncertainty in the production of talk shows not so much Alberto's cognitive uncertainty as a change in the interactional orientation and in commitment to the activity. By producing this turn, Alberto marks his presence in at least three different participation regimes: the activity of examining the screen; the activity of

responding to the colleague's request; and the activity of responding to the radio call, which is still pending. Alberto shows in his turn the point in which attention shifts from one activity to another, in this case to the incipient task of answering the radio call. Alberto begins his turn by beginning to answer Mario's request (line 9: *I have::, I have associated it*), but then he halts (*wait-*) to thematize his commitment to the impending task: that of answering the radio call. However, he does not directly answer the call. Alberto uses his turn to ask Mario to deal with the radio call (Figure 4; lines 10-11: *could you take the five three one, there, 'cos I am busy here*). The different participation regime required by the radio communication and the change of activity are also marked spatially by Alberto with a rapid move of his head and his gaze first to Mario's screen (Figure 4) and then back to his own screen (Figure 5). At the same time Alberto does not lift his left hand from the radio button and still continues to maintain control over the communication with the radio.

((Alberto looks at Mario's screen))

10 Alberto: vardame mo' la cinque tre uno, là,

Figure 4

11 Alberto: . . . . ((back to his screen))
che son chi occupa'.

Figure 5 [29]

What happens next is interesting. Alberto is still visibly engaged in the activity of looking at his screen. After a brief pause, he presses the button which opens the radio link and gives the signal of authorization to proceed (Figure 6; line 12: *go ahead five three one*). Although Alberto asks Mario to deal with the radio communication, he continues to maintain possession of the communication technology. It is Alberto himself who initiates the radio exchange, not the colleague whom he has asked to respond. Alberto does not relinquish his position at the radio console but continues to maintain control over the button throughout the interaction with Mario (lines 6-11). Rather than leaving it to Mario to respond, it is Alberto who talks to the radio. In this way Alberto establishes the timing of the response.

12 Alberto: avanti cinque tre uno ((to the radio))

Figure 6 [30]

Alberto's turn (line 12) seems to perform numerous functions in the management of the various ongoing activities. First, it has two functions *vis-à-vis* the radio communication: (i) a function which is retrospective in the sense that it certifies that the incoming radio message has been received and the transmitter has been recognized; (ii) a function that is prospective in the sense that it invites the caller to perform a subsequent action which consists in stating the reason for the call. But Alberto's turn also performs a function in regard to organization of the interaction between the operators, with his colleague. On the one hand, it signals to Mario that he should deal with what may be communicated via the radio thereafter. It redirects Mario's attention and his horizon of relevancies. On the other hand, it is a form of pre-withdrawal from the activity assigned to Mario. Thus, one the one hand, Alberto's turn prepares the ground for subsequent communication, giving the go-ahead to the caller and alerting Mario. On the other, it marks Alberto's detachment from the activity of responding to the radio call: he will not be the speaker who will take the next turn. [31]

As can be seen in Figure 6, during Alberto's communication via radio, Mario's posture is oriented in a different direction from that previously indicated by Alberto (Figure 4). Mario's head is turned towards Alberto's work space, but his torso and arms on the table are still oriented towards his screen. Mario's bodily posture thus shows that Alberto's invitation has apparently not been successful.

12 Alberto	avanti cinque tre uno ((alla radio))	
12	*go ahead five three one ((on the radio))*	
		((pointing at the Mario's screen))
14 Alberto	no no, varda il numero ((a Mario))	
14	*no no, look at the number ((to Mario))*	
15 Mario	eh?	
15	*what?*	
16 Alberto	[(varda -)]	
16	*[(look -)]*	
17 Radio	[sono ai] box, puoi chiudere con undici chilometri.=	
17	*[I am at] the box, you can close with eleven kilometres.=*	
18	=mi dai il numero d'evento, poi ti invio i dati.	
18	*=can you give me the event number, then I'll send you the data.*	

Extract 1.3 (video) [32]

Alberto's move to withdraw from the interaction with the radio caller can only be fulfilled when he can successfully transfer the activity to Mario. This is obviously not the case. Immediately after his talk to the radio, Alberto again takes the turn to talk to Mario (Figure 7; line 14: *no no, look at the number*). Alberto is trying to repair Mario's orientation with a specific instruction on what he should look at (*look at the number*). Alberto's words are accompanied by a rapid motion of his left hand, which leaves its position on the radio button to show Mario where he should look. After leaving the radio button and moving through the air to point at the screen, Alberto's left hand "returns home" (SACKS & SCHEGLOFF, 2002), landing not on the radio button but on his computer keyboard. Alberto's disengagement from the radio communication is signaled by this bodily shift.

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                                              ((pointing to Mario' monitor))
   14                    no no, varda il numero ((to Mario))
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Figure 7 [33]

Alberto's movement seems to reconstruct his colleague's relevant visual field. Mario again expresses uncertainty (Figure 8; line 15: *eh?*), which could be considered as another initiated repair.


