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Abstract

This article is concerned with the in-situ negotiation of epistemic primacy in the context of medical emergencies. It looks into the mobilisation of questions and positioning in the material space as mechanisms for claiming control and co-constructing epistemic authority. We bring together two high-risk, high-pressure emergency contexts, obstetrics and major trauma, and show the patterns that emerged from a bottom-up interactional sociolinguistic analysis of the data. We draw on a corpus of approximately 400 questions from a sample of ten teams; we zoom in on the role of the institutionally defined team leader while special attention is also paid to the ways in which institutional power asymmetries are negotiated across the team in leadership enactment.

We discuss the typology of questions that emerged from our data on a spectrum from a not knowing (K-) to a knowing (K+) status. Our analysis demonstrates consistent patterns in displays of epistemic primacy, with team leaders raising most of the questions indicating a K+ status across contexts. Further, we show that verbal claims of epistemic primacy are conditioned upon team leaders' positioning at specific material zones of the emergency room as an integral part of doing their role.

Keywords

epistemic primacy; multimodality; questions; medical emergencies; Interactional Sociolinguistics; leadership

'Do you want me to take over?' : Displaying epistemic primacy in medical emergencies

1. Introduction

There is vast literature on the significance and complexity of teamwork in medical contexts and the relationship between clear communication and patient safety across disciplines (Rosen et al. 2018). The work of sociolinguists and applied linguists has provided further evidence on the role of team talk in healthcare and its impact on teamwork performance (e.g., Sarangi's (2017) special issue on *Teamwork and Team Talk in Healthcare Delivery*). This paper is concerned with claims and displays of epistemic primacy in medical emergencies focusing on the embodied use of questions as strategies for claiming control. We use the term *epistemic primacy* to refer to asymmetries in interactants' knowledge, which, in turn, impacts on their 'relative rights to tell, inform, assert or assess' (Stivers et al. 2011: 13). We pay attention to the professional hierarchy within teams with a particular focus on the institutionally defined team leader and we consider asymmetries in interactants' epistemic rights (and, thus, power asymmetries) as an integral part of the medical encounter.

We take an Interactional Sociolinguistics (IS) approach to reflect on the process by which the interactants claim, resist, and project epistemic rights in the context of doing leadership: this includes the ways in which team members position their selves in the material space of the emergency room, which we consider an integral part of the interaction encounter. IS and Conversation Analysis (CA) scholars have conceptualised leadership as situated, discursively achieved, and directly related to the control of the conversational floor (Holmes and Marra 2004;

Angouri 2018). We will revisit the ways in which control is enacted in the light of our data. We see epistemic primacy inseparably connected to leadership in line with earlier work in workplace sociolinguistics and applied linguistics, which has already pointed towards their direct relationship in a range of professional settings.

We build on our earlier work and bring together two high-risk emergency contexts, obstetrics and trauma, drawing on video-recorded simulations and audio-recorded 'real-life' interactions, respectively. We revisit the fallacies on the 'real' / 'non-real' divide at the end of the paper.

We aim to address the following research question: *How do the interactants claim, resist, and project epistemic rights in order to 'do' leadership in the context of medical emergencies?*

We have structured this article in four parts. First, we provide an overview of relevant literature, including research on knowledge displays and the study of epistemics, and the role of questions as control mechanisms. We continue with the description of our context and methodology, before turning to the analysis of the data, where we illustrate the emerged typology of questions, displays of epistemic primacy in both datasets, as well as instances of epistemic struggles. Finally, we draw conclusions and discuss research gaps future studies could aim to address.

2. Literature review

2.1. Team talk in healthcare

Interactional analytic approaches have provided linguistic flesh on the 'why and how' communication is one of the most common causes of error in healthcare by identifying the interactional contexts where the potential for error increases. At the same time, very few studies so far have explored team talk in emergency contexts. A limited number of studies has been conducted in Australia. One of the most complete studies so far is Slade and colleagues' *Emergency Communication Project*, which employed multi-site, multi-method designs to explore communication in emergency departments in Australia and Hong Kong (for some of the outputs, see Scheeres et al. 2008; Slade et al. 2015). Slade et al. (2018) have provided evidence that implementing communication training for nurses improves nurses' ability to lead the clinical interactions with patients, making a strong case for including linguistic research into medical training. Their approach is well aligned with the findings of work by Iedema and his colleagues (2009): their *HELiCS (Handover: Enabling Learning in Communication (for) Safety*) project has drawn on focus groups, observations, and a 'video-reflexive' method, and has provided useful insights in the potential for error in teams' handovers and the ways in which this can be mitigated.

A set of studies drawing on the Norwegian context has also offered useful insights in the field. For instance, Thomassen et al. (2017) drew on video recordings of simulated emergency encounters, illustrating the impact of interactional features such as overlaps in the distribution of work and decision-making process (see also Gundrosen et al. 2016). Our project contributes to the agenda of these studies: here we focus specifically on how questions as linguistic features associated with control are relevant to the work of the teams.

2.2. Knowledge displays: the study of questions as control mechanisms

Questions have been widely studied as discursive strategies for achieving control and collaboration in the workplace (Freed and Ehrlich 2010 for an overview in institutional discourse). In the context of business meetings, Holmes and Chiles (2010) argue that questions are a flexible discursive tool for enabling those in position of power to maintain control of the agenda and construct authority and a leadership role: this is similar to our data, where team leaders also use questions to set the topical agenda and allocate tasks.

Questioning/answering schemes in healthcare have been in the spotlight already from the 1970s, with doctor-patient encounters having been identified by Byrne and Long (1976: 30) as 'a genre of questions' where 'much doctor behavior falls under the broad heading of questioning'. Much less attention has been paid, however, to questions *within* the medical teams (intra-team questions), and even more rarely studies have looked for systematic patterns on the pragmatic functions and formats of questions *across* contexts.

