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Saving lives, saving face: mitigated directives during out-of-hospital cardiac arrest resuscitation

Abstract: This paper investigates the occurrence and structures of mitigation of directives issued during the early minutes of out-of-hospital cardiac arrest resuscitation attempts, drawing on a dialogue analysis approach based on Searle's Speech Act Theory. We transcribed the first 5 min of 40 pre-recorded, real-life resuscitation attempts. Line-by-line dialogue annotations, based on a bespoke dialogue annotation scheme, were applied to the dialogue transcripts to extract verbal orders or directives. Results revealed that directives made up about 25 % of the dialogue in these early minutes of real-life cardiac arrest resuscitation attempts. Three quarters of all directives were mitigated to an extent, forming a continuum of mitigated strategies. Some structures of mitigation carried ambiguous meanings and were found to delay target actions. The use of mitigation strategies also added length to directives, thus consuming extra time during the resuscitation attempts. Using softeners and affective terms appeared to be the best way to counterbalance the social imperative of politeness, with the communicative pressure of optimal efficiency.

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1 Introduction

The term *mitigated speech* refers to words used in such a way as to lessen the threat to the hearer. It is an indirect way of conveying meaning – which increases the likelihood of misunderstanding – and has been shown to play a part in adverse outcomes (Gladwell 2008). For this reason, high-risk domains such as the military and aviation discourage mitigated speech in favour of direct statements.

In the medical domain, clear, unmitigated communication is highly advocated, particularly for issuing instructions or directives during medical procedures. Hardie et al. (2020) suggested avoiding potentially ambiguous phrases during surgery, as these can result in waste of time or other harms. Similarly, time-sensitive medical emergency contexts, such as cardiac arrest resuscitation, require clear and succinct directives.

There is currently limited data on the use of directives during cardiac arrest resuscitation. Scarcer still are data about how paramedic teams give instructions during real-life pre-hospital cardiac arrest resuscitation. Previous studies on resuscitation communication mostly concentrated on in-hospital resuscitation and simulated scenarios (Calder et al. 2017; Hunziker et al. 2010; Lauridsen et al. 2020). As such, communication protocols are typically formulated based on findings from in-hospital procedures and simulated exercises.

However, unlike hospital settings, pre-hospital medical teams, often comprising paramedics, do not have a pre-determined work area. A resuscitation attempt in the middle of a field or in a narrow passage presents different constraints than a resuscitation attempt in a hospital room. At the same time, much like in-hospital medical personnel, paramedics are also expected to lead multi-disciplinary teams that could consist of different members every time (Shields and Flin 2013). In view of the lack of studies in this context, there is a need to investigate real-life paramedic communication during pre-hospital resuscitation attempts.

Drawing on the understanding of mitigation and indirectness as outlined, we explore how paramedics attempt to maintain politeness in a time-constrained, high-pressure environment. The findings will present some insights into the way directives are verbalised in the pre-hospital cardiac arrest resuscitation context. This study addresses the following questions: (1) What are the prevalence and types of mitigated directives in pre-hospital resuscitation team dialogue, and (2) What structures or forms do mitigated directives take during these real-life resuscitation attempts?

2 Literature review

2.1 Mitigated speech and politeness

The term *mitigated speech* is closely related to Searle's (1975) *indirect speech,* which emphasises the distinction between what is said and what is implicated. The focus of indirect speech is on the linguistic form of the utterance and its various versions that carry the same intention or meaning. Indirect speech, therefore, is very much linked to *pragmalinguistics* – the linguistic resources that mitigate face-threatening acts – either through the use of paralinguistic signals (such as smiling or touching the hearer to signal non-aggression) or through mitigation strategies such as softening commands with linguistic politeness markers. The use of the latter to avoid seeming rude is also known as *absolute politeness.* This is different from *relative politeness*, which depends on culture, social distance, power status, and other social indicators.

Absolute politeness does not necessarily mean that an utterance is polite in every manner, as it does not take social indicators into account (i.e., whether a topic of conversation is considered a polite or rude topic in a given community, or whether it is polite to disagree with someone who is older than you). Rather, it indicates the level of politeness, or more accurately, the level of indirectness contained in a language that allows the formulation of different linguistic strategies or forms to convey a particular illocutionary act (Leech 1983). The many ways an apology can be formulated, for instance, falls under the pragmalinguistic domain. In a similar manner, the use of words or phrases that make up different ways to request something or direct someone, also belongs to the pragmalinguistic domain.

In politeness theory, the act of instructing someone to perform an action is considered a face-threatening act, in that it constitutes an imposition on that person's autonomy (Brown and Levinson 1987). In this kind of utterance, speakers typically utilise linguistic mitigators. These mitigators, or mitigating devices, work to lessen the directness of an utterance. For instance, (i) is a direct order, whilst (ii) is a mitigated one, containing the linguistic mitigators of "If you don't mind…" and "… could you…":

 (i) Speaker: Write a memo to the director.
(ii) Speaker: If you don't mind, could you write a memo to the director?