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   15 Mario:        eh?
```

Figure 8 [34]

Mario's turn consists of a minimal item which requests reformulation of the previous turn. Alberto's next turn seems to perform the repair work only by repeating the turn prior to the request for repair, which is foreshadowed by the repetition of the first component of his previous turn (line 16: *look-*). Doing a

repair work through a repetition of (part of) the previous turn is a way of showing that Alberto takes Mario's request for a repair as a matter concerning not the understanding of the turn's meaning but rather its production. The repair performed by repeating the previous turn components and not by changing them shows that Alberto realizes that Mario has not heard the previous turn properly, not that he has failed to understand what he must do. Alberto actually only starts to provide the repair but then he stops. His turn overlaps with the incoming third turn of the radio call. Alberto performs his turn without altering his "home posture," that is, without moving his head or shifting his gaze from his computer screen. At the same time Mario's gaze has now reached the computer screen (Figure 9). At this point transfer of responsibility for taking care of the radio communication seems to have been accomplished. By orienting his gaze toward the relevant object, Mario shows that he is able to continue the interaction with the radio caller. Mario searches for the pedal that can be used to control radio communications with the feet rather than the hands, which are thus left free to move between the mouse and the computer keyboard (he does not need to regulate the radio communication with the manual button).

17 Radio	[sono ai] box, puoi chiudere con undici chilometri.=
17	*[I am at] the booth, you can close with eleven kilometres.=*
18	=mi dai il numero d'evento, poi ti invio i dati.
18	*=can you give me the event number, then I'll send you the data.*

Extract 1.4 (video) [35]

During the search, the radio communication continues, with the caller providing the reason for the call (lines 17-18). Mario shifts his gaze to the screen displaying the relevant information (Figure 9). Mario uses his mouse to open the database and scroll through the list of incomplete events until he finds the one relative to the ambulance that has called in by radio (no. 531).

Figure 9 [36]

At the end of the radio caller's turn, Mario is now perfectly positioned to furnish the response.

17 Radio	[sono ai] box, puoi chiudere con undici chilometri.=
17	*[I am at] the booth, you can close with eleven kilometres. =*
18	=mi dai il numero d'evento, poi ti invio i dati.
18	*=can you give me the event number, then I'll send you the data.*
19 Mario	evento sette cinque zero a
19	*event seven five zero a*
20	(0.4)
21 Radio	bene, ricevuto
21	*ok, received*
22 Alberto	[°bene°]
22	*[°ok°]*
23 Mario	[cen]todiciotto ((answering to the phone))
23	*[one] one eight*

Extract 1.5 (video) [37]

Transfer of responsibility for communication has been accomplished in an apparently fluid and natural way. Mario replies to the request for information from the radio caller in the turn which immediately follows (line 19: *event seven five zero a*). An entire sequence of four turns on the radio is thus brought to conclusion. The first and third turns have been produced by the radio caller; the second and fourth turns by the operators: the second turn by one operator, the fourth by his colleague. But in order to accomplish this, the operators have engaged in complex, both tacit and open, coordination work. The interactional activity which has collaboratively constructed the radio communication and the reply to the request for information is absent from the official recordings and is not a front-stage event. Yet the official record of the appropriate reply and the temporal organization of events are the outcomes of complex coordinating work between the operators which takes place "behind the scene." [38]

The communication via radio closes with an acknowledgment token from the radio caller (line 21: *ok, received*), which arrives in the booth while Mario, who is the call-taker, sets about dealing with still another incoming task, that of answering an incoming telephone call (line 23: *one one eight*). Alberto has not taken part in the second half of the radio communication from his work position. Nevertheless, he shows that he has been monitoring the situation all along, and that his attention has been directed not only at the task in which he is currently engaged but also at that of his colleague. At the same moment when Mario answers the telephone, Alberto produces an audible turn (line 22: *ok*) clearly addressed to the radio communication, but without official status in that it is not intended to be addressed to the caller (not produced to be recorded). It seems

like a comment spoken aloud in the booth, a personal remark which nevertheless ends the radio communication. In this case, too, Alberto's turn is not intended to be placed in the front line and does not appear in the official record: it is addressed, not to the ambulance crew who have called in by radio, but to his colleague. With this turn Alberto communicates to Mario that he has heard the radio interaction and can confirm that everything has been done correctly, that nothing has been overlooked, and everything is proceeding as it should. At this point both operators are positioned to continue their normal activities. Alberto can continue with the task that he was attending to when the radio call came into the room; Mario can deal with the telephone call that has just reached the booth. [39]

3.2 Chiasm

In the second extract we encounter the call-taker on duty, Marta, who is concluding a telephone conversation with an ambulance crew who have completed a mission and are waiting to be released for their lunch break. Giovanna, working as the dispatcher, is checking a register in front of her for the locations of the ambulances controlled by the booth. She must decide which one to send to the scene of an accident (which has just happened) involving a cyclist.

Figure 10 [40]

Marta is concluding the telephone call by telling the ambulance crew to remain at the scene until the operations center gives them permission to leave.

001 Marta	ancora, ancora rimanete an[cora lì, ((al telefono))
001	*stay there a bit longer,* *((ending the call))*
	[((beep from the radio))
002	va là un attimino, poi vi mandiamo, va bene?=
002	*just a little while, then we'll let you go, okay?=*

Extract 2.1 (video) [41]

The radio call (a sound with a typical noise) arrives in the middle of the activities in which Marta and Giovanna are currently engaged. [42]

At the beginning of the extract Marta is turning away from Giovanna (Marta was engaged in talking with Giovanna about ambulance availability) and is shifting her torso and gaze to the screen (Figures 11-12), a position signaling that she is now exclusively engaged with the telephone caller, no longer with her colleague.

Figure 11   Figure 12 [43]

To be noted, however, is that during her initial interaction with Giovanna, Marta keeps her finger on the keyboard which opens and closes the telephone contact (which is out of the frame in the bottom of the picture—Figure 11a). Marta is simultaneously engaged in two participation regimes: with her colleague alongside her, and with the telephone caller. The position of her arm shows that the telephone communication is about to close.

Figure 11a [44]

The arrival of the call has immediate and visible consequences on Marta's action and posture. Upon hearing the sound, Marta's attention is immediately attracted by the sound source (Figure 13). With a rapid movement of her head and partly with her torso, and with her left arm still extending towards the computer keyboard (out of frame), Marta turns towards the radio.

Figure 13 [45]

She is now able to perform two tasks at a single glance: identify the caller by inspecting the display on the radio console (Figure 13a); and verify the extent to which Giovanna is involved in her current task and therefore whether she is available to take care of the new task imposed by the incoming radio call (Figure 13b).

Figure 13a   Figure 13b [46]

The incoming radio call prefigures the onset of a new task, with a new interlocutor requiring the operators' attention. The arrival of the radio call restructures the call-taker's orientation. Marta is still occupied with the previous activity consisting in the telephone call, now close to conclusion. Giovanna the dispatcher appears to be still occupied with her task of checking ambulance availability from the register in front of her; her attention seems not to be distracted by the radio call. Marta continues the telephone conversation, bringing it to a conclusion (line 2: *then we'll let you go, okay?*). [47]

Before the definitive closure of the telephone call in which Marta is engaged, Giovanna starts to request Marta's attention. Immediately after Marta's request for an acknowledgment token from her interlocutor on the telephone (line 2: *okay?*), a clear preliminary to closing the telephone conversation, Giovanna produces a long vocalization (line 3: *e:::::::::::::::h*) slightly preceded by a change of posture: she stops writing notes on her notepad, leans back and raises her head. Giovanna is signaling her disengagement from the task of writing, and her

long vocalization announces that she is about to say something to Marta. Giovanna is appearing to "book" her turn to speak to Marta as soon as she has concluded her telephone conversation. Giovanna's vocalization extends across the final part of Marta's telephone call (line 4: *bye bye*): it begins before and finishes after the final item in the telephone conversation between Giovanna and the ambulance crew member.