In earlier work (Mesinioti et al. 2020) we started unpacking questions as strategies for *doing* interactional control, providing a typology of their pragmatic functions in the emergency encounter. Building on and expanding this typology, we demonstrate here the consistency of the

questions' controlling functions across high-risk emergency contexts (Mesinioti 2022). Here we take a perspective specifically drawing on the field of epistemics.

Questions have been vastly investigated for the study of epistemics from a conversation analysis (CA) perspective, with some forms, such as polar questions, having been found as a key discursive strategy in restricting recipients' epistemic rights. Equally, we pay particular attention to the multimodal achievement of epistemic primacy, illustrating how the much-discussed *territories of knowledge* (Heritage 2012) are also inscribed in the material space of the emergency room. We discuss this further in the next section.

2.2.1. Questions in the study of epistemics

Questions have been at the centre of CA research on epistemic phenomena for more than ten years now (e.g., Heritage 2010), with negative interrogatives and tag questions being considered dominant ways in which interactants negotiate their epistemic rights. Although CA research has looked in contexts other than secondary care, the findings are useful in capturing the interactional designs available to speakers in professional settings for doing expertise. Professionals claim and negotiate expertise in ways that are appropriate for the interactional, institutional, and sociocultural context in which they operate. They mobilise linguistic devices and structures that carry social meanings of authority (or lack of) to position self and other in their encounters. Looking into the forms and functions of questions across professional contexts is therefore relevant in reading the designs we encounter in medical emergencies too. Further, Mondada (2013) has provided a systematic analysis of sequences in guided tours, illustrating how interactants claim alternative epistemic rights, constantly (re)elaborating their epistemic status and stance. Stances, therefore, are negotiated in situ in an ongoing process. Although in a different setting, the analytical approach Mondada has suggested is useful for the study of the phenomenon and has been adopted in our analysis as we show later.

Also relevant is work by Heritage (2010), who touches upon the concept of 'epistemic stance' in questioning in medical encounters, arguing that the format of the questions (e.g., yes/no declarative, yes/no interrogative) conveys the questioner's epistemic stance. This line of research shows that questions are at the heart of displays, negotiations, and challenges of epistemic status. We are building on and expanding this work as we turn our attention to emergency encounters and explore how health professionals claim epistemic primacy through the use of questions and positioning in epistemic territories.

Finally, a recent relevant study on epistemic claims within medical teams is Murtagh and Bezemer (2021). Their project draws on audio and video recordings of laparoscopic operations, illustrating how consultants use tag questions which favour a positive response as a way of establishing and maintaining their role as authoritative experts. We discuss this further in the light of our data.

3. Data and methodology

3.1. High-risk emergency contexts

We draw here on two high-risk emergency contexts, obstetrics and major trauma. The first dataset is drawn from a randomised controlled trial of training for obstetric emergencies, the *Simulation and Fire-drill Evaluation (SaFE)* study, in which the emergencies were video-recorded in six sites in the UK. The study involved 24 teams and a total of 140 participants. The *SaFE* teams were recorded managing *eclampsia*, an obstetric emergency requiring staff members to perform several clinical tasks simultaneously, with a scenario that included a patient-actor (on the *SaFE*'s design, see Siassakos et al. 2011). The *SaFE* study was a clinical study evaluating the teams' *clinical performance*. We argue, in our analysis, that high clinical performance is inseparable from 'good' *interactional performance* (Angouri et al. 2022).

The second dataset, which enables us to expand our earlier accounts emerging from the *SaFE* data, is drawn from the *Teamwork, Leadership, and Communication in Trauma pre-briefings* (*TLCT*) study. This study investigated team behaviours in trauma pre-briefings. The *TLCT* study was conducted in one of the busiest major trauma centres (MTC) in the UK over a three-month period, with the data comprised of ethnographic observations and audio recordings from real-life major trauma incidents (Mesinioti et al. 2022). The data has been collected in the resuscitation area (more commonly known as 'resus'), a key area in the emergency department (ED), dealing with the most seriously ill (medical) or injured (trauma) patients. Our focus here is on the management of adult trauma patients.

In the *SaFE* study, the canonical form of the teams includes six members: one senior doctor (team leader), one junior doctor, two senior midwives and two junior midwives (Siassakos et al. 2011). The composition of trauma teams in the *TLCT* study ranges from 5 to 14 staff members, depending on the trauma severity and perceived risk, the time allowed prior to the patient arrival and the staff members' availability at a particular moment (Tiel Groenestege-Kreb et al. 2014 on trauma teams' variation (inter)nationally). In our data, the trauma incidents are usually handled by an ED consultant (team leader), a middle grade doctor, a resus practitioner, and an ED nurse. These are also joined by an airway competent doctor – often an anaesthetist – and another doctor (responsible for the intravenous access). This hierarchical structure of the team, as well as the marked role of the designated team leader, is particularly relevant to our analysis.

Ethical approval has been obtained prior to data collection for both studies, and informed consent has been obtained from all participants. To protect our participants' anonymity, we have used pseudonyms and removed all identifying information from the excerpts. We have also blurred the screenshots from the *SaFE* data.

The two contexts share common characteristics, including ad hoc multidisciplinary team formations, a high sense of urgency, and a rigid institutional hierarchy. This, evidently, does not mean that there are no differences between them. The authenticity of simulations has been vividly debated in the literature, particularly in healthcare (see Rystedt and Sjöblom 2012). We have argued elsewhere (Mesinioti et al. 2020) that the criticism against simulations' authenticity constitutes a monodimensional approach, while Siassakos et al. (2011: 603) make the point that 'simulation, role play and rehearsals can all be viewed as a variety of naturally occurring data, as long as they elicit interactions between participants'.

Indeed, simulations have been used in healthcare since the late 1960s (Lateef 2010) and are now well embedded in medical training, with many healthcare professionals receiving regular simulation-based medical education. This provides evidence on professionals' familiarisation with the simulated practice. Previous studies have demonstrated how simulations can function as 'authentic representations of real-world tasks' (Rystedt and Sjöblom 2012: 785; cf. also Lateef 2010 on the conditions under which simulated training can be 'just like the real thing'). Against this backdrop, we consider the *SaFE* simulations authentic environments for what they are, and appropriate for the study of 'naturally-occurring' team interactions. In fact, the simulation context provides access to displays of *idealised performances* that both mirror and perpetuate behaviours in higher-stakes, non-simulated activities.