In polite everyday conversation, it is common to mitigate directives, such as requests, commands, and instructions. However, in high-risk, time-constrained procedures, mitigation may cause uncertainty about the speaker's intended meaning, which is potentially dangerous in this kind of setting.

2.2 Impoliteness and directives in the medical domain

The way directives are phrased can affect outcomes. The change of phrases used in cardiopulmonary resuscitation (CPR) directives, from "Push hard, at least 5 cm" to "Push as hard as you can" and "Push 100 times a minute 5 cm deep" to "Push hard and fast", has been found to improve motivation and CPR performance (Leong et al. 2021; Mirza et al. 2008; Rasmussen et al. 2017). There were also fewer hand placement errors for CPR when the recommended instruction was changed from "Kneel beside the chest. Place the heel of your hand in the centre of the chest with the other on top" to the more specific "Lay the patient's arm which is closest to you, straight out from the body. Kneel down by the patient and place one knee on each side of the arm. Find the midpoint between the nipples and place your hands on top of each other" (Birkenes et al. 2013: 2).

Directives are crucial in medical communication, although in doctor-patient interaction, directives are not considered a major category, as doctors focus on information giving (Cené et al. 2017). Even though doctors also instruct their patients to perform actions (e.g., "Open your mouth"), the frequency of such usage is generally low. For instance, directives only made up approximately 4 % of physician talk in McNeilis' (2001) study, and 7 % in a study by Roter et al. (1997). Directives are more frequently used in medical team communication that involves procedures, such as surgery (Parush et al. 2014). A study that investigated real-life in-hospital resuscitation revealed that 18.3 % of the communication also comprised directives (Calder et al. 2017).

The way directives are verbalised can impact outcomes. Impoliteness in communicating directives is detrimental to medical team collaboration. In one study, surgeons who were condescending and disrespectful or had a brusque way of imparting commands were found to impede positive flow in the operating room (Skråmm et al. 2021). Outright rudeness has also been shown to negatively impact medical team performance (Riskin et al. 2015).

Because of these negative consequences, medical practitioners might mitigate their directives to avoid being rude. Nonetheless, mitigation can lead to ambiguity and cause unwanted implications. Team members might not be clear as to which communicative action the speaker is trying to convey, thus resulting in time delay during a medical procedure (Ivarsson and Åberg 2020). Utterances such as "Do you mind if I show you this?" are considered unclear and should be avoided during surgery to reduce ambiguity (Hardie et al. 2020). Many researchers have suggested that medical practitioners use short and clear directives. For instance, the utterance "We should think about intubating" is recommended to be replaced with "Intubate the patient now" (Brindley and Reynolds 2011: 157). In a similar vein, unmitigated directives such as "I make the ventilation and you are in charge of chest

compression!" and "We defibrillate now!" have also been proposed (Hunziker et al. 2010: 1087). Moreover, the use of unmitigated directives has been linked to good clinical performance (Mesinioti et al. 2020).

That said, directives that follow the suggested "short, simple, and clear" path may not be consistently effective compared to the mitigated ones. A simulation study showed a positive relationship between mitigated directives and high-performing medical trainees, suggesting that absolute politeness when giving instructions assists in performance and does not interfere with understanding (Chałupnik and Atkins 2020). This may be due to highly conventionalised forms of requests such as "Could you clean this up?" or "Would you mind helping me?", which are very familiar and easily understood by hearers (Blum-Kulka 1987). In addition, as requests are considered more polite than direct commands, this type of mitigated directive may be more appealing to the speakers.

Currently, the resuscitation domain has no obligatory standardised phrases for giving directives. Hence, the linguistic phrasing of issuing a firm-but-polite directive will depend on the speaker. The recommendations of phrases to use are also essentially based on in-hospital scenarios, simulation findings and training observations, and telephone conversations (Riou et al. 2018, 2020). In addition, there is scant data regarding the verbalisation of real-life resuscitation directives in the pre-hospital context, even though directives occur frequently in this context, and the parameters for the communication categories are not clearly delineated based on any linguistic framework. To date, studies that utilised dialogue annotation tools developed based on linguistic frameworks – for example, the Roter Interaction Analysis System (Roter and Larson 2002) and the Generalised Medical Interaction Analysis System (Laws et al. 2013) – have concentrated on doctor-patient communication.

The use of a dialogue annotation tool can therefore uncover specific linguistic features utilised during conversations, which reflect how paramedics counterbalance the social imperative for politeness with the communicative pressure for optimal efficiency. Our study establishes some grounds that would be useful to support further research in this area. To the best of our knowledge, there has been no dialogue annotation study that examines non-pre-scripted dialogues of speakers who have been strictly trained to follow a set of procedures in the high-risk, time-constrained setting of pre-hospital cardiac arrest resuscitation.