```
002 Marta       va bene?= ((al telefono))
002             okay?= ((ending the call))

003 Giovanna    =e::[ :::::: ]:::h
003             =e::[ :::::: ]:::h

004 Marta          [ciao ciao.] ((al telefono))
004                [bye bye.] ((ending the call))

005 Giovanna    me serve-, ((a Marta)
005             I need-,    ((to Marta))

006             ((clic)) ((Marta seleziona la radio col pedale))
006             ((clic)) ((Marta selects the radio with the pedal))
```

Extract 2.2 (video) [48]

Immediately after closure of the telephone conversation, Marta turns to the radio, not to Giovanna. Having closed the telephone contact, her left arm is now free. Marta first moves her right hand towards the radio console to use its keyboard (Figure 14) but she then corrects her action and instead uses her foot to opens the radio communication pressing a pedal (Figure 15) and finally starts talking to the radio (Figure 16).

Figure 14   Figure 15   Figure 16 [49]

Giovanna is looking at Marta performing these actions while addressing Marta with the beginning of what could be a fully fledged turn. Giovanna indicates in her turn that she needs something from Marta (line 5: *I need-*). Her turn is not concluded and halts naturally before its completion: Giovanna doesn't provide the "what" she needs from Marta. At this point Marta initiates the radio communication by pressing the pedal (Figure 15). This point could be considered

a "point of impact" between two activities independently carried on and which are now crossing each other and colliding. Giovanna has begun a course of action which requires her colleague's attention; Marta has begun a course of action which requires her to talk to the radio caller and not pay attention to her colleague. [50]

Immediately after Marta has opened the radio activity using the pedal (Figure 15, line 6), Giovanna hastens to complete her request to her colleague (line 7: *if you give me a nu-*). Her turn remains incomplete and terminates before Marta begins to speak on the radio (Figure 16; line 8: *five four eight go ahead*).

```
005 Giovanna    me serve-, ((a Marta))
005             I need-, ((to Marta))

006             ((clic)) ((Marta seleziona la radio col pedale))
006             ((clic)) ((Marta selects the radio with the pedal))

007 Giovanna    se me te dai [un nu-
007             if you give me [a nu-

008 Marta                      [cinque quattro otto a[vanti.]    ((alla radio))
008                            [five four eight  go a[head.]     ((to the radio))

009 Giovanna                                        [Caste]llo Tesino.
009                                                 [Caste]llo Tesino.