In sum, both contexts offer a fertile environment for the study of epistemic phenomena. The multidisciplinary teams are expected to respond to the emergency rapidly, performing multiple tasks simultaneously within a short time window: this is approximately ten minutes for the identification and treatment of eclampsia in the *SaFE* study and twenty minutes for receiving and stabilising the patient, performing the primary survey and preparing them for a Computed Tomography (CT) scan in the *TLCT* data.

Further, as is the case with most medical contexts, both environments maintain a pyramid-shaped formal hierarchy model, with the senior doctors (*SaFE* study) and ED consultants (*TLCT* study) being at the top of this pyramid. These roles are the ones more frequently leading the team and are marked, as they come with an institutionally recognised status and accountability: the overall responsibility for the patient lies with the senior doctor/ED consultant for medicolegal purposes. Claiming epistemic primacy and thus *doing* leadership in our contexts, however, is not only the result of a pre-defined institutional hierarchy but also interactionally achieved and negotiated institu. We return to this in Sections 4.2 and 4.3 and illustrate the negotiation of the pre-existing hierarchy in epistemic struggles and claims of alternative epistemic rights.

3.2. Analytical approach: Interactional Sociolinguistics (IS) for linking the *here and now* with the team's *medical context*

The contexts we investigate are marked by specialised forms of knowledge and authority and come with deep-seated asymmetries between the various professional roles. We argue that an IS approach is well suited for capturing the nuances involved in the process.

IS shares with CA a microanalytic approach to interaction and the sequential structure of talk but, unlike IS, CA analyses do not include any features that do not emerge in the here-and-now interaction. On the contrary, IS accepts that some features are a priori relevant, even if they do not appear in a given interaction, thus explicitly considering the wider sociocultural and institutional context impacting on interactions. In this regard, IS is conceptually closer to ethnographic research, allowing for a more holistic understanding of the context (see Angouri and Mondada 2018 on how CA and IS treat audio-video data).

We argue that the institutional context and hierarchy have a significant impact on the encounter and, as such, an IS approach is appropriate for our analysis, allowing us 'to address issues on the institutional and ideological frame relevant to the encounter within which talk occurs' (Angouri 2018: 75). This approach is suitable for considering both verbal and embodied cues as they become relevant in the situated interaction and is appropriate for an analysis of how staff members use the material zones of the emergency room. IS has not been traditionally used for exploring epistemic phenomena. This, however, points more to the use of the framework by researchers rather than its affordances. Bringing together the 'here-and-now' and the broader environment within which the interactants operate is significant for understanding the relevance and meanings negotiated in the claims of expertise in the emergency room.

IS is typically associated with so-called qualitative research and hence generalisability is not a priority. However, the units of analysis are linguistic phenomena – not whole excerpts, nor the cases/teams from which the excerpts have been extracted – and the patterns are typically capturing frequency of occurrence of (an) interactional design and markedness (or not) on the basis of the researcher's ethnographic understanding of what is appropriate for the context. Therefore, representativeness can be claimed on the analysis of both form and function and frequency of use in a given dataset.

Our units of analysis are questions, and we present the typology that emerged on a spectrum from a not knowing status (K-) to a knowing status (K+; following Mondada 2013). We pay attention to the ways in which epistemic primacy is locally negotiated and shed light into cases in which junior professional roles claim alternative epistemic rights, stepping in the team leader's role. These epistemic fights (i.e., who has the right to talk, who has the right to restrict addressees' rights to talk) provide a rich insight into the process of achieving epistemic primacy and ways of doing leadership and show the dynamic and co-constitutive relationship between the two.

We report here on the analysis of approximately 400 questions from ten cases (five from each dataset) through the discussion of three excerpts which represent the patterns and designs in the dataset. We have selected the excerpts based on: a) distribution of interactional performance (i.e., both teams with and without interactional trouble, in order to show the impact of questions in both cases); b) appropriate sound/image quality; and c) representability of the patterns identified in the larger dataset for reasons of illustration. Although theoretically underdeveloped in general linguistics (Busse and Moehlig-Falke 2019), the concept of *patterns* has been used for quite some time now in sociolinguistic literature, particularly in relation to language variation and change (cf. Labov's landmark book on sociolinguistic patterns already in 1972). Sociolinguistic work taking a thorough, bottom-up micro-analysis as the one employed here pays attention to the frequency of occurrence, allowing for the identification of the 'norm' and making the systematicity of interactional patterns visible (but see also Angouri (2018: 78) for how workplace discourse research should 'be able to afford disruption and irregular patterns').

The selected excerpts are indicative of these norms that have been consistently identified throughout our data sample as illustrations of the wider interactional context of the participants. They provide the interactional environment for the study of our units of analysis, the questions and their morphophonological characteristics (i.e., intonation; polar/tag/elliptical forms; use of modal verbs and collective pronouns), as well as their pragmatic functions and multimodal accomplishments.

4. Data analysis

4.1. Typology of questions

Table 1 depicts the full typology of questions that emerged in our data. We have excluded questions addressed to the patients, as our focus here is on intra-team interactions. Drawing on examples from both datasets, we show below that the questions' pragmatic functions and their main agents are consistent across the datasets.

Table 1. Emerged typology of questions across datasets

Insert Table 1 about here

Table 1 is organised on a continuum from questions indicating a not knowing status (K-) to a knowing status (K+), displaying epistemic primacy, with the latter marked in grey shade. These are questions that serve the functions of allocating tasks, setting the topical agenda, offering assistance, and seeking confirmation. Our starting point is that questions issuing directives,

allocating tasks, and setting the topical agenda presumably signal that the speaker positions self as possessing the authority for uttering them (Schultze-Berndt 2017). We then zoom in on the team's uptake to decide whether the team members recognise the asymmetry in their epistemic rights and re-affirm or challenge this positioning. Questions aiming to offer assistance are not frequent in our data: we illustrate the function of the others in Excerpts 1-3. As shown in the last column, the questions indicating epistemic primacy are mainly raised by those occupying senior professional roles, with some of them observed only in the team leaders' turns in situations where there is no evident interactional trouble. We return to this in the next section.

The questions not marked in grey are those aiming to request information. Some of those, such as questions seeking guidance on how to perform a task, are normatively raised in our data only by those occupying junior professional roles (ED nurses in the *TLCT* study; junior midwives in the *SaFE* study): we understand these as junior members' discursive ways of resisting epistemic rights and any responsibility that is tied to these. Other categories of questions depend on the context to identify their main agent, but it is usually not the team leader who raises them (we discuss, however, incidents where the team leader raises an information request to gain control of the situation in early stages of the episodes).

To give an illustration of the ways the team leaders and the rest of the team handle differently the affordances of the questions, we have included, in Table 2, the total number of questions requesting information (K-) and indicating epistemic primacy (K+) and their main agents in two indicative trauma cases from the *TLCT* study.

Table 2. Total of questions in two TLCT trauma incidents

Insert Table 2 here

As shown above, in just two trauma cases the total number of questions is 82, 51 aimed at requesting information and 31 were questions indexing epistemic primacy. This allowed for a robust analysis of the ways in which questions are used *in* and *for* epistemic claims across datasets and also the interactional context where they emerge and in line with the IS approach.

Considering the main agents, more than half of the questions requesting information (30/51) are issued by those occupying professional roles other than the team leader. The asymmetry in the questions indicating epistemic primacy is striking with almost all the questions (27/31) raised by the team leaders. The table is drawn from two trauma cases and, although it has no statistical significance, it is illustrative of the consistent patterns that we find in our data and the noticeable differences between the team leaders' and the rest of the team members' questioning mechanisms.

In the next section, we draw on representative examples from both datasets to illustrate the identified patterns in the team leaders' ways of displaying epistemic primacy and doing leadership.

4.2. Displays of epistemic primacy

4.2.1. *TLCT* study

Excerpt 1 below is drawn from the *TLCT* dataset.¹ The team has been given an estimated time of arrival (ETA) of fifteen minutes and the members are now present in the resus room for a while, maintaining small talk in small groups. We join the team the moment when Leon, the team leader, brings the team together for the pre-briefing.

Excerpt 1²

Key for the excerpt: Jack: orthopaedic registrar; Leon: ED consultant; Lisa: ED registrar; Mariah: ICU doctor; Ria: medical student.

1.	Leon	OK YOU ALL (1.0) can we (.) possibly step in ((makes
2.		hand gesture showing the space around him)) and just
3.		<pre>pre-brief (.) e:hm we're missing ITU [but</pre>
4.	?	[yeah
5.	Leon	they told me we've got an (indec) here so:: ((sighs))
6.		(1.0) hopefully wards coming in (.) (do) introductions
7.		(.)(saying the obs) (.) and the:n (.) we chat about what
8.		we plan to do (.) does that make sense \uparrow [yeah \uparrow
9.	Mariah	[yeah=
10.	Lisa	=mhm
11.	Leon	so (.) my name is Leon Ross (.) I'm the trauma team
12.		leader (1.0) ((he looks at Lisa and makes a gesture to
13.		pass her the floor))
14.	Lisa	my name is Lisa: (.) I'm the: ED registrar (1.0)
15.	Leon	you're doing [the primary survey $_{\uparrow}$
16.	Lisa	[and I'll be doing the primary survey
17.	Ria	I'm Ria (.) a student in the ward
18.	Jack	ehm (indec) reg

```
19. Mariah Maria:h (.) ITU=
20. Leon =IT -IV access [Mariah↑ (.) you're
21. good with that↑
22. Mariah Yes
```

Excerpt 1 captures the beginning of the formal pre-briefing, a critical stage where tasks and responsibilities are allocated to the team members. Leon, in a floor-claiming utterance (lines 1-3), takes the floor and raises a polar question aiming to set the topical agenda, issuing, at the same time, a directive to the whole team (*can we (.) possibly step in and just pre-brief*). Leon's utterance does not have a rising intonation, but it is framed in interrogative and clearly serves the pragmatic function of requesting the team members to do something (Geluykens 1988, on the myth of rising intonation in polar questions). The question is accompanied by a relevant gesture, where Leon shows the material space around him as the place where the team members should 'step in'.

Leon's turn is successful as the team members instantly stop their overlapping conversations and gather around him for the pre-briefing: in doing so, they comply both with his verbal and embodied request – his gesture indicating the right material space. In our data, we observe consistent material zones related to K+/K- knowing status: we illustrate below how the *territories of knowledge* (e.g., Heritage 2012) are also inscribed in the material space. In the *TLCT* data, the identified team leader's material epistemic territory is the scriber's desk, when there is no scriber in the room, or the foot of the bed, when there is a scriber at the scriber's desk. Both positions provide them with the flexibility to oversee the whole team.

The team's material epistemic territories are illustrated in Figure 1, which is a screenshot of one of our trauma bays and its surrounding space.

Figure 1. Team leader's material epistemic territory in the TLCT data.

Insert Figure 1 about here

Leon not only places himself at the epistemic territory of the team leader, at the scriber's desk, but invites the team members into it. The team immediately gathers around him: this is an indication of the members' familiarity with the epistemic territories, but also evidence that they identify Leon as the authority who has the right to be in the leader's epistemic territory.

No interactional trouble is manifested throughout the case.³ Leon's status here is easily accessed by the team members. As we will show in excerpt 3, this is not the only possible scenario in our data: incongruent epistemic actions are possible as alternative epistemic rights are claimed by other team members occupying different professional roles, too.

Moving forward, Leon continues holding the floor tight in lines 6-8, where he sets the plan for the patient's arrival and raises another polar question in line 8 (*does that make sense* \uparrow). The question possibly invites clarifications from the team members, but its form can be interpreted, at the same time, as Leon's attempt to claim/display epistemic primacy. Polar questions tend to restrict the exercise of respondents' epistemic rights: yes/no formats privilege a positive response, as the alternative would require a *no*-prefaced answer, which can be easily read as face-threatening in inter-professional contexts. Leon further limits the chances of a dispreferred (in this case negative) answer with his own answer to his question (*yeah* \uparrow). Interactants can

resist such restrictions, but this is not the case here where two of the team members respond in the affirmative (lines 9-10).

After having introduced his role and responsibility (lines 11-12), Leon passes the floor to Lisa, the ED registrar. Lisa introduces herself by stating her first name and specialty (line 14). In line 15, Leon raises a polar question aiming to allocate/confirm her task (*you're doing the primary survey* \uparrow). Polar questions in declarative form with a rising intonation have often an 'echoic' function, aiming to confirm an answer already given (Gunlogson 2002). In contrast to the question in line 1, where the question was in interrogative without rising intonation, this question is uttered in declarative with a rising intonation. This is illustrative of the variation in our data and points to the limitations of relying on strict morphosyntactic or intonation-related criteria for the definition of questions. Following the same pattern, in lines 20-21, after Maria's introduction of her name and specialty, Leon articulates the expected task from Maria (IV access) and raises, again, a polar question in declarative form (*you're good with that* \uparrow): this question can be also read as echoic.

Overall, Leon displays his epistemic primacy throughout the interaction with questions that function as claims of epistemic primacy, rather than requests of information (cf. Table 1), and by positioning self in the team leader's epistemic territory. His well-orchestrated holding of the floor through mainly polar questions restricts the team members' epistemic rights, as the preferred responses in second position are responsive actions. Note also that all his questions directly address specific team members rather than leaving the floor open to the team. The yes/no window allowed by Leon's polar questions and the declarative syntax when checking with team members that they are happy with their tasks (lines 20-21, 24-25) leave little space for delays and negotiation and help with the flow, as there is no obvious interactional trouble. In doing so, Leon's straightforward style meets the team's expectations of performance in this high-risk context. In ad hoc conversations following the case, the team members commented that Leon is 'a good leader' and 'he shows he has control of the situation'.

4.2.2. Safe study

We now draw on an excerpt from the *SaFE* study to illustrate the consistency of the identified patterns (see also Mesinioti et al. 2020).

Excerpt 2 is drawn from the *SaFE* dataset, with the team scoring high in clinical performance (for the clinical ranking, see Siassakos et al. 2011). The excerpt starts with the senior doctor's entrance in the emergency room, where the rest of the team is already trying to handle the emergency. Similar to the overlapping talk preceding Leon's turn in Excerpt 1, the room is very noisy here, too.

Excerpt 2

Key for the excerpt: SD: senior doctor; JD: junior doctor; SM: senior midwife; JM: junior midwife.

1.	SD	((enters the room)) hello	[everyone
2.	JD		[can I have a blood pressure
3.		please	
4.		((3.0 multiple overlaps))	

5.	SD	shh shh ((hushes team and makes a relevant gesture while
		heading to the right bedside))
6.		WHAT'S GOING ON
7.	JM1	this is Lucy (.) she's gone into spontaneous labour
8.		five centimetres half an hour ago she's ruptured her
9.		membranes ((continues with the medical update))
10.		((several lines omitted)
11.	SD	OK (.) mag sulf^ (.) getting there↑ ((she turns
12.		to the equipment table where SM2 and JD stand))
13.	SM2	[yep we're nearly there
14.	JD	[two secs
15.	SD	[(indec) and you Claire if you could start drawing up
16.		the infusion (.) [again er
17.	JM1	[yeah okay
18.	SD	a gram an hour

The senior doctor enters the noisy room and greets the team when she is interrupted by the junior doctor, who requests a blood pressure reading by raising a question (lines 2-3). In doing so, the junior doctor does not address a specific member of the team. This is a consistent pattern across our data, where less senior members use the collective pronoun we and avoid direct task allocation, perhaps as a way of mitigating their request (cf. Table 1). The team leaders, on the other hand, directly address specific members when allocating a task either verbally or in an embodied way and use questions that restrict the recipients' epistemic rights as shown in excerpt 1. In this case, the junior doctor's attempt is not successful, as none of the team members, who continue overlapping, respond.

In lines 5-6, the senior doctor attempts to claim control of the situation by hushing the team, making a relevant gesture (Figure 2), and raising a question in louder volume (*WHAT'S GOING* $ON\uparrow$) as did Leon in Excerpt 1 at such an early stage to claim the floor. As it has worked for Leon before, the 'fight for the floor' is won by the team leader here, too, as in lines 7-9 the junior midwife provides her with a full update of the situation, while the overlaps and high levels of noise stop. In raising this question, the team leader moves to the right bedside as shown in Figure 2.

Figure 2. Senior doctor's gesture and positioning in the room upon entry.

Insert Figure 2 about here

We have identified (Mesinioti et al. 2020) the professional roles' material zones in the *SaFE* room (Figure 3): the bedsides have been identified as the team leaders' material zone. The senior doctor thus moves to the team leader's epistemic territory in the process of claiming control of the floor, occupying a central position.

Figure 3. Team leader's material epistemic territory in the SaFE data.

Insert Figure 3 about here

Going back to Excerpt 2, the question in lines 5-6 is an information request. The team leader, however, hushes the team and makes a hand gesture restricting the team's right to talk. These, combined with the transition into the team leader's material epistemic territory and the louder

volume, contribute to an effective floor-claiming utterance with the team members acknowledging her presence and authority and orienting towards answering her question. Questions that request information can also function as control mechanisms – although less frequently – and are raised by the team leaders in our data only at the initial stages of the teams' interactions. At these early stages, requests for information are legitimised as they are crucial for the decision-making process. Overall, questions have spatial and temporal dimensions (Mesinioti 2022; Sarangi 2010) and are subject to professional routines which need to be considered in order to decipher their pragmatic functions in the situated interaction.