3 Method of study

The data for this study was part of an ongoing training and evaluation exercise for the Resuscitation Rapid Response Unit, called the 3RU, which is based in Edinburgh, United Kingdom. The 3RU paramedics are a unit of highly trained paramedics who

serve as the elite tier of experts for pre-hospital cardiac arrest cases, and are therefore recognised as the resuscitation team leaders on scene. The data was collected from body cameras worn by 3RU paramedics during pre-hospital cardiac arrest calls.

Forty pre-hospital resuscitation videos were recorded. The current paper looks at the first 5 min of each video, timed starting with the first word uttered by the 3RU to the resuscitation team upon reaching the scene. The total number of utterances for the first 5 min for the 40 videos was 5,365.

The decision to focus on the first 5 min of resuscitation rather than on the whole resuscitation attempt is supported by two considerations. First, previous research suggests that the first 5 min of resuscitation are crucial in determining the overall quality of the procedure (Hunt et al. 2008; Wik et al. 2005), indicating that the structure during the early minutes is worth concentrating on. Second, previous research on dialogue analysis has shown that a short duration of dialogue analysis is sufficiently reliable to reflect the general dialogue patterns in a medical scenario (Roter et al. 2011).

3.1 Dialogue annotation scheme as an analytical tool

The current study uses dialogue annotation to allow fine-grained examination of dialogues from transcripts to reveal the linguistic functions and the semantic content of the resuscitation discourse.

Dialogue annotation schemes, sometimes also called coding schemes, coding systems, or dialogue annotation systems, allow for the categorisation and frequency counts of communicative functions and semantic content based on a defined unit (e.g., a single thought, a single speech act, a full turn, etc.), which can then be quantified for statistical purposes. A bespoke dialogue annotation scheme, called Dialogue Annotation for Resuscitation (DARe), was developed for this purpose (Marzuki 2020).

DARe is an amalgamation of three existing dialogue annotation schemes, refined through iterative analysis of the paramedic dialogue data, and suggestions from pre-hospital resuscitation experts. The basis of this annotation scheme is Searle's (1975) speech act theory. It is a highly comprehensive tool to capture resuscitation dialogues. It consists of two main components: the first captures linguistic (speech act) functions or *communicative functions*, while the second captures semantic content or subject matter, called *threads*. The communicative function component contains 22 main categories and 14 sub-categories, whilst the thread component contains 21 categories.

To analyse the data, the videos were first transcribed, and the transcripts were reviewed by a medical expert for accuracy. The transcripts were then segmented into units of speech acts. In the following example, eight different units (separated with (|) and marked with superscripts [1] to [8]) were established:

Utterance 67–72:

We need help,[1]| she, she's Margaret who was, 88,[2]|she was uh,[3]|staff couldn't wake her up for her breakfast this morning[4]|found her not breathing and kinda cold,[5]|and starts CPR.[6]|She was treated for a recent chest infection[7]| And that's a rhythm check[8]|

Each unit was then annotated for its main communicative function, sub-function category, and its content. Reliability was tested using both percent agreement and Cohen's kappa. Communicative function coding was inter-annotated by another English language expert (percent agreement: 70.2 %; Cohen's kappa: 0.63), and content coding was inter-annotated by an experienced paramedic (percent agreement: 74.8 %; Cohen's kappa: 0.69). These scores suggested moderately substantial agreement (McHugh 2012). The current paper only reports findings from the *Directives* communicative function category, called *Action-directive* in DARe and defined as follows:

> Utterances that directly influence the hearer's future non-communicative actions. This function creates an obligation that the hearer does the action unless the hearer indicates otherwise (unable to comply or refuses to).

To investigate the level of explicitness, the *Action-directives* were analysed based on their directness or opaqueness (Blum-Kulka 1987) and sub-categorised into four pragmalinguistic structures, i.e., various forms that one can utilise when attempting to convey the same meaning, based on the linguistic resources of the language used (Leech 1983). A direct *Action-directive* is considered the most explicit (hence, the least opaque), followed by request, suggest, and allow. Direct *Action-directive* utterances only contain the instructions, i.e., the action that the speaker wants the hearer to do. This may be mitigated with softeners like "please" (e.g., *Take this **please***), but the utterance is still considered more explicit or direct compared to a request that is given in the form of a question (e.g., *Can you take this?*), a suggestion (e.g., *Let's take this*), or an allowance (e.g., *You can take this*). Table 1 shows the descriptions and examples of each sub-category of *Action-directive*.

DARe is constructed chiefly for analysing the discourse in the study's context rather than to challenge the validity (or superiority) of other dialogue annotation schemes. To our knowledge, DARe is the first dialogue annotation scheme that has been developed specifically to capture resuscitation content.

3.2 Ethical considerations

A video audit programme using body cameras (VB-200 VideoBadge® from Edesix, a Motorola Solutions company) has been routinely used for pre-hospital cardiac arrest resuscitation audits in Edinburgh since 2012. Recordings of resuscitation procedures

Table 1: Sub-categories of *Action-directive* and examples.

Sub-categories of *Action-directive* (4 sub-categories)		
Function	**Description**	**Example**
DIRECT/INSTRUCT	Utterances that directly command/order the hearer to do an action	"Stand clear, shock" "Secure it for me please"
REQUEST	Utterances requiring the hearer to perform an action. Note that this function is usually associated with conventionalised structures/idiomatised pragmalinguistic structures	"Can we set the BP a cycle for every two-and-a-half minutes?" "If you can keep going at the moment"
RECOMMEND/ SUGGEST	Utterances couched so as to suggest that it is the speaker's advice, not necessarily an order	"And let's start thinking about execution" "Okay when you're ready we can pause for a bit"
ALLOW	Used by the speaker to give permission to do an action. It implies that the speaker has control over the hearer's behaviour (in contrast, the speaker can also refuse permission for the action)	"…and I'll let you get the cannula and stuff" "You can take this"

are securely stored, reviewed, and subsequently deleted according to a pre-set deletion policy. A pre-defined audit team reviews the videos for quality improvement purposes only. For the current project, videos were redacted for de-identification, leaving the audio intact for transcription.

Frontline Scottish Ambulance Service staff and staff partnership organisations are familiar with the audit programme. No further individual consent to recording during resuscitation is required. The South East Scotland Research Ethics Service provided written confirmation that no additional Ethical Approval was required. The study was also approved by the Scottish Ambulance Service Research Governance and Innovation Group and the University of Edinburgh's School of Philosophy, Psychology, and Language Sciences ethics review panel. There were no active public or patient involvement in this research. All paramedics involved agreed to the study.

4 Results and discussion

4.1 Types of action-directives

In the first 5 min of resuscitation attempts, *Action-directive* utterances totalled 1,234, making up 23 % or almost one quarter of the total utterances (n = 5,365) by the

paramedics. These included 12 *Action-directive* utterances given to non-team members, which are included because these directives formed part of the team dialogues during the procedure (e.g., bystanders who were helping with chest compressions).

The prevalence of directives in our result was higher than the real-life resuscitation communication (18.3 %) seen in Calder et al. (2017), but interestingly closer to their simulated resuscitation communication (23.6 %). This could be due to one or both of these considerations: (i) the simulation data from their study contained a higher number of cardiac arrest resuscitations compared to their real-life data (which contained resuscitations for other types of emergencies such as sepsis and trauma, thus requiring different resuscitation management), and (ii) the number of participants in their simulation data were closer to the number of our resuscitation team members. The first case implies that cardiac arrest resuscitation communication produces a higher number of verbal directives, whilst the second case implies that the number of resuscitation team members affects the frequency of verbal directives.

Results showed that the most frequent sub-category of *Action-directive* was the direct instruction, which occurred 882 times out of 1,234 (71.5 %). Instructions that were given in the forms of requests and suggestions were less frequent (15.7 % and 9.6 % respectively). This result showed that conventionalised pragmalinguistic structures such as the ones shown in the examples below, are indeed less utilised during resuscitation (although they were not rare). Note that paramedic names are replaced with P1 or P2. The distribution of all sub-categories, along with the forms, is given in Table 2.

(1) *Examples of request*
     VID 212, utterance 99:   P2 go and pass me a cannula over would you
     VID 302, utterance 103: Can you pass it over, P2?
     VID 336, utterance 97:   Could you get some pack please
     VID 412, utterance 23:   Can we grab a bit each?
     VID 417, utterance 73:   If you can do it from there if you're okay
     VID 420, utterance 33:   Can you pass me a sharps box?

(2) *Examples of suggestion*
     VID 193, utterance 50:   Okay let's just do a rhythm check once we get
                              plugged in
     VID 197, utterance 17:   Shall we get him on this first?
     VID 199, utterance 73:   Probably a size, probably a size 8 tube
     VID 200, utterance 106: Shall we do a wee check?
     VID 219, utterance 100: You could go up turn round and leave
     VID 244, utterance 133: P1, do you want to go and get some history?

Table 2: *Action-directive* sub-categories in the first 5 min of the 40 resuscitation attempts.

Action-directive (n = 1,234)	Sub-categories				Forms of *Action-directive*			
	DIRECT	REQUEST	SUGGEST	ALLOW	Name-specific	Without name	Question	Statement
Total	882	194	118	32	195	1,039	217	1,017
% out of 1,234	71.5 %	15.7 %	9.6 %	2.6 %	15.8 %	84.2 %	17.6 %	82.4 %
Mean	22	4.9	3.0	0.8	4.9	26	5.4	25.4
SD	9.66	3.26	2.17	0.81	3.84	10.49	3.75	9.90
Range	5–53	0–12	0–9	0–3	0–16	6–50	0–13	6–52
Median	21	4	3	1	4	25	4.5	24

The findings additionally revealed that directives given in the form of a question were less frequent than directives given in the form of a statement, indicating that the paramedics favoured straightforward directives. We do, nonetheless, note two caveats. First, even though direct *Action-directives* are the least opaque of the four sub-types, it does not automatically mean that all 882 direct instructions are free from mitigation devices like "please", which is traditionally used to signal absolute politeness. Second, since we focused on the structure of the verbal statement, paralinguistic signals (e.g., smile, wink, a pat on the shoulder, tone of voice, etc.) were not included for this analysis.

We then examined directives that contained specific names of the hearer and found that 36 out of the 40 teams used names when issuing directives. The use of name-specific directives averaged roughly five times per dialogue, although the range varied greatly (from 1 to 16 instances). Name-specific directives were also used in approximately half of the direct verbal orders (99 out of 195 were *Direct Action-directives*) and most were issued in statement forms (118 out of 195).

The bulk of the directives, however, were issued without specific addressee names. These were usually directed to team members who were either already on the task or prepared to do the required task, thus making the use of names less crucial. The examples below illustrate how an addressee was specified through the task that was being performed, i.e., chest compressions in (3) and airway/medication access in (4).

(3)   *Task: Chest compression*
        VID 307, utterance 37:   A bit harder dude
        VID 198, utterance 70:   Uh, slow down your compression just a tad
        VID 289, utterance 15:   You just keep doing CPR if you can
        VID 212, utterance 55:   Deeper
        VID 158, utterance 28:   So, if you wanna stop a second

(4)   *Task: Airway/medication access*
        VID 171, utterance 33:   You can leave his airway the now
        VID 251, utterance 100:   and let you do the airway again is that alright?
        VID 371, utterance 19:   You can just leave the airway as it is
        VID 227, utterance 68:   Uh, if you can just get a line in the now

Additionally, the use of contextual cues – for instance, verbal markers specifying the selected person, like "you" or "officer" (directed to a police officer present on scene) – coupled with either non-verbal cues like touching or pointing to indicate the location of the person, reduced the need for names. The following illustrate how addressees were specified through their current whereabouts or location:

(5)　　　*Specifying addressees through location*
　　　　　VID 188, utterance 56:　You wanna step to the side to get his other arm there?
　　　　　VID 227, utterance 32:　Just stay where you are
　　　　　VID 200 utterance 25:　You come up that way

The results also showed that paramedic teams preferred to use non-question or statement when giving directives (i.e., *Stay there* rather than *Can you stay there?*). Again, this pointed towards the awareness of avoiding opaqueness, which may be present in mitigated language.

The high frequency of direct instructions suggests that the paramedics observed in our study followed the recommendations for communicating during resuscitation, that is, keeping dialogues short and to the point (see Hunziker et al. 2010). The question is whether there is a trade-off between succinctness and absolute politeness in high-risk setting dialogues. We speculated that pragmalinguistic conventions like "Could you" or "Would you mind", which are typically applied to signal absolute politeness for requests, would not be the norm during resuscitation dialogues. Based on the overall results, this appeared to be true.

A directive can be given to a specific hearer even without the use of the hearer's name, but in a multi-party setting, using a person's name is a surer means to be acknowledged. Nonetheless, the low inclusion of name-specific directive in our data suggests that the hearer's name might not be the only way to ensure acknowledgement. Instead, the spatio-material context (i.e., material space/venue) (Mesinioti et al. 2020) and team members' whereabouts and/or current tasks, may be more useful to the paramedics when working on resuscitation attempts.

4.2 Softening commands through mitigating devices

Overall, including directives issued in the forms of request, suggestion/recommendation, and allowances, three quarters of all directives during the resuscitation dialogues (n = 662; 75.0 %) were issued with mitigating strategies. Even the *Action-directive* utterances that were verbalised as direct commands contained mitigation strategies, although the mitigation strategies for these were simpler and potentially less likely to affect the force of the directives. From the 882 direct *Action-directive* utterances, 318 were mitigated in one way or another, which means that less than half (n = 564; 45.7 %) of the overall 1,234 *Action-directive* utterances were completely given without mitigation.

Table 3 shows the types and frequencies of mitigation strategies found in direct *Action-directives*. As one mitigated utterance may contain more than one type of

Table 3: Types and distribution of mitigation strategies used in direct *Action-directives.*

	Types of mitigation			
	First person plural pronouns *(we, us)*	**Softeners** *(okay, if it's alright, please)*	**Affective terms** *(pal, mate, darling)*	**Entreaties** *(for me, for us)*
Total	148	173	55	10
Mean	3.7	4.3	1.4	0.3
Range	0–12	0–19	0–7	0–2
Median	3	3.5	0	0
% out of 882	16.8 %	19.5 %	6.2 %	1.1 %
SD	3.02	4.00	1.97	0.54

mitigation strategy, the total of the types of mitigation ($n = 386$) is higher than the total of mitigated direct *Action-directive* utterances ($n = 318$).

The most frequent type of mitigation strategy was the use of softeners. Most of these came in the form of one-word terms like *okay, right, yeah, please,* or *aye* before or after the main point, for instance:

(6)   *One-word softeners*
        VID263, utterance 73:   *Right,* we need that oxygen attached
        VID182, utterance 66:   and carry on with 30 to 2 *alright*
        VID263, utterance 108: and get this guy ready to go *yeah*
        VID193, utterance 172: *Okay*, just stop
        VID212, utterance 89:   Grab some suction *please*
        VID420, utterance 24:   I'm gonna get in where you are *aye*

Other than *please*, which is generally recognised as a politeness marker, other words classed as softeners in (6) are normally viewed as discourse markers. These are included as softeners because they help mitigate the directive by functioning as acknowledgment signals, intimating that the speaker is aware of the force of the ensuing (or preceding) *Action-directive*, i.e., that it is going to obligate the hearer into either performing the action or communicating a refusal.

Another notable form of softener is one that includes the term *happy.* Out of the 184 directives with softeners, 13 (7.1 %) were *happy*-related. Some examples are listed in (7). Whilst this form did not appear to be especially frequent, the use was quite salient as it more explicitly signalled the speaker's consideration of the hearer's state compared to softeners like *please.*

(7)　　*Use of "happy" as a softener*
　　　　VID193, utterance 100:　Everybody *happy* on three
　　　　VID289, utterance 105:　You *happy* to intubate with the AutoPulse going?
　　　　VID302, utterance 49:　Are you guys *happy* to just sit him forward?
　　　　VID411, utterance 21:　and get the story after that if you're *happy*

The widespread use of mitigation strategies in the resuscitation dialogue signals that whilst paramedics preferred short, direct instructions, they compromised by adjusting their utterances to include some measures of absolute politeness. This is similar to Chałupnik and Atkins' (2020) findings, where medical trainees during simulations were observed to use terms like "guys" to signal collegiality. It is reasonable to assume that medical team members would want to lessen the unwelcome force of directives with mitigating devices to maintain social conventions. Our data revealed that this is true even in time-constrained, high-pressure environments like pre-hospital cardiac arrest resuscitation.

4.3 Levels of mitigation

The use of mitigated language in direct *Action-directive* utterances can be ranked from zero use (completely unmitigated) to mitigated with multiple types of mitigation strategies. The following examples in Table 4 are selected from various dialogues in the dataset to illustrate this continuum within the context of chest compressions.

　　　Higher up the mitigation ladder would be directives that were couched in the structures of request, suggestion/recommendation, weak suggestion/recommendation, and allowance, as shown in Table 5.

　　　Table 6 illustrates some samples of mitigated and fully unmitigated directives in the same context, taken from the current study's data.

Table 4: Mitigation levels and examples from the resuscitation dialogues.

Mitigation level	Example from dialogue
Unmitigated, direct command	Stop CPR
One type of mitigation strategy (affective term)	You do some CPR, *buddy*
One type of mitigation strategy, used more than once (softener + softener)	*Okay,* back on the chest *please*
Two different types of mitigation strategy (first person plural + softener)	*We*'re gonna continue 30 to 2, *okay*

Table 5: Directive structures and examples from the resuscitation dialogues.

Directive structure	Sample from dialogue
Request	*Can you* come and do some CPR the now?
Suggest/Recommend	*Do you want to* go and give P1 a go on the chest compressions?
Weak Suggest/Recommend	*But an OP[a] would be nice though, so…*
Allow	*You can* do some chest compressions the now

[a]OP, Oropharyngeal airway, a device that helps maintain or open airway.

Table 6: Comparing unmitigated and mitigated directives in the same context.

Context	Unmitigated *Action-directive* utterances	Mitigated *Action-directive* utterances
Checking the pulse	*Have a rhythm check*	*Another rhythm check, guys*
Chest compression	*You need one more round*	*If you can keep going at the moment*
Instrument or equipment	*Pause that AutoPulse*	*Secure it for me, please*
Medication	*Get some, some fluids*	*If you could get a bag of fluids up for me*
Getting bystander to move away from patient	*Keep safe away from him*	*You just step back just now, okay*

4.4 An ambiguous type of directive: "Do you want to X?"

One particularly striking finding is the use of "Do you want to X?". This potentially ambiguous directive structure occurred 37 times out of 1,234 directives, comprising 3.0 % of the utterances. Although it constitutes a small fraction, the presence in real-life resuscitation attempts is interesting because such a structure is functionally equivocal – it can be construed as an offer to do (or not do) an action, a request to do said action, or a query for information. As each speech act carries a different force, one can easily imagine a pragmalinguistic failure such as the following:

> Speaker: *(intended as a request)* Do you want to move over here?

> Hearer: *(understood as offer)* No, thank you.

The use of this phrasing has resulted in delays of actions during the resuscitation process. This is clearly illustrated in example (8). During this dialogue, the team leader (3RU) wanted to get a specific paramedic to manage the patient's airway access.

(8) *VID193, Utterance 123-130*

3RU: **Do you want to** come up and take the airway,
P2? *(08:21 minutes into the dialogue)*

3RU: **Do you want to** get some access, P1?

P2: Yeah, I can take the tube, cannula

P2: whatever you want

3RU: You try for some access mate

3RU: or **do you want to** take the airway?   *((Changes into offer))*

P2: Alright

P2: whatever you want   *(08:28 minutes into the dialogue)*

In this dialogue, we can see how the directives were mitigated with the "Do you want to…" structure, right from the beginning. These were verbally responded to by one of the hearers, a fellow paramedic, in an indefinite term ("whatever you want"). The second set of directives started with a more direct instruction ("You try for some access…"), but because the next utterance turned into an offer, the verbal response was still the same. This whole sequence took approximately seven seconds. In contrast, (9) shows that when the same 3RU used a direct instruction (in bold) right after that, the allocation of task was settled in less than three seconds:

(9) *VID193, Utterance 131-134*

3RU: Airway   *(08:28 into the dialogue)*

3RU: **you go and get the airway**   *((Direct instruction))*

3RU: You happy with that?

P2: Aye, aye   *(08:30 into the dialogue)*

Utterances with this structure necessitated a closer look at the context surrounding the verbalisation to ensure correct annotations. Table 7 shows that 35 out of 42 of these kinds of utterances were action-oriented (*Action-directive*; coded AD) except for three instances where it was clear that the speakers were offering an option to the hearers (*Offer*; coded OFFER) and four instances where the utterances served as queries for information (*Info-request*; coded IR). From the 42 utterances, 23 were responded to verbally and 19 were not responded to verbally. The verbal responses were made up of statements of acceptance such as "Okay", "Alright", "Sure", and "Yeah".

Where does the structure "Do you want to…" belong on the indirectness scale? Whilst Blum-Kulka (1987) did classify a *Want* category of request, the category pertains to the wants from the speaker's point of view, not the hearer's. If we strictly follow this categorisation, the structure in this category would be "I want you to…" rather than "Do you want to…". The change of request perspective from the speaker

Table 7: Results of directives that used the structure "Do you want to X?".

Vid.	Speaker	Utterance	Context	Coded
158	3RU	Do you want to come around this side?	Organising paramedic movement	AD
182	3RU	P1, do you want to try and intubate?	Intubating patient	AD
188	3RU	P2, you wanna give me a hand?	Going back to the 3RU vehicle to get some equipment	AD
193	3RU	P2, do you want to get the pads on?	Attaching defibrillator pads	AD
193	3RU	Do you want to come up and take the airway P2?	Intubating patient	AD
193	3RU	Do you want to get some access, P1?	Intubating patient	AD
193	3RU	Or do you want to take the airway?	Intubating patient; 3RU offered an option	OFFER
197	3RU	Do you wanna get to his left arm?	Moving patient	AD
200	3RU	Aye, do you want to come and get on the airway?	Intubating patient	AD
212	3RU	Hey P1, do you want to, do you want to watch for a two-minute cycle for us?	Two minutes of compression before ventilation	AD
212	P1	Do you want to (…) yet?	Sequence of task; P1 asking if P3 wanted to do another task	IR
217	3RU	Do you want to drag him out just now?	Moving patient	AD
219	P1	Do you want to shock before I put this in?	Sequence of task; P1 asking if 3RU wanted to shock first	IR
223	3RU	Do you want to do a wee rhythm check at 14 min?	Time of next rhythm check	AD
244	3RU	Do you want to go and give P1 a go on the chest compression?	Swap of person doing chest compression	AD
244	P3	Do you want to grab me an LMA before (…)?	Getting equipment	AD
244	3RU	P1, do you want to go and get some history?	Patient history	AD
244	3RU	Do you want to swap over with P3?	Swap of person doing chest compression	AD
251	3RU	Do you want to leave the bagging just now while, eh…	Stopping ventilations for the time being	AD
251	P3	Do you wanna have a look?	Patient's current rhythm, P3 asking if 3RU wanted to assess rhythm	IR
271	3RU	P1, do you want to move the bed down to us?	Movement of equipment	AD
271	P1	Do you wanna sit him up and drag his clothes off?	Sequence of task; getting patient into position for AutoPulse. P1 was enquiring whether 3RU wanted to do this specific sequence	IR

Table 7: (continued)

Vid.	Speaker	Utterance	Context	Coded
271	3RU	Do you wanna just sit him up?	Moving patient	AD
290	3RU	Do you want to give a hand dealing with, dealing with the family?	Dealing with bystanders in the scene	AD
290	P1	Do you want to organise some fluids mate?	Medication	AD
290	3RU	Do you wanna grab an end-tidal CO_2 from the…	Getting equipment	AD
294	P1	Do you want to go grab me (…)?	Getting equipment	AD
302	3RU	P1, do you want to try and get some access?	Intubating patient	AD
302	3RU	Right, so then P1, do you want to take airway?	Intubating patient	AD
310	3RU	P1, do you want to set him up with airway please?	Intubating patient	AD
336	3RU	Do you want to get some stuff just ready for P1?	Preparing equipment	AD
371	P1	Do you want to swap places?	Paramedic movement; P1 offering to change position	OFFER
371	P1	Do you want to swap around?	Paramedic movement; P1 offering to change position	OFFER
411	3RU	Do you want to set P2 for a tube?	Assisting a team mate	AD
411	3RU	P2, do you want to try and tube him?	Intubating patient	AD
414	3RU	P4, do you want to go and find the suction?	Getting equipment	AD
417	3RU	If you're struggling with an IV do you want to put an IO in, P2?	Intubating patient	AD
417	3RU	Do you want to try the IO?	Intubating patient	AD
418	3RU	Do you want to do a rhythm check to see what it is?	Checking for rhythm	AD
420	3RU	Do you want to stop for a rhythm check yeah?	Stopping current tasks to check rhythm	AD
420	P2	Do you want to do that side?	Removing patient's clothes; P2 suggesting to team mate to remove clothing on the other side	AD
424	3RU	Do you want to set P2 up for a tube?	Assisting a teammate with intubation	AD

to the hearer denotes a Hearer Oriented structure, which means that the request is realised from the hearer's provisional capacity (Bartali 2022). The question form of the structure places it as part of the Query Preparatory category, but "Do you want

to…" contains more opacity because it combines a want and a query. The utterance, whilst enquiring about the hearer's wish or desire, doubles as a request to perform an action, making it potentially ambiguous to the hearer who may interpret is as just a question.

A directive that is phrased using this particular structure also does not appear to fulfil the criteria of being verbally succinct and direct, on the basis of it being potentially ambiguous. Why use this at all? It could simply be a common phrasing used in the present context, to ensure that a request does not sound too harsh. 3RU paramedics do not possess higher authority over the other paramedics in the teams, even though they have more extensive training in pre-hospital resuscitation. This type of directive may be a way to avoid sounding too autocratic. Furthermore, from our data, there seemed to be no distinctive verbal signs that represent confusion or misunderstanding, nor any verbal responses that need to be corrected after the phrasing. This finding again supported Chałupnik and Atkins (2020), in that there may be no interactional issues when a familiar – albeit mitigated – directive is used. It is possible that this structure did not pose issues within the teams due to shared linguistic sources. As noted by Gao (1999), pseudo-questions that ostensibly ask about the hearer's desires but should be interpreted as requests, are not preferred by Chinese speakers. If the resuscitation teams involved non-native English speakers, there may well be some issues with this kind of ambiguity.

Nevertheless, we cannot exclude the possibility that the formal ambiguity of these utterances might lead to delays or misunderstandings. In a time-constrained, high-stakes environment, ambiguity presents risks, which is the reason why some researchers argued for the adoption of standardised, military-like statements during resuscitation (Yamada and Halamek 2015), even though medical communication in general does not obligate conventionalised dialogues.

As directives make up about a quarter of resuscitation dialogues, a solid understanding of effective phrasing in giving instructions is imperative. This study therefore sheds light on how paramedics attempt to maintain the politeness equilibrium using absolute politeness, whilst instructing their team members during real-life pre-hospital cardiac arrest resuscitation attempts.

5 Conclusions

Mitigated speech is typical and probably even expected in everyday conversations. It is the usage during critical, high-risk settings that has been debated. This study examined the prevalence and types of mitigated speech in the first five deciding minutes of paramedics' resuscitation dialogues, and discussed the impacts of the usage on the flow of operation.

Our data showed that directives made up almost one quarter of paramedic dialogue during the first five minutes of real-life resuscitation. The findings also revealed that paramedics mitigated their directives in a variety of ways during these resuscitation attempts. Most directives were only mitigated minimally – that is, with the addition of softeners. We note that mitigated directives in the forms of requests, suggestions, hints, and allowances not only lengthen verbal communication, but admit the possibility of miscommunicated intent, especially if the teams contain speakers with different first languages and cultures. That said, no verbal misunderstanding was observed, though the use of mitigated directives did slow down the hearer's acceptance of some administered tasks.

Despite previous research associating the use of mitigated speech with adverse events, speakers nevertheless mitigate their utterances in settings with no standardised speech, possibly to maintain the social equilibrium. Such is also the case in this study. The best way that we know from the findings to counterbalance the social imperative of politeness with the communicative pressure for optimal efficiency during resuscitation, is by adding small doses of linguistic mitigation, such as including affective terms or softeners in the directives. This strategy has been shown to be associated with better performance (Chałupnik and Atkins 2020). A less favourable way is to couch the directive in the form of an ambiguous question. Questions can serve multiple functions, including offers or requests for information (Mesinioti et al. 2020). In some cases, they can become culturally inappropriate (Gao 1999), and therefore may be inaccurately interpreted.

This research has illustrated what unscripted paramedic directives during the first five minute of real-life resuscitation attempts look like. It provides a baseline for future research to solidify our understanding of how absolute politeness is used to maintain relationships during high-risk, time-constrained contexts, and how to accommodate this within communication and leadership training.

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