010 Marta       ah. perfetto. ((to Giovanna))
010             ah. perfect. ((to Giovanna))
```

Extract 2.3 (video) [51]

Giovanna's action, the beginning of her request to her colleague, is interrupted because Marta continues with her course of action: responding to the radio caller. Giovanna's turn is interrupted but it is not abandoned. It is suspended and then resumed with a concluding component which clarifies what Giovanna wants (line 9: *Castello Tesino*). Castello Tesino is a geographical place. The use of this denomination functions as a metonymic term which retrospectively identifies the place where an accident has happened, the data on which Marta has previously recorded. Giovanna must send an ambulance to the scene of the accident and she is asking her colleague for the number identifying the event in the database. [52]

Just after Giovanna's formulation (line 9: *Castello Tesino*), Marta abruptly changes orientation. Now she leaves the task of dealing with the radio communication in order to deal instead with her colleague's request. She produces a reply turn addressed to Giovanna in which her shift of attention is apparent. Marta states her approval of the change-of-state of orientation (HERITAGE, 1984) (line 10: *ah, perfect*). Also Marta's posture shows that her attention has shifted: now she leans towards the screen in search of the information that Giovanna needs (Figure 17).

Figure 17 [53]

Marta's response to Giovanna overlaps with what was coming from the radio. After receiving the "go-ahead" from Marta, the caller on the radio provides the reason for the call, with a preface showing that the identification by the operations centre was correct. The radio caller asks for the number of the event in which the calling ambulance has been involved (line 11: *yes, the event please?*).

008 Marta	cinque quattro otto a[vanti.] ((alla radio))
008	*five four eight go a[head.] ((to the radio))*
009 Giovanna	[Caste]llo Tesino.
009	*[Caste]llo Tesino.*
010 Marta	ah. [perfetto. ((to Giovanna))
010	*ah. [perfect. ((to Giovanna))*
011 Radio	[(sì), mi dai l'evento?
011	*[(yes), the event please?*
012	(4.0) ((suono intermittente del telefono))
012	*((the telephone rings several times))*
013 Marta	casini, in d'en attimo. cacchio. allora.=
013	*it's a snarl-up. shit. so.=*
014 Giovanna	=evento otto due quattro, ((alla radio))
014	*=event eight two four, ((to the radio))*
015	otto due quattro. ((alla radio))
015	*eight two four. ((to the radio))*
016 Marta	otto tre undici. ((a Giovanna))
016	*eight three eleven. ((to Giovanna))*

Extract 2.4 (video) [54]

While Marta is searching on the screen for the information to be given to Giovanna, Giovanna prepares to respond to the radio call. Without any explicit communication between the two operators, a normal distribution of on-going contingent tasks takes place. Giovanna positions the finger of her left hand on the radio console (in order to be able to open the communication when needed) while at the same time she searches her notepad for the information to be given to the ambulance crew via radio (Figure 18).

Figure 18 [55]

For about four seconds, activity in the booth focuses on searches for information by both operators: Marta is searching for the information to be given to Giovanna, Giovanna is searching for the information to be given to the radio. But the booth is far from being silent: to be heard is the continuing ringing of a telephone which signals that a call—probably an emergency call—is waiting in a queue. It is at this moment that a comment is made out loud by Marta, making explicit the criticality of that particular moment in the day (line 13: *it's a snarl-up. shit. so*). [56]

Having found the relevant information, Giovanna answers the radio call (lines 14-15: *event eight two four, eight two four*). Immediately afterwards Marta replies to Giovanna (Figure 19; line 16: *eight three eleven*).

Figure 19 [57]

A sort of chiasm has taken place between the participants in the booth: Marta, who has invited the radio caller to go ahead, answers Giovanna's question; Giovanna, who put the question to Marta, now answers the question asked by the radio caller. "Chiasm" is simply an image to describe how this overlapping and inter-crossing of activities can take place between the two operators, who nevertheless retain a divergence of commitment and relevancies. [58]

When Giovanna receives from Marta the information that she has requested, Giovanna disengages from the interaction with the radio caller. As soon as she has finished communicating the number of the event to the radio, and just after receiving the information requested from Marta, Giovanna starts a new question addressed to Marta about the same event (line 17: *e:h, what's the pathology?*). Giovanna has left off dealing with the radio and is back to talking with her colleague: she has jumped back again in the participation framework with her co-present colleague. [59]

Giovanna's new question and Marta's reply (lines 20, 22-23) overlap with a new incoming communication from the radio.

017 Giovanna	e:h, cos'è che l'è la patolo[gia?	((a Marta))
017	*e:h, what's the patholo[gy?*	*((to Marta))*
018 Radio	[(otto due)=	
018	*[(eight two)=*	
019 Radio	[=(quattro) può chiudere	
019	*[=(four) can close*	
020 Marta	[traumatica, una bici, caduta,	((a Giovanna))
020	*[traumatic, a bike, fall,*	*((to Giovanna))*
021 Radio	[con: ventinove chilometri	
021	*[with:: twenty-nine kilometres*	
022 Marta	[mandali in rosso, però,	((a Giovanna))
022	*[send them on red, though,*	*((to Giovanna))*
023 Marta	perché non si capiva bene:::,	((a Giovanna))
023	*because I couldn't really understand:,*	*((to Giovanna))*
024	((Marta chiude la radio))	
024	*((Marta switches off the radio))*	
025	cosa: eh ((a Giovanna))	
025	*what: eh ((to Giovanna))*	

Extract 2.5 (video) [60]

According to the usual practice, once the ambulance crew has received the event number from the control center, they inform the operations center of the number of kilometers covered for the operation. That is what happens in this case (lines 18-19 and 21: *eight two four can close with twenty nine kilometers*). This communication is audible in the background to the operators' current main activity, which consists of a question/answer exchange between Giovanna and Marta. Giovanna asks for further information about the accident for which she is about to dispatch an ambulance (line 17: *e:h, what's the pathology?*), Marta responds immediately after by furnishing additional information useful for the ambulance dispatch (lines 20, 23-23: *traumatic, a bike, fall, send them on red, though, because I couldn't really understand:::*). During Marta's response, Giovanna changes her posture. She now turns to her right in order to use a second telephone with which she will reach another crew and will dispatch the information just given by Marta. She will use this ancillary line in order to communicate with the ambulance crew to be dispatched to the accident scene at Castello Tesino, where a cyclist has been involved. Her involvement with the radio has concluded, and she is now fully taken up by the task of dealing with the cyclist accident. [61]

The radio communication, however, is not complete: the operation center has not yet confirmed that the message has been received and understood. It is at this

point that Marta, midway through her turn addressed to Giovanna, closes the communication via radio by pressing a button on the console (Figure 20).

perché non si capiva bene::: ((clic)) cosa: eh

Figure 20 [62]

Marta is engaged in two activities simultaneously: she is providing her colleague with the information requested; at the same time she is closing the communication via radio. Although the communication has been disregarded while both the operators attended to tasks required by their main ongoing activities in the booth, Marta shows that she has been listening to the radio communication. She prompted the communication from the radio, but then she withdrew from that task because she turned to her computer screen to search for the information needed by Giovanna. It was her colleague who answered to the request coming from the radio. Now Marta is able to come back to the task of dealing with the radio—when Giovanna now is taking care of her own task. Marta is able to produce the behavior appropriate at that particular moment because she has recognized the content of the radio message. Marta can do this when it is clear from Giovanna's posture that she has completed her interaction via radio. Marta can now bring the radio communication to a close by pushing a button on the radio console. Both operators are now once again able to focus on the tasks in which they were engaged when the radio communication arrived. [63]

We have therefore seen that dealing with the radio call has been made possible by a delicate process of cooperation between the parties. One operator has authorized the radio caller to proceed, while the other operator who has provided the speaker on the radio with the information requested; then again the first operator has formally closes the communication. All this work has taken place in a context already dense with on-going activities. The allocation of tasks laid down by the formal organization of work in the operations center (the call taker deals with the incoming call, the dispatcher with the dispatch) does not cover the contingent circumstances that constantly arise and which require the operators

constantly to improvise and "play by ear" the real execution of their tasks. In order to perform their work the operators undertake a series of ingenious and occasional practices which involve complex forms of collaboration and tacit coordination. [64]

3.3 "Tell them I'll give instructions soon"

In the third case we again encounter Marta as the call-taker, and Giovanna as the dispatcher. When we approach this case Marta is on the telephone with the fire department. Giovanna is beside Marta, and she is not engaged in a particular service activity at the moment (in truth, she is eating a sandwich). Marta is notifying the fire department of an accident that has just occurred: a mountain biker has fallen down a gully and the helicopter has been sent. Marta is explaining to the fire officer (VF/FD in the transcript) at the other end of the line exactly where the accident has happened. A radio communication now arrives (in the Extract 3.1, I present the transcript of the phone call and indicate where the radio communication overlaps with the conversation between Anna and the fire officer).

255 Marta	sai che c'è quello spazio che è	((al telefono))
255	*do you know there's that open space*	*((speaking to the phone))*
256	il belvede[re, lì sulla strada,	
256	*the look[out, there by the road,*	
	[e::hm,	← ((Radio))
	[e::hm,	← *((Radio))*
257 VF	sì?	
257 FD	*yes?*	
258 Marta	[un po' sopra il belvedere.	
258	*[a bit above the lookout.*	
	[centrale?	← ((Radio))
	[central?	← *((Radio))*

Extract 3.1 (video) [65]

The incoming radio call is from the ambulance ("number 435") that Marta has just sent to the scene of the accident, after giving it only rough directions. This radio communication has two main features. First, as regards the *composition* of the message, we can observe that the radio communication begins with one of the canonical ways in which the caller checks whether the channel is open and the call-taker is paying attention (line 258: *central?*). In several senses the opening of the radio communication performs the same function as the ringing of a telephone (LUFF & HEATH, 2002). The caller does not identify himself, furnishing no kind of self-presentation. The operators are usually able to recognize the caller's identity (categorical and often also individual), even if the caller does not identify him/herself, by rapidly inspecting the display on the radio console, which

shows the identification number of the vehicle transmitting the call. Second, as regards the *position* of the call in the flow of ongoing activity, we can observe that the radio communication overlaps with the second part of the call-taker's turn in the telephone conversation with the fire officer. [66]

Just after the radio burst Marta speaks to Giovanna before Giovanna can herself answer the radio—this being the task of the dispatcher, especially when her colleague (the call-taker) is busy on the main telephone line. Just after the first summons from the radio Marta suspends her telephone call with the fire officer for a moment and turns to Giovanna, addressing her about the radio communication:

259 Marta	digli che gli dico subito	((a Giovanna))
259	*tell them I'll give them soon*	*((to Giovanna))*
260	indicazioni a lui, se:-	
260	*instructions, if:-*	

Extract 3.2 (video) [67]

In Figure 21 we see the original body position and orientation of Marta speaking on the phone with the fire officer, whereas in Figure 22 we see Marta talking to Giovanna while orienting to the radio console with her head and pointing to it (lines 259-260):

Figure 21   Figure 22 [68]

The video recording does not show any visual orientation by Marta towards the radio when the radio call comes in: when the radio starts to speak, Marta continues to look at the monitor in front of her, concentrating on her conversation with the fire officer. Only at the end of her turn in the phone conversation does Marta abruptly address Giovanna, saying that it will be herself who will attend to answering the radio. Marta seems to have identified the vehicle from which the

radio call has come only through her auditory canal, by identifying the "grain" of the caller's voice (SCHEGLOFF, 1979). Marta has been able to do this even though she was engaged in a telephone conversation with another person. She thus shows awareness of several activities going on simultaneously and which are not connected with those in which she is officially engaged: Marta is aware of all the overt communications audible in the box—this being a common characteristic of the work of the operators in coordination centers, as has been shown by various previous studies. [69]

Marta makes clear to Giovanna that Marta candidates herself as the pertinent recipient of the radio communication. She anticipates the activity prefigured by the radio call and puts herself forward as the appropriate person to furnish further instructions. She does not break off her telephone call; nor does she respond immediately to the radio call in first person. Instead, she just completes her turn in the telephone conversation with the fire officer and then turns to her colleague and asks her to take action on the radio call. She acknowledges Giovanna, the dispatcher, as the person in charge who should respond to the radio message, but at the same time she books the next turn to speak to the radio. Marta invites Giovanna to take some action. The action requested exonerates the dispatcher from the task of responding to the call substantially, but at the same time it requires her to do something: it is an invitation (delivered almost as an order) by Marta for Giovanna to answer the radio saying that more information will come soon. In fact, at the same as it is addressed to the crew on the radio this information is also addressed to Marta: Giovanna tells her colleague that she will be answering the radio, presumably as soon as she is free from her current task —that is, talking on the phone with the fire officer. What Marta is doing is only establishing a different time for action: she is scheduling a deferral. Marta's turn positioned adjacently to the radio request shows that she already knows the reason for the call—and in some way accelerates the management of the call in regard to its reason—but at the same time Marta establishes that the reply may be given later and hence seeks to postpone the response. [70]

The action requested of Marta's colleague is substantially to inform the radio caller that the reply will be delayed. The reply to the radio call would be an announcement that the substantial reply will be delayed. Marta has thus suspended the temporal flow of the ongoing telephone conversation in order to deal with the new event that has just occurred, dictating the timing of the reply. She temporarily suspends the relevancies connected with her interaction with the fire officer at the other end of the telephone line; she rapidly attends to the new course of action imposed by the radio call. By anticipating the content of the communication and the action of her colleague, Marta the call-taker incorporates the new event into a new course of action in the immediate future, reorganizing the natural sequencing of events. [71]

As soon as she has made her request to Giovanna, Marta resumes her telephone conversation with the fire officer.

```
261 VF        eh cos'è che c'è.
261 FD        eh what's going on.

262 Marta     ecco, niente, è un ciclista
262           well, nothing, there's a cyclist

263           giù nella scarpata,
263           down in the gully,

264           e sta intervenendo
264           and the helicopter is

265           anche l'elicottero.
265           on its way.
```

Extract 3.3 (video) [72]

So far she has been describing to the fire officer the place where "something" has happened, but she has not provided any "reason" for her telephone call (it was she who called the fire department). Now the fire officer on the phone, in what is experienced as a "gap" in the conversation (although it was actually a space used by Marta to talk to her colleague), self-selects himself and asks explicitly for the reason of the call (line 261: *eh what's going on*). Marta promptly resumes her engagement with the former interlocutor and tells him what has happened and the means that have been mobilized in the case (lines 262-266: *Well, nothing, there's a cyclist down in the gully, and the helicopter is on its way*). That was the reason for calling to the fire department: to let them know of the medical intervention in progress. [73]

If we look at the ways in which cooperation and coordination of activities are made possible, Giovanna's response to Marta's request for her to deal with the radio communication is extremely interesting. Giovanna (who is eating a sandwich when Marta addresses her) uses gestures and the positioning of her body to show that she has understood her colleague's request. But she does not answer the radio message immediately (also because she is still chewing on a piece of the sandwich). When she finally answers the radio, she positions her radio response exactly at the completion of Marta's next turn in the telephone conversation with the fire officer (Figure 23).[9]

---

9   Giovanna does not begin to talk *because* she has completely swallowed the piece of sandwich. She begins to talk only when an interactional slot has become available. Actually, it seems that Giovanna does indeed swallow the piece of food, but when she talks on the radio her mouth is still partly full. On the interactional management of eating see GOODWIN (1984), GOODWIN and GOODWIN (1987).

264 Marta	e sta intervenendo	((al telefono con i vigili del fuoco))	
264	*and the helicopter is*	*((to the phone with the Fire Dept.))*	
265	anche l'elicottero.		
265	*on its way.*		
266 Giovanna	avanti		← ((alla radio))
266	*go ahead*		← *((to the radio))*
267 Marta	se puoi mandarli qualcuno.		
267	*see if you can send someone there.*		
268 VF	va bene		
268 FD	*all right*		
269 Marta	grazie, ciao.		
269	*thanks, ciao.*		

Extract 3.4 (video)

Giovanna   avanti
go ahead

Figure 23 [74]

The telephone call between Marta and the fire officer is about to conclude. The
reason for the call has been given by Marta to the fire officer (place and type of
accident). Giovanna can anticipate that the closure of the telephone conversation
is near—and that the closure sequence will be brief, as is usual in these cases. In
a few moments, therefore, Marta will be free to deal with another task, that of
answering the radio call. Giovanna facilitates the transition to the new task for
Marta (answering to the radio) by not doing exactly what Marta has asked.
Giovanna does speak on the radio, but she does not say on the radio that Marta

is going to speak to them in few moments and she will give instructions then. Giovanna defers her intervention on the radio until Marta is about to conclude the telephone call in which she is engaged, when she will be almost ready to talk herself on the radio. Only at this point does Giovanna turn to the radio and announce the availability of an open channel (line 266: *go ahead*), and also the availability of an operator as a competent answerer to the caller's possible request. Giovanna's turn is an authorization to the radio caller to state the reason for his call. Although Marta's pre-emptive move showed that she had already understood the reason of the radio call, Giovanna's move now works as elicitation of a new turn from the radio caller, a turn in which the reason for the radio call is made explicit. In the meantime the radio caller has been able to give the reason for the call, and Marta has been able to bring the telephone call to a close. Giovanna, with her turn, is working to ensure a smooth transition for Marta from one activity to another. By authorizing the radio caller to state the reason for his call, Giovanna continues a full sequence in the radio communication where the answer to the possible request about to be made will be given at the appropriate moment without delay. In this way Giovanna's turn coordinates two activities: the closure of Marta's telephone conversation and the continuation of the communication via radio. Giovanna acts to make two activities converge on a point in the very near future by slightly "stretching" the timing of the interaction with the radio. The cadence of Giovanna's response is paced to enable smooth transition between activities and to facilitate Marta's switch from one task to the other. By slightly delaying her response to the radio call, and by constructing her turn as authorization to give the reason for the call, Giovanna puts together a sequence which prevents overlapping and interference between two different activities and coordinates (aligns) the future action for her colleague. [75]

So when Marta closes the telephone call, she is ready to talk to the radio caller. Marta finishes her conversation with the fire officer (lines 267-269) and finds herself immediately in a position to begin dealing with the radio request (lines 273-274). [76]

There is time for a jocular interlude (lines 270-272) initiated by a colleague in the next booth. This I will skip.

```
270 box4      scusa, Marta, è fuori per caso
270           sorry, Marta, is the helicopter

271           l'elicottero?
271           out by any chance?

272           ((Marta ride))
272           ((Marta laughs))

273 Marta     aspetta che gli dico::, ecco.      ((a Giovanna))
273           let   me  talk::,      right.       ((to Giovanna))

274 Marta     quattro tre cinque? ((to the radio))
274           four three five?

275 Radio     eh sì, valuta se è il caso::,
275           eh yes, see whether::,

276           e::hm, è fuori strada?
276           e::hm, is he off the road?

277 Marta     sì, confermo.         ((Marta continua a parlare alla radio))
277           yes, confirm.         ((she continues talking to the radio))
```

Extract 3.5 (video) [77]

Once the telephone is closed Marta takes control of the radio set, making it clear to Giovanna that she will handle the radio call (Figure 24; line 273: *let me talk:::, right*). She resumes the radio communication exactly where Giovanna just left off. No further messages have been received from the radio since Giovanna gave authorization for the communication to proceed. In this situation, the dispatcher usually checks that the caller is still in radio contact. The absence of communication is particularly important at this point—after authorization to proceed has been given—precisely because the call has been received by radio (see again SCHEGLOFF, 1968). There are two possible explanations for the silence at the other end of the radio link: the authorization signal issued by the operator in the operations centre has not been received by the radio caller; or the radio caller was distracted by another urgent task immediately after his radio call and therefore cannot take up the invitation to proceed with the communication. Marta's first action is consequently to determine whether the radio caller is still in radio contact. She produces a turn which contains a categorical identification of the caller, the ambulance's code number (Figure 25; line 274: *four three five?*).

Figure 24   Figure 25 [78]

In this way Marta summonses the ambulance crew which she has previously recognized only from the timbre of the radio caller's voice. This categorical identification (intonationally characterized by rising pitch) functions as a solicitation for the radio caller to continue his communication to the operations center. Marta signals to the radio caller that the operations center is ready to receive the radio communication and to hear the reason for the radio call.[10] Marta shows that, even if she has been busy with the telephone call from the fire-fighter, she has been paying attention to the radio. She thus provides an example of multiple involvements in diverse activities at the same time. Her principal involvement in her official task (talking on the phone) has not prevented her from paying attention to other ongoing communications. She resumes the radio interaction exactly at the point where Giovanna left off, and orients herself towards the emergent feature of the radio communication at that point: the fact that it has been interrupted and no further messages have been received from the radio caller. Marta resumes the radio communication by producing the item appropriate at that moment: a request for the radio caller to continue. Marta's turn produces the expected result. The caller answers and gives the reason for his call (lines 275-276: *eh yes, see whether-, ehm, is he off the road?*). Marta is now able to respond to the radio call (line 277: *yes, confirm*). The transfer of responsibility for handling the radio communication has been fully accomplished. [79]

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10 At this point two structural paths of the sequence in the communication radio are possible: in the next turn the radio caller can actually provide the reason for the radio call. It is only in the turn after the next one that the operator can provide the response. But the radio caller can respond to the previous turn only with a minimal recognitional. The radio caller can show that he understands the turn from the operations center as a *summon*; in this case the turn after the next one is again up to the operations center. The operator at this point can already give the answer to what is presumably the reason for the radio call, pre-empting an explicit formulation of it from the radio caller. That is what Marta was apparently ready to give (lines 259-260). In this case it is the former path that the radio communication takes.

4. Discussion

In the emergency call center examined here there is a division of labor between the operators which is based on their officially allocated roles: the call-taker deals with the incoming phone calls, the dispatcher deals with dispatching ambulances to the site of the accident and supervises them during the course of the interventions. Each operator has an established course of future actions to follow. At the same time, however, we have seen in the three extracts presented and discussed that there is in place a flexible organization of work which emerges in the course of events and which enables the operators to manage contingent and unexpected aspects of their work. As Whalen and Zimmerman write, "what makes such teamwork possible is not only the structure and interdependency of institutional roles and responsibilities but the social relationships and interactional practices that develop among the participants over the course of *all* their conjoint activities" (WHALEN & ZIMMERMAN, 2005, p.314). [80]

The paper has shown how the operators at a call center handling medical emergencies tacitly collaborate in managing radio communications with the crew of a vehicle on the ground. The basic structure of a simple radio communication containing, as the reason for the call, a request for information addressed to the operation center consists of a 4-turn sequence:

1. summons by the radio caller;
2. response by the operations center, which authorizes the radio caller to proceed;
3. the radio caller gives the reason for the call, that is, a request for information;
4. the operations center responds. [81]

A salient feature of the three extracts examined is that both operators in the booth speak on the radio. Although responding to the radio is officially the task of the dispatcher, the call-taker also talks on it. This is a sequential collaboration, not a choral production or a "togetherness" demonstrated by the simultaneous production of a phrase, word, utterance, turn, etc.; in short, this is not overlapping talk. At the same time it not a linear co-production of the same turn: the operators do not talk one after the other, as when a first speaker produces only the first part of a turn and a second speaker then produces the second part of the same turn. Rather, the two operators coordinate themselves to produce what must be inserted in the slots created by the radio call at some particular moment of the sequence. We have seen in particular that one of the operators produces the second turn in a typical 4-turns sequence of radio communication while the other operator produces the fourth turn. Thus an apparently individual activity is distributed between the parties present in the same setting and sharing the same ecology of the work space. [82]

It is interesting to see how this activity is distributed. Video recordings of ongoing activity in the booth give access to the work performed by the two parties in tacitly or openly distributing tasks. We have seen that when the radio call arrives in the

booth the operators are often deeply engaged in other tasks. We have seen at least three common methods by which the operators deal jointly with the incoming radio call, after the initial summon of the radio caller—the first turn in the radio communication. The first method consists in one of the operators (the dispatcher) *explicitly asking* that the call be taken by his/her colleague, the call-taker. This is the case exemplified by Extract 1. The dispatcher is the person formally in charge of radio communication: if for whatever reason he/she cannot fully deal with the radio-caller, the dispatcher may ask the call-taker to act on his/her behalf. [83]

The second method consists in one operator (the call-taker) *explicitly telling* his/her colleague (the dispatcher) that he/she will take deal with the call on his/her behalf. Given that the dispatcher is the person formally in charge of radio communication, the call-taker must in some sense *anticipate* the timing of the response by his/her colleague (the call-taker), in this way pre-empting the dispatcher's response. S/he candidates himself/herself to give the answer to the inquiry by the radio caller. This is the case illustrated by Extract 3. [84]

In both cases, as seen in Extracts 1 and 3, the two options are only preliminary activities which however do not affect the fact that it is the dispatcher who will provide the second turn of the radio communication. The switch from one operator (the dispatcher) to the other (the call-taker) is then accomplished in the fourth turn of the typical radio communication sequence. These two common methods are both overt methods, that is, verbal strategies, used by the operators to explicitly negotiate and practically carry out the exchange of the answerer's role in the radio communication. [85]

The paper has also described a third method which, unlike the two methods just described, is a *tacit* method for exchanging the answerer's role in the radio communication. It consists in a *movement away* by the person in charge of responding to the radio call from the task of continuing to pay focused attention to the radio communication after s/he has authorized the radio caller to proceed. In this case, the movement away of one operator works as a disengagement display toward the radio communication. At this point it will be the other colleague who attends to the radio communication in the next relevant turn of the sequence. In this way the exchange of the answerer's role in the radio communication is accomplished tacitly, without any explicit agreement between the two operators concerning who will do what. Extract 2 showed how the operator who did not first answer the radio call then self-selects to give the answer to the information required by the radio caller. [86]

What we have seen from the discussion of the three extracts is that talk is deeply embedded in a complex interactional work between the co-present parties. This complex interactional work is the social structure through which sense making is accomplished. Giving the information required by the radio caller involves, among other things, finding the proper places where the information is to be found, orienting to the new configuration of relevancies in place, shifting the engagement from one task to another. Each operator makes clear to his/her

colleague the path, direction and issues at stake (what to say, who will say it, what is happening, who should do what) by means of various devices (the positioning of their bodies, pointing, the design of their talk addressed to his/her colleague, etc.). All this interactional work is what is effaced by the official audio-recording of the events. Instead, the videorecordings grant access to a whole interactional back-stage (GOODWIN, 1995) necessary for producing the official communication as it is. The back-stage is an important place, not for ritual demands (as for GOFFMAN), but for the structure itself of a service. The back stage is the place where the ingredients are assembled into a dish ready to be served to the public. At the operations center, the booth is a place of intense cooperation and collaboration, through bodily and verbal means, explicit or tacit, between physically co-present persons, in order to provide a service, given the constraints of the actual situation in which the operators concretely are. Official communications are the result of a process of social interaction between people who work together and share the same ecology, the same orientation and the same priorities, and who jointly ensure the alignment and concordance of that ecology, that orientation and those priorities. [87]

The radio, because of its position on the work bench and because of its technological characteristics, makes specific collaborative practices between the operators possible. Usually, the radio apparatus occupies a space easily accessible to both operators. It does not belong to one or the other operator in particular, as is the case of the work station. It is usually placed in an intermediate position between the two work stations. Moreover, incoming radio calls are not heard solely by the person at the receiver but by all those in the vicinity of the radio set: everyone within earshot can listen to the communication without the use of any special devices. Incoming radio calls enable the operators present in the booth to overhear and monitor the ongoing activity, often while other activities are in progress. The operators are able to judge the importance of the incoming radio call and act accordingly. We have seen how the radio creates a sound environment which triggers simultaneous courses of action by those present and enables their co-participation in joint work on a specific task. [88]

Acknowledgments

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