In line 11, the senior doctor displays her epistemic primacy with an utterance which reflects, in structure, the team leader's question in line 1, excerpt 1: OK in turn-initial position prefacing a topic shift; emphatic pause; a polar elliptical question shifting the topic to the magnesium sulfation and simultaneously allocating the task for its preparation (mag sulf (.) getting there \uparrow). The question is multimodally accomplished and targets, as potential addressees, the junior doctor and senior midwife 2, as, in asking the question, the senior doctor turns her torso and looks at the equipment table, where only those two members stand (Figure 4).

Figure 4. The multimodal accomplishment of senior doctor's task allocation.

Insert Figure 4 about here

Indeed, this multimodal floor management is successful as in lines 13-14 the junior doctor and senior midwife 2 are the only ones answering in the affirmative, acknowledging the task allocation. The senior doctor holds the floor in lines 15-16 with another question that serves as a

direct task allocation (*and you Claire if you could start drawing up the infusion*) and receives a positive answer by junior midwife 1. Once again, the nature of the senior doctor's question places junior midwife 1 in second position, orienting her towards a responsive action. In contrast to the junior doctor's question in lines 2-3, the senior doctor here addresses a specific member of the team, as is the norm for the team leaders in our typology of questions: this results in an immediate uptake and no evident interactional trouble.

To sum up, as was the case in excerpt 1, the team leader controls the floor and coordinates the team with questions that tend to restrict the exercise of the addresses' rights and aim to directly allocate tasks (lines 11, 15-16). She also requests information (line 6) and sets the topical agenda (line 11), doing so by raising the volume of her voice when disruptions occur and by positioning self in the team leader's material epistemic territory – the bedside. The repeated questions allocating tasks and the directives themselves, primarily issued by the team leader, presumably signal that she positions self as possessing the authority for uttering them (Schultze-Berndt 2017). The team's uptake illustrates that the team members recognise the asymmetry in their epistemic rights and re-affirm this positioning. Incongruent epistemic actions, however, are possible.

We now turn to cases in which lack of epistemic primacy is mitigated by other team roles who claim alternative epistemic rights.

4.3. Epistemic struggles and claims of alternative epistemic rights

Epistemic primacy is not a priori assigned to the team leaders and statically re-affirmed by the rest of the team. Epistemic struggles over authority are an integral part of regulated and asymmetrical professional encounters (e.g., Lutman-White and Angouri 2022). Excerpt 3 is a case in point.

The excerpt is from a team that scores high in clinical performance. In contrast to excerpts 1 and 2, the senior doctor does not display his epistemic primacy, nor does he maintain control of the situation. The excerpt is illustrative of other team members occupying different roles stepping in and 'copying' the team leaders' discursive strategies for doing leadership.

Excerpt 3.

Key for the excerpt: SD: senior doctor; JD: junior doctor; SM: senior midwife; JM: junior midwife.

```
1.
   SD
          do we know the situation for theatre (3.0)
2.
   SM2
          we have to decide what's going on [(indec)
3.
                                           [NO REPLY
4. SM2
          [doesn't say
5.
          [thank you (.) excellent (.) [okay (.)
   SD
6.
  SM2
                                      [next day-
7. SD
                                               -so that's\uparrow (.)
8.
         what-
          ((7.0 multiple overlaps - they all overlap each other))
9.
10. JD
         WE'LL HAVE to make a decision here
11. SD
         when we make a decision (.) yes (.) but it would be
12.
         nice to just take the blood pressure (.) result-
13. SM2
                                                        -can
14.
         15.
          ((several lines omitted))
16. SD
          I need to (.)
17. JD
          Sarah's got the-
18. SD
                        -why \uparrow -
19. JD
                             -she's got the-
20. SD
                                           -so who's got the
21.
          (.) I have no information on this [lady
22. SM2
                                           ſno
```

23. SD can I just[↑]-24. JD -yeah 25. SD [here 26. JM2 [are you alright [there love↑ (indec) 27. SD [who did all of these these these these these the set of the set o 28. JD this was um (.) Jenny who did it before I arrived 29. SD OK 30. JD the last 1- um-31. SD -and what-32. JD -time we haven't got a time (.) what time did the VE happen 33. SD

Excerpt 3 is drawn from a late stage of the episode, where the senior doctor is in the room for some time now and the team has spent time together trying to figure out what is going on. In contrast to excerpts 1 and 2, where the team leaders did not raise questions requesting information (Excerpt 1) or did so only at early stages (Excerpt 2), all the senior doctor's questions here serve the pragmatic function of requesting information (lines 1, 20, 27, 31, 33). There is not even a single question indicating epistemic primacy: if anything, the senior doctor's questions here can be read as his attempt to resist epistemic rights and any responsibility tied to these (cf. Table 1). See, for instance, line 21 (*I have no information on this lady*), through which the senior doctor declares a K- status.

The senior doctor deviates from the identified control mechanisms not only in relation to the questions' pragmatic functions, but also their modes of utterance: none of the questions addresses a specific member (see the use of *we* in line 1). We have shown earlier how effective team leaders address specific team members and this resulted in good interactional flow in excerpts 1 and 2. The situation is very different here. The senior doctor's attempt to address the whole team results in no response and a long pause in line 2, while in line 3, senior midwife 2 takes the floor, giving no recognition to the senior doctor's primacy, as she leaves his question

unanswered and introduces a new topic. The senior doctor's use of the personal pronoun *we* may display team membership but at the same time, as it is combined with all the hesitation markers (lines 7-8, 20-21), incomplete utterances (lines 18, 23, 31), and overall lack of control, none of the team members feels obliged to answer.

Taken together, the incomplete utterances, the hesitation markers, the questions serving the pragmatic function of requesting information and leaving the floor open to the whole team, as well as the lack of embodied cues targeting certain members, result in interactional trouble. This causes problems in the interactional flow, as evidenced in the team's uptake: see, for instance, how the senior doctor is repeatedly interrupted (lines 8, 12, 18, 23, 31). We interpret these interruptions as competitive, and as such, distinguishable from overlap ordinarily occurring in multi-actor encounters (e.g., lines 5-6 and 21-22), as the senior doctor is the one quickly dropping out in all those instances. The 7-second-long overlap in line 9 is also unusual for this emergency context and indicates interactional trouble.

While adopting the questioning mechanisms of junior professional roles, the senior doctor also positions self in an unexpected epistemic territory. Figure 5 is a screenshot of the emergency room in lines 11-12, right before the senior doctor's interruption by senior midwife 2, who introduces a new topic (line 13).

Figure 5. Screenshot of the emergency room in excerpt 3.

Insert Figure 5 about here

The senior doctor in Figure 5 positions self in a marginal material zone, somewhere between the bed and the equipment table (cf. Figure 3). Combined with the use of questions, this positioning between the epistemic territories could be interpreted as another indicator of the senior doctor's not claiming epistemic rights. The only staff member in a central position, close to the patient, is senior midwife 2, at the right bedside, while senior midwife 1 and the junior doctor are at the equipment trolley (the other junior midwife is at the equipment table, not shown in Figure 5).

The senior doctor's deviation from the identified ways of indexing epistemic primacy results in his disclaim of a leadership position, leaving it open to other staff members who attempt to compensate for this loss. Consider, for instance, lines 2 and 10 (*we have to decide what's going on*; *WE'LL HAVE to make a decision here*), where senior midwife 2 and the junior doctor interrupt the senior doctor to shift the topical agenda to the need for a decision. Note, also, the junior doctor's raise of volume in line 10 to claim the floor, a strategy that we also observed earlier for 'fighting' for the floor in excerpts 1 and 2. These kinds of explicit discussions regarding decision-making processes are not common in our contexts, which require quick action and the team is more oriented towards task-related communication. However, this is not the case here, where the senior doctor fails to construct an authoritative persona. This may be the reason why the team members step in and explicitly verbalise the need for a decision, using twice the modal verb *have to* as an intensifier (lines 2 and 10).

Senior midwife's 2 and the junior doctor's setting and shifting of the topical agenda (lines 2 and 10), combined with their interruptions of the senior doctor (lines 9, 19 and 32), their attempts to allocate tasks (line 13-14), and senior midwife's 2 positioning in the bedside, are all prototypical

ways of *doing* leadership (cf. excerpts 1 and 2). This, in turn, could be one of the factors contributing to the team's high clinical performance. We discuss the inferences drawn from our study in the next and final section.

5. Discussion and concluding remarks

Our analysis has shown that epistemic primacy is intertwined with doing leadership and that it is an interactional achievement situated in place and time. Although the institutionally defined team leader is in the privileged/regulated position as the controller of the encounter, other professionals occupying different roles also claim (alternative) epistemic rights to fill in a team leader's gap by drawing on team leaders' discursive strategies. This strengthens our case, in line with IS literature, for epistemic primacy as accomplished in the situated interaction. This interactional accomplishment is both specific to its interactional circumstances and shared in the wider interactional environment and the participants' institutional order as shown in our data.

Specifically, our analysis has shown that medical professionals orient towards a stable set of strategies for claiming epistemic authority. The institutional, and legal, status of the team leader plays a significant role in who has the right/is expected to say *what to whom when*, in medical emergencies. Authority is not, a priori, claimed, projected, and assigned on status only. To the contrary, it is a dynamic and ongoing process, which is situated and embedded in the present and past moments of a team and takes place in the material environment of the emergency room. The professionals however do not start from a 'tabula rasa' interactional context. Multiple factors, such as the professionals' experience, years spent in the specific unit, as well as the number of

times certain members have worked together, come into play. The designs available signify control and authority in ways appropriate in their institutional and sociocultural context. This adds and expands on work by IS scholars who have argued that professionals negotiate leadership in situ while also re-enacting and perpetuating linguistic behaviours that they associate with control in line with the affordances of their relationships.

We have seen that the team leaders display epistemic primacy by mobilising questions which restrict the addressees' epistemic rights and serve the functions of allocating tasks, setting the topical agenda, and seeking confirmation. This meets their own and the team's expectations of what team leaders (should) do to claim primacy. In both contexts, the team leaders are positioned in central material zones, which allow them to maintain an overseeing role as appropriate for the layout of the respective emergency rooms. Furthermore, the team leaders assume positions that enable them to display professional expertise, which is directly connected to epistemic primacy.

That the emerging patterns are consistent across the datasets indicates that the co-investigation of non-simulated and simulated data is an asset of the analysis and something that can be further discussed in the field.

The deviation from designated material zones is often a sign of struggle and is impacting the team performance but it also allows for other members to claim epistemic rights. Struggle manifests as linguistic trouble when institutional authority and displays/claims of primacy are not aligned (excerpt 3). In this case, other team members often claim alternative rights, always drawing on the same use of linguistic devices and position in the material space. These

negotiations of epistemic primacy, as well as epistemic fights, are systematic in our data and show a process by which different stages of the event afford different displays and challenges between the roles and their epistemic authority. Despite drawing on two contexts with similarities and differences, the dominant patterns cut across consistently and the findings show that they are mobilised in a particular moment in time and space. The comparison of findings across those encounters, in analytically and theoretically systematic ways, can enhance the potential applicability of our findings to other emergency contexts, too.

The typology we introduce here provides a basis for future work to build and expand on the multimodal use of control mechanisms in interaction in medical emergency settings. This adds to existing IS leadership scholarship and, simultaneously, provides an opportunity for IS scholarship, and linguistic work more broadly, to feed into medical studies on teamwork and emergency medicine leadership in particular.

We propose here a multilevel model for the analysis of medical emergency encounters (Figure 6). This brings together a detailed analysis on the relationship between the role and use of linguistic devices associated with the control of the conversational floor, an understanding of the context and historicity of the teams, and their institutional context.

Figure 6. A framework for the study of epistemic primacy in medical emergencies.

Insert Figure 6 about here

Our approach can make a solid contribution to our understanding of the process by which leadership and epistemic primacy are *co-constitutive* in the daily reality of medical teams. Here, we focused primarily on the linguistic analysis of team enactment. A strong component of the design of our work, however, is the analysis of the medical outcomes of the teams and the clear patterns between clinical results and (lack of) interactional trouble. We argue, therefore, that a medical analysis of the outcomes of the teams alongside a linguistic analysis sheds light on patterns of linguistic behaviour and can feed into medical training and medical research more broadly. This is an approach that foregrounds the significance of multidisciplinary work and a direction for future health linguistic research.

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Figures & tables

Figure 1.

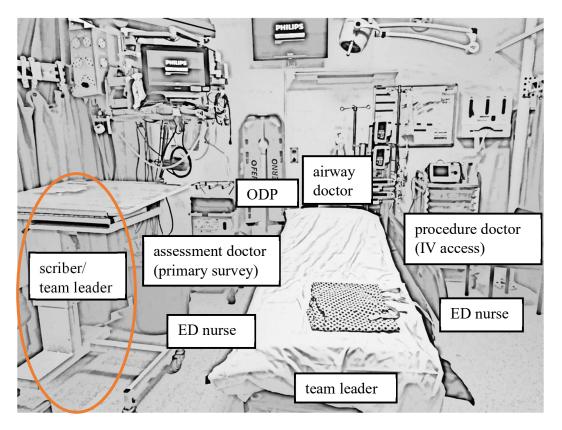


Figure 2.



Figure 3.

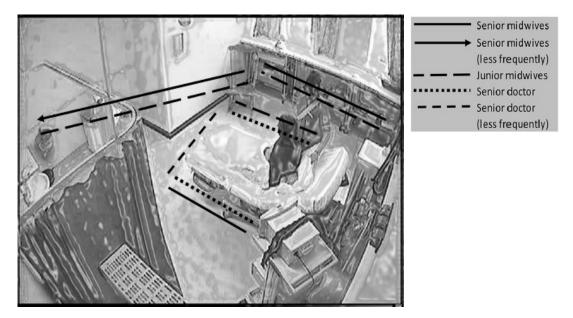




Figure 5.

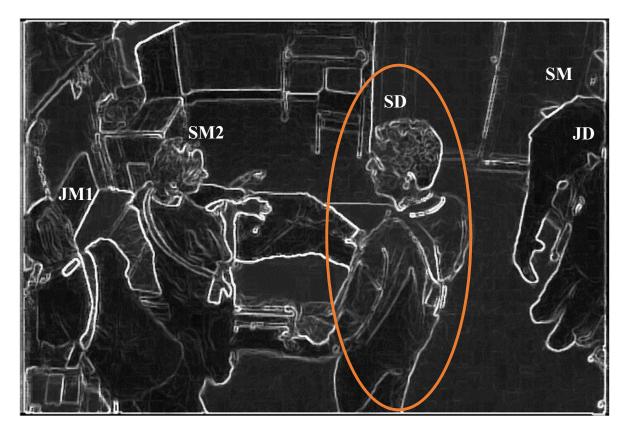


Figure 6.

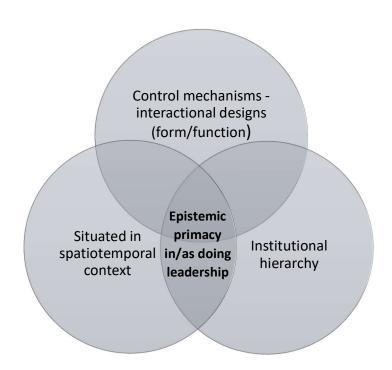


Table 1.

	Pragmatic function		Examples		Main
K -			TLCT	SaFE	agents
Resisting epistemic rights	seeking advice/ guidance on how to perform the task		<i>purple or green</i> ↑ (referring to which syringe to use))	do I need a thingy↑	junior professional roles (ED nurses/ junior midwives)
Neutral to resisting/ claiming epistemic rights	requesting information about earlier interventions		<i>have they given</i> <i>paracetamol</i> ↑ ((the paramedics))	have we called for any extra help at a:ll↑	
	diagnostic questions/ assessing patient's condition within the team		are we happy with the airway1	what's the blood pressure now↑	
	task	not targeting a specific staff member	shall we get some oxygen on please↑	can somebody get me a two way cap please↑ (SM)	team members other than the team leaders
Claiming epistemic primacy	allocation	addressin g a specific staff member	can I get you to do access and then you to do the primary↑	okay can you write that (.) can you write that down mag sulf (SD)	team leaders
	setting the topical agenda		can we (.) possibly step in and just pre- brief	mag sulf (.) getting there f	team leaders
	offering assistance		guys do you need a hand with the cannula or you're OK↑	do you want me to take over↑	senior professional roles only
	seeking confirmation		you're OK if I just tell them to leave↑ ((some members of the team that are not needed anymore))	you're going to draw the mag sulf aren't you↑	team leaders

Table 2.

Total number of questions raised	82
Questions requesting	51
information	
raised by the team leader	21
raised by other team members	30
Questions indicating	31
epistemic primacy	
raised by the team leader	(27)
raised by other team members	4

Appendix

Transcription conventions

I	Overlap onset.	
(.)	Pause shorter than 0.5 seconds.	
(X.0)	Pause about X seconds.	
(())	Notes.	
-	Interruption.	
:	Sound stretching.	
(word)	Uncertain transcription.	
1	Questioning intonation/rise in pitch.	
LOUDER	Voice volume louder than surrounding speech.	

Notes

1 Part of the excerpt appears also in Mesinioti et al. 2022, where a reading from a different angle

is provided.

2 Transcription conventions are provided in the Appendix.

3 In line with a rich body of CA work, we consider strings of overlaps and interruptions, long

pauses, and hesitation markers as indicative of interactional trouble.