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# ***Social Interaction***

## ***Video-Based Studies of Human Sociality***

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### **Noticing-prefaced recoveries of the interactional space in a video-mediated business meeting**

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***Abstract***

*Drawing on conversation analysis and authentic data from a video-mediated multiparty meeting, this study investigates the sequential and temporal organisation of recoveries of the interactional space. It focuses on moments in which either an auditory or a visual barrier emerges, and the participants orient to these troubles through intensified bodily-visual displays: embodied noticings. The analysis illustrates noticing-prefaced recoveries of the interactional space as procedural and multimodal accomplishments that require close attentiveness to the co-participants' verbal and visual conduct and to the contingencies of the meeting. The study highlights not only the affordances of video-mediated settings, but also the consequences that asymmetric access to the distributed environments can have for the organization of actions.*

**Keywords:** noticing, interactional space, embodied resources, video-mediated meetings, multimodality, conversation analysis

## 1. Introduction

What constitutes interactional space in face-to-face encounters is the arrangement of the interlocutors' bodies in the immediate, material environment, along with their orientation to a joint activity and a mutual focus point (Mondada 2013; cf. Goodwin 2000). Mondada (2009, 2013) describes interactional space as a local and embodied construct that is negotiated at the beginning of encounters, sometimes (re)configured, transformed or repaired during activities and activity shifts, and dissolved at moments of departure. As such, it is a praxeological, practical achievement, comprising verbal, material and embodied resources with which the frames and (pre)conditions of interaction are constantly (re)negotiated (Mondada, 2009, p. 1977). Whereas prior research on workplace meetings has shown that the interactional space for organising activities is sensitive to changes in the immediate material context and participation framework (e.g. Deppermann et al., 2010; Mondada, 2011; Nielsen, 2012), little is known about the procedures through which interactional space is managed and modified in technologized environments where participants are not in each other's immediate co-presence.

While technologies for organising video-mediated meetings have significantly advanced during the past few decades, the utilisation of embodied resources can still occasionally be problematic in these settings due to asymmetric access to co-participants' environments and bodily-visual behavior (e.g. Heath & Luff, 1992; Hutchby, 2001, 2014; Norris & Luff, 2013; Rintel, 2013). By affecting the availability of social actions in this way, the creation, upholding and adjusting of co-orientation within a shared interactional space present practical problems (see Luff et al., 2014; O'Hara et al., 2011). Drawing on video-recorded data from a large, international company and taking conversation analysis (CA) as the theoretical and methodological starting point, the present study investigates how participants in an enhanced video-mediated setting (a Cisco Telepresence meeting) orient to troubles in interaction and organise their verbal and embodied conduct to accomplish the recovery of the interactional space. These relate to moments in which an auditory or a visual barrier emerges and is followed by bodily displayed *noticings*. An important feature of Cisco Telepresence is that it provides a life-sized representations of all the participants, thereby creating an illusion of an extended interactional space and a "blended" overall meeting space (see O'Hara et al., 2011). Noticing is addressed here as action-in-conversation, manifested through a visibly intensified embodied and material practice, such as the production of a particular type of facial expression. The participants accordingly make relevant a feature in the setting that hitherto had not been considered relevant (Schegloff, 2007, p. 219). The embodied noticings under scrutiny are made available through the affordance of video, which has the potential to draw the co-participants' attention to a *noticeable* and to fix the trouble.

The analysis focuses on two cases: one involving a difficulty in being heard, the other involving difficulty with visual access to a co-participant's presentation. It shows that, although they do not receive an immediate uptake, the embodied noticings become accountable actions in that they make visible one's stance towards the trouble and the fracture in the interactional ecology. In both cases, taking corrective action is crucial, and noticing consequently prefaces the recovery of the interactional space. The recovery is then successively and multimodally achieved, involving first and foremost embodied displays and remedial work that is carried out as a parallel activity – i.e. it does not intervene in the ongoing meeting talk. In addition, due to the nature of the meeting, the participants use technology to manage the interactional space in specific ways, as they attempt to draw the attention of certain participants: those who can repair the problem. The findings contribute to understanding interactional space in video-mediated meetings as a complex construct susceptible to participants' bodily reorientations and movement in their respective locations, and also highlight the interweaving of actions' social and sequential environments (cf. Mondada 2011). Furthermore, the paper sheds light on the affordances and multimodal resources in technology-mediated settings and the way they inform the practices of space-making (Oittinen, 2018, 2020; cf. Hutchby 2001; Rintel, 2013; Luff et al., 2014).

## **2. The role of noticings in reconfiguring interactional space**

Interactional space is sensitive to changes in the participation framework and the ongoing activity, and it can be reconfigured and modified by orienting to these changes in the moment-by-moment unfolding of interaction (see Mondada, 2013, p. 261). In addition to openings and closings of encounters, moments prone to renegotiations of interactional space are transitions between activities or episodes. Deppermann et al. (2010) illustrate how the accomplishment of a break-like activity in a formal meeting involves moving from one configuration to another, requiring both verbal contributions and the redistribution of the meeting participants' bodies. The study primarily shows how the emergent course of action that not relating to the official agenda develops and is collaboratively attended to by the participants' a "double orientation": they display orientation to the break-like episode while remaining visibly attuned to the work activities (Deppermann et al., 2010, p. 1707). The present paper expands on these notions by examining how the initial moments of divergent trajectories during meetings can be flagged and made accountable by embodied means, i.e. by a visibly displayed noticing. In CA research, a noticing is seen as an action-in-conversation that singles out a feature in the immediate, physical and sequential environment, such as prior talk, a sound, an item on the screen(s) or an artifact in the room (Schegloff, 2007; see also Helisten, 2019). Registering a *noticeable* is primarily a result of an individual's cognitive processing (Schegloff, 2007, p. 87), but a noticing becomes a mutually accessible "interactional event" when it is

actualised by displays of a changed epistemic status or a “having just noticed” stance (Helisten, 2019, p. 8; see also Heritage, 1984).

The previous literature describes a noticing through both its verbal and embodied realisation. Embodied noticing involves employing subtle, but visibly perceivable, bodily displays, such as shifts in gaze direction, gestures and facial expressions, which project an attempt to secure co-participants’ attention and the need to attend to other-than-current activity (Kaukomaa et al., 2014; Kääntä, 2014; Keisanen, 2012). Whereas some noticings invoke clear trouble-relevance, and thus make visible the need for repair or other types of remedial work, others do not have similar implications. As such, what is important for understanding the role of noticing is the source/outcome configuration that is contextually construed in the interlocutors’ verbal and visual behaviors (Schegloff, 2007, p. 218). As described by Schegloff (2007), noticings are *retrospective*, because they make relevant some action or element that was not previously considered relevant, and they are *proactive* in the sense that they project candidate solutions for next actions. In the present study, the noticings under scrutiny draw attention to technical problems that need to be fixed, but also function as prefaces to the interactional work required to progressively recover the interactional space.

Previous studies have shown the situated character of noticings and how they can become interactionally consequential during instructional activities (Kääntä, 2014; Rauniomaa et al., 2018), in mobile settings (Goodwin & Goodwin, 2012; Keisanen, 2012) and in situations where one is involved in more than one ongoing activity, i.e. multiactivity situations (see e.g. Haddington et al., 2014). In her study on noticing-occasioned interventions in mundane multiparty interactions, Helisten (2019) illustrates that noticings that relate to troubles are often produced by other-than-current-speakers, and that they flag the need to secure either the ongoing activity or another, more urgent, relevant activity. Her findings show that interlocutors have a preference for recipient-designed, non-intrusive ways to initiate these side sequences or new incomings. Helisten (2019) highlights how noticings can become legitimate actions only through co-participants’ subtly displayed verbal and bodily alignments, requiring the suspension of one activity while mobilising another. At the same time, this means orienting to a new configuration of the initially established interactional space (ibid.). Studies on the ways in which noticings can lead to (re)negotiating and modifying the interactional space in institutional interactions are still scarce (see, however, Arminen & Auvinen, 2016; Greiffenhagen & Watson 2009; Oloff, 2018). More research is also needed to understand the unfolding of contemporary multiparty meetings in which participants’ attention can be drawn to various features within the sequential and sociomaterial environments.

### 3. Managing interactional space in video-mediated environments

An increasing body of research has focused on both the affordances and challenges of video-mediated settings (e.g. Halvorsen, 2016; Hindmarsh & Heath, 1999; Hjulstad, 2016; Rintel, 2013; Olbertz-Siitonen, 2015; Ruhleder & Jordan, 2001a; Ruhleder & Jordan, 2001b; see also Mlynář et al., 2018 for an introduction), but the practices employed to manage and modify the interactional space remain little studied. Although various scholars have found that the sequential organisation of actions is often disrupted by technology-related troubles, such as delays and orientation disparities, their consequences for the interactional ecology or the unfolding of ongoing activities are still not fully understood.

Interactional troubles in traditional video-mediated settings have been described as being due to “fractures” in ecologies – in other words, to the difficulties in producing and interpreting actions coherently both in and between the local and distant environments (Luff et al., 2003; Olbertz-Siitonen, 2015). This has been connected to the use of small screens and thereby to distorted access to common resources. For instance, in their study on videoconferences in a holding company, Ruhleder and Jordan (2001a, p. 119) found that audio and video transmission delays can be perceived differently in the diverse locations, leading to difficulties in noticing troubles and identifying the trouble-source. Consequently, in traditional videoconferencing settings, solving troubles as a part of the work activities has proven to be challenging, owing to a lack of access that enables *real-time* monitoring of each other’s verbal and embodied behavior.

However, it has been shown that more modern systems, which afford less distorting camera orientation and consequently a wider spectrum of resources for their users, can significantly improve the possibilities for mutual coordination of actions (O’Hara et al., 2011; Luff et al., 2014). Furthermore, these systems would appear to support embodied meaning creation and facilitate the accomplishment of collaborative activities. Luff et al. (2014) illustrate how distant and local participants who can see each other at actual size on screen establish co-orientation and referential activities around material objects in an unproblematic manner. These findings have mostly come from experimental or quasi-naturalistic settings (e.g. Luff et al., 2014), yet they provide valuable insight into discussions of interactional space. The present study, in turn, affords insight into the ways in which vocal and visual actions are coordinated for joint activity in authentic workplace encounters that incorporate enhanced video-mediation.

## 4. Data and methodology

This study draws on meeting data recorded in one of the offices of a large international company in Central Europe in 2012 and 2013. The analysis is based on a video-recorded steering committee meeting, lasting approximately 80 minutes, in which Cisco Telepresence was used to enable collaborative work between the distributed parties. In the company, this particular system is used sparingly and mostly for meetings that are considered of high importance. The important features of Cisco Telepresence are the design and room architecture, which are identical in the ‘Telepresence’ meeting rooms in each location. Each has a short, semicircular meeting table with six seats facing three large screens at eye level, and an additional screen above the three, on which the agenda and other materials can be displayed. Each table has three microphones with a mute function that the local participants can control. The on-screen participants are represented at life size and in a geometrically accurate form, which emulates co-presence (see Arminen et al., 2016). These arrangements create an illusion of an extended space that ranges from the local to the distant environments (see O’Hara et al., 2011).

The present meeting comprises seven participants. One is physically in the recording room, while the others are in two different geographical locations. The recording took place in one physical location, which means that the analysis of the orientations of embodied displays, such as gaze and gestures, depicts a single perspective, in this case that of the local participant, Marja. From her point of view, the others are distant participants whose images are portrayed on screens 1 and 2. The display on one of the screens (“screen 1” in the transcripts) alternates automatically between the images of two pairs of distant participants: Dietmar and Rob, and Olek and Leena, depending on who is talking. Olek and Leena are in the same room with Jaap and Noach whose images can be seen on screen 2 throughout the meeting. Screen 3, in turn, shows the meeting materials, e.g. the agenda and presentations. The others have a screen in a similar position in their respective locations, which is the reason for not distinguishing between Marja’s screen 3 and those of the others in the analyses. The following images illustrate how the participants are seated and presented in Marja’s local environment (Fig. 1 & 2).

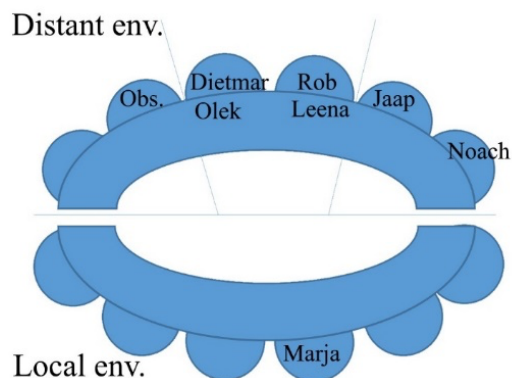


Figure 1. The local and distant environments

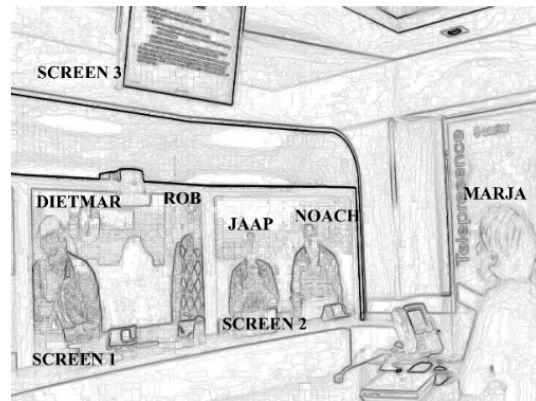


Figure 2: Marja's local space

The topics dealt with in the meeting are internal company issues that relate to delivery and purchasing practices. All of the participants in the data speak English as a lingua franca, and it is also the official company language. The participants gave their written or oral approval to be recorded. Pseudonyms are used in the extracts from the transcripts to protect the participants' identities and the company name. The chosen extracts were transcribed following the conventions proposed by Jefferson (2004) and applying Mondada's (2016) conventions for embodied conduct.

This study adopts the approach of multimodal CA (e.g. Hazel et al., 2014; see also Schegloff, 2007), focusing on sequentially and temporally organised social actions in the moment-by-moment unfolding of interaction. The analysis is based on the *next-turn-proof procedure* (Sacks et al., 1974), i.e. how what happened previously makes the next action relevant, and on a close examination of verbal, material, and bodily-visual resources, as displayed in and across the technologised environment. The approach is particularly fruitful for the investigation of video-mediated settings in which interaction is sometimes informed by the participants' asymmetrical access to each other's conduct (see Luff et al., 2014; Heath & Luff, 2000). Multimodal CA thus enables a detailed micro-level investigation of the process through which noticing-prefaced recoveries are achieved.

## 5. Recovering interactional space after noticings

The analysis shows how the interactional space is jointly and progressively recovered after noticings that manifest 1) a sudden shift in participants' orientation to a noticeable, and 2) attention to a potentially problematic feature in the setting. These noticings occur in moments when the sequentiality of conduct has become incoherent because of an auditory or a visual barrier, i.e. when there is a fracture in the interactional ecology that has led to compromising one or several parties' orientation to a shared focus point in the main activity. The



recovery of the interactional space entails dissolving and, along with remedial actions, reestablishing the initial configuration. The two instances analysed below relate to trouble in being heard (Section 5.1) and in seeing the co-participant's presentation (Section 5.2). In both cases, embodied noticing, as displayed in shifts in gaze direction and body movement, functions as a significant first step towards mobilising attention to the trouble source – a problem that can be fixed by manipulating an object or a device in only one of the meeting rooms. The analysis illustrates how the participants remain attentive to the specificities of the video-mediated interactional space that are relevant to both the course of interaction and the emergent ongoing activity.

### **5.1 Recovering interactional space after noticing an auditory barrier**

This section analyses a sequence in which two distant participants, Dietmar and Rob, cannot be heard by the others because of a muted audio-connection. This becomes visible when Dietmar starts to speak at the same time as Marja, who is not in the same room. The recovery of the interactional space is prefaced by Rob's noticing of the trouble and managed as a separate, parallel activity that takes place simultaneously with the on-going meeting talk.

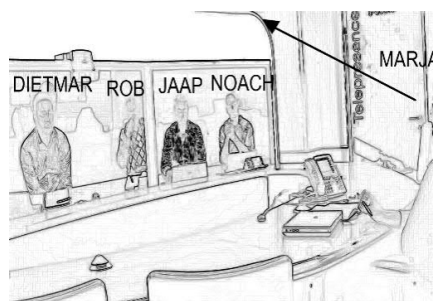
In the first extract, the topic of shipping is being discussed. Since this is Noach's area of responsibility, he has prepared materials for his presentation, which are displayed on screen 3. Three minutes prior to the extract, Dietmar has clicked on the table microphone and muted it in the meeting room where he and Rob are physically present. This caused the small lamp on the side of the table microphone to change color from green to red. Ten seconds before the beginning of the extract, Dietmar has shifted from a leaning body position to an upright one, thereby showing preparedness to take part in the discussion. In the extract, Dietmar fails to take the floor verbally (lines 5–9), which prompts Rob to find the trouble source and unmute the microphone. Embodied displays, such as gaze and shifts in body position, thus become important resources with which the recovery of the interactional space is initiated and made intelligible to Dietmar.

## Extract 1

Dietmar >>--sits in upright position, gazes at the screen-->  
 1 Noach we're not going to change that booking then (.)  
 2 +because it's partial +delivery  
 noach +palms to sides-----+hands together  
 3 (0.3)  
 4 Marja m\*!hm  
 marja \*turns gaze to screen 3-->  
 5 (0.2)~#[ (0.4)  
 dietmar ~turns gaze to Marja; mouth starts moving--> 1.9  
 fig #3  
 6 Marja [and "it  
 rob "turns gaze towards Dietmar; hand on chin-->  
 7 \*#doesn't have a (pod)  
 marja \*points to screen 3 with pen-->  
 fig #4

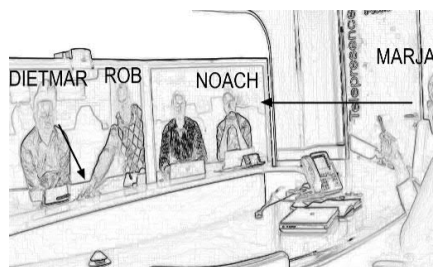


**Figure 3.** D gaze to M; mouth starts moving.



**Figure 4.** R gaze to D; M points to screen 3 with pen.

8 marja \*be"cause this one is  
 rob \*turns gaze to Noach pen still in hand-->  
 ->"starts reaching for the microphone-->  
 9 ~be"#fore the goods  
 dietmar -->~stops talking and glances down at Rob's hand~  
 rob ->"clicks mute button; hits remote, causing  
 slamming sound  
 fig #5  
 10 are "shipped right?"  
 rob "corrects posture"  
 11 (0.5)^#(1.5)+(0.2)  
 jaap ^turns gaze to Noach-->  
 noach +leans forward-->  
 fig #6  
 12 Noach sorry



**Figure 5.** D gaze to R's hand; R clicks mute.



**Figure 6.** J and M gaze to N.

The extract begins when everyone is still oriented to a mutual focus point in the shared interactional space. When Noach concludes his account on booking-related procedures with a statement, he also bodily marks the end of his turn by first opening his palms and then bringing his hands together (lines 1–2). Following this, and after a brief pause, Marja responds to Noach’s turn verbally by producing a third-turn receipt, “mhm” (line 4), concurrently turning her gaze towards the presentation on screen 3. With this embodied action, Marja actively configures her participation in the local space and the video-mediated meeting space, with the other participants, as displayed in screens 1 and 2, and the agenda screen as alternating focus points (see Mondada, 2011, p. 200 for “a double interactional space”). During the ensuing silence of 0.6 seconds, Dietmar turns his gaze towards the screen representing Marja and begins speaking (Fig. 3; line 5). However, because microphone is muted, this new trajectory does not become sequentially available for the others, with the exception of Rob. This is also indicated by Marja’s actions. While still gazing at screen 3, she does not seem to notice Dietmar’s mouth moving, but instead initiates a new turn unit (lines 6–7). At the beginning of Marja’s turn (line 6), Rob reacts to the situation and turns his gaze towards Dietmar, who continues to talk (Fig. 4). With this slight movement, Rob displays his orientation to the problem in turn-taking and to the break in the conversational flow.

Marja continues to orient towards Noach’s presentation and refers to the topic discussed by pointing to screen 3 with her pen (line 7; cf. Streeck, 2009, p. 166). During the subsequent line (8), she maintains the position of her hand, but turns her gaze to Noach, thus manifesting a “double orientation” (Deppermann et al., 2010, p. 1707). In other words, she makes a specific feature of the written dimension relevant in the ongoing talk, while simultaneously targeting Noach as the potential next speaker. As the others share the same screen view and can thus identify the object of the reference, this particular activity is illustrative of the affordances of Cisco Telepresence and other similar enhanced video-mediated environments (see also Luff et al., 2014), in that establishing co-orientation around material objects seems to be unproblematic. In the middle of Marja’s turn, Rob begins the corrective action that ratifies him “having noticed” the problem, and he moves from a leaning position to reach the table microphone (Fig. 5). When he clicks the mute button, his hand hits the remote control on the table, which causes an instant slamming sound.

Concurrently with Rob’s movement, Dietmar turns his gaze down to Rob’s hand, and his mouth stops moving. Although the technical problem is solved at this point and everyone can be heard again, more work is needed to stabilise the conditions for re-orienting to a shared trajectory. When Marja brings her turn to completion with the adverb “right”, uttered with a rising intonation (line 10), Jaap turns to look at Noach. He not only co-targets Noach as the recipient of Marja’s question turn, but also reflexively adopts another bodily configuration of the

interactional space, namely the one between himself, Noach and the others in the same room (Fig. 6). This shows how modifying the shared interactional space is concurrently sensitive to the sequential positioning of embodied actions, to the selection of the next speaker and to the activity's overall trajectory (see Mondada 2011, p. 291). Although Noach has clearly been selected as the next speaker, he does not respond immediately – instead, a 2.2-second pause ensues. During this pause, Dietmar does not initiate a verbal attempt to return to the conversation despite maintaining his upright body position. Noach finally draws recipient attention emphatically by leaning over and producing an open class repair initiation: “sorry” (line 14; see Oloff 2018; Ford & Stickle, 2012). With this movement, he thus orients to potential trouble in hearing and improves the audibility of his upcoming turn. When everyone turns to look at Marja, co-orientation to a mutual focus point is restored, and discussion of the topic can proceed smoothly.

In the above extract, Rob and Dietmar's participation is compromised because of an auditory barrier between them and the other parties, and Dietmar's turn seems to be sequentially deleted in its entirety. The interactional space is recovered via a process in which Rob displays his noticing of the trouble, locates the trouble-source and implements relevant remedial action (cf. Arminen & Auvinen, 2016). The extract shows that shifting away from the main speaker and, concurrently, from the main activity, prompts the emergence of the divergent trajectory. The steps required to dissolve the first configuration of the shared interactional space and reestablish a new one include managing the trouble-relevant trajectory in a non-intrusive way (cf. Helisten 2019). In addition, the extract shows that the interactional space is sensitive to embodied behaviors in all three distributed environments, and that its modification is dependent on various resources of the sequential and temporal organisation, such as gaze, gestures, and body movements.

## **5.2 Recovering interactional space after noticing a visual barrier**

The second subsection analyses a sequence later in the meeting, in which Dietmar is expected to share materials on another topic, but the others are unable to see his PowerPoint presentation. At first, the problem goes unnoticed by the current speaker and verbally unannounced by the others (cf. Schegloff, 2007, p. 87). In this case, however, several participants in the different locations make use of visibly intensified embodied practices to indicate their noticing of the trouble. These consecutively produced noticings, especially those by Marja, Noach and Jaap, lead to a dissolving of the shared interactional space and the participants remaining in a kind of liminal state for a short period. In other words, they enter into a dispersed configuration in which several participants orient to individual business in their local space. Due to the length of the event, the analysis is presented in two parts: sequences that show 1) how the problem of not seeing

the presentation first emerges and goes unnoticed by Dietmar (Extract 2); and 2) how, shortly thereafter, the problem is attended to collaboratively (Extract 3). What is noteworthy in the extracts is that, instead of initiating repair in slots in which it would be sequentially suitable to do so, such as pauses (see e.g. Helisten, 2019, p. 6), the other participants allow Dietmar to do the noticing himself (Schegloff, 2007, p. 87).

The next extract begins after Marja has suggested moving on to the next agenda item, a problematic issue concerning the company's delivery processes that needs to be resolved by the members of the steering committee. At this point, the screens in each location continue to show Noach's presentation. To change this, Noach must unplug his laptop cable and Dietmar must enable sharing mode via the Cisco Touch Panel, which controls the screen view and is on the table behind his laptop. Immediately before this extract begins, Olek, who is physically in the same room as Noach and Jaap, makes these preparatory actions explicit and asks Noach to pull out the cable. The extract begins when Dietmar acknowledges this verbally (lines 1–2), and Noach, who has been writing, similarly orients to the activity shift and begins to remove the cable. However, Dietmar does not press the touch panel to enable access to his presentation, which the subsequent noticings of Marja, Noach and Jaap make relevant (lines 7–9). The extract shows that, as a result of Dietmar's inability to recognise the problem or his co-participants' noticings, the initial interactional space is reconfigured, but not recovered.

## Extract 2

1 Dietmar Oh (.) +yeah sorry (.) it's my  
noach +glances at Olek

2 ~presenta[ti]on.  
dietmar ~gazes at laptop; hand on mouse-->

3 Noach [oh +ye#ah  
noach +gazes at screen 3; puts hand on cable-->  
fig #7

4 \*I thi:nk <that wa:s>  
marja \*turns gaze to screen 3-->

5 +(0.3) \*this one, o:r?  
noach ->+unplugs cable  
dietmar ~turns gaze to laptop screen---> 1.10  
marja \*glances at Noach

6 that's ~it-, ^page +two:?  
dietmar ~glances at Marja  
jaap ^turns gaze to screen 3-->  
noach #turns gaze to screen 3  
fig #8

7 (1.8)~(0.5)+(0.7)\*(2.5) \*(1.0)\*(0.5)  
dietmar ~glances at Marja  
noach +glances down  
marja \*opens--\*closes mouth  
marja \*pouts lips-->

8 (Olek) (°-suppose::°)

9 (2.2)+#(4.6)\*+(3.2)\*#^(3.4)  
marja ->+  
noach +glances at Olek  
fig #9 #10  
noach +gazes down, starts writing-->  
marja \*turns gaze to screen 1-->  
jaap ->^turns gaze downwards-->

10 Dietmar Marja ~(.) do you have one (.) old of those,  
dietmar ---->~lifts gaze to look straight ahead

11 (.)old reports.

12 (0.7)^(0.3)  
jaap ->^starts writing-->

13 Marja which old reports

14 Dietmar ~\*kind of the seventy-thirty  
dietmar ~turns gaze to laptop-->  
marja \*purses lips-->

15 (0.5)~#(0.5)  
dietmar ~lowers head-->  
fig #11

16 Dietmar ~two years ago. \*(.)  
dietmar ->~lifts head, gaze at laptop  
marja ->\*

17 ~I have never seen that~ ~I think  
dietmar ~corrects posture-----~ ~glances at Marja

18 Marja \*seventy thirty (.)\*  
marja \*straightens posture and swivels staff card\*

19 Marja \*oh you #mean in the:::  
marja \*turns gaze to screen 3--\*touches laptop cover-->  
fig #12

20 in the \*inbo- [inbound deviation  
marja \*turns gaze to Dietmar-->  
21 Dietmar [ ( )

22 ~>|yeah<  
dietmar ~gaze down at laptop screen-->>

23 Marja u::h \*(.) I cannot see  
marja ->~\*glances at screen 3

24 any presentation \*in there\*  
marja \*points towards screen 3\*

25 +but u:h I was asked --  
noach +glances briefly at screen 3

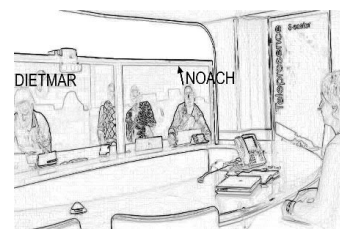


Figure 7. N gaze to screen 3, hand on cable.

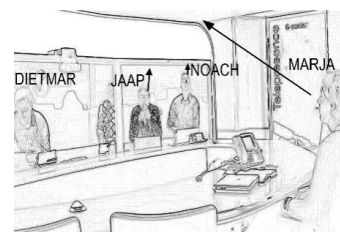


Figure 8. N, M and J gaze to screen 3.

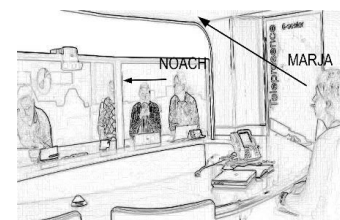


Figure 9. N gaze to O; M gaze to screen 3.

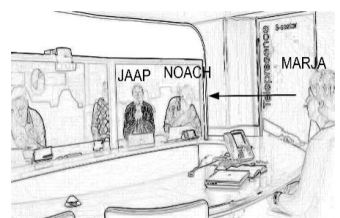


Figure 10. M gaze to screen 1.

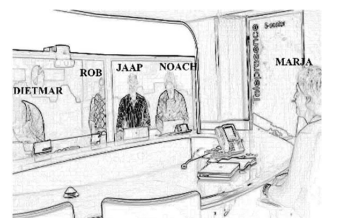


Figure 11. D drops head between shoulders.

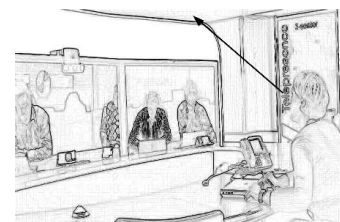


Figure 12. M gaze to screen 3, hands on laptop.

The extract begins with Dietmar and Noach jointly establishing the transition to the next phase in which Noach hands control of the agenda screen, i.e. screen 3, over to Dietmar. They produce similar combinations of a change-of-state token “oh” (Heritage 1984) and an acknowledgment “yeah” and start to manipulate the devices in their respective meeting rooms. Dietmar looks intently at his laptop screen, his body in a slightly hunched posture, as he works to open the presentation. Concurrently with his verbal remark (line 3), Noach turns his gaze to screen 3 and places his hand on the cable (Fig. 7). While unplugging, he looks at screen 3 to make sure that his materials disappear from the shared screen view. While still working to open the right file, and without lifting his gaze, Dietmar produces a hesitatively uttered turn that ends with a turn-final conjunction, “or”: “I think that was this one, or” (lines 4–5). In so doing, he refers to something he believes is available to the others, inviting them to look at it. During Dietmar’s turn, Marja first turns to look at screen 3, but as the screen shows nothing, she glances briefly at Noach. With these actions, she displays that she has noticed the problem, but instead of indicating the need for remedial work, she reorients to screen 3. The reason that these displays do not receive any uptake from the others could be that the participants are not looking at the screen(s) that represents Marja at these crucial moments (see Heath & Luff, 2000).

When no one responds, Dietmar refers again to the document with the utterance “that’s it, page two”, ending it with a rising intonation (line 6). At the same time, he briefly glances at Marja and/or the other distant participants, after which both Jaap and Noach turn their gaze consecutively to screen 3. At this point, Marja, Noach and Jaap all look at the agenda screen(s) in their respective locations. With this bodily orientation, they treat Dietmar’s utterance as something that is relevant to all of them (Fig. 8). The silence that ensues could be perceived as a “trouble flag” (Ruhleder & Jordan, 2001a), during which Dietmar seeks a response, again bodily, by glancing at Marja and the others. Noach then subtly displays his noticing of the trouble by looking down briefly. Immediately after this, Marja performs even more visible displays: first, she opens and closes her mouth, and then purses her lips for a few seconds (line 7). It is through these embodied and material practices that the participants display their collective noticing of the trouble. In another location, someone, probably Olek, utters something that sounds like an audible hesitant response to Dietmar’s prior turn (line 8). Another long silence ensues. This is an important juncture in the dissolution of the initial configuration of the interactional space, since it marks a clear shift in co-orientation, from the screen and the main activity to individual activities. First, Noach glances in Olek’s direction and thus makes their local space relevant (Fig. 9). Then, after checking screen 3 once more, he turns his gaze downwards and begins writing, thereby displaying disengagement and unavailability for the tasks that comprise the main activity. A couple of seconds later, Jaap and Marja also turn their gaze away from screen 3 and move out of the embodied configuration involving the screen(s) (Fig. 10).

Next, Dietmar initiates what seems like a sudden shift in the trajectory of the main activity by asking Marja whether she has “the old reports” (lines 10–11). He simultaneously lifts his gaze, looks straight ahead and thus momentarily halts the activity he has upheld thus far (see e.g. Haddington et al., 2014). Through this frontal orientation, he contributes to the establishment of an interactional space that resembles that of face-to-face meetings. However, the ensuing silence of 1.0 seconds indicates that the prior question is problematic, and this is followed by Marja’s other-initiation of repair, in which she asks for clarification (line 13). She also bodily orients to this and purses her lips for a while. When offering a candidate repair solution and describing a point in the report, “kind of the seventy-thirty” (line 14; see Schegloff, 2007), Dietmar lowers his head (Fig. 11) and continues referring to the report by mentioning the time it was published: “two years ago” (line 15). After correcting his posture, Dietmar concludes with an epistemic account, “I have never seen that I think” (line 16). Instead of making use of this sequentially suitable opportunity to vocalise the problem of not seeing the presentation, Marja aligns with Dietmar’s new trajectory. As a part of her attempt to recall the report, she repeats some of Dietmar’s words, concurrently straightening her posture and swiveling her staff card (line 18). She realizes suddenly what he is referring to, as displayed by her change-of-state token, “oh”, her shift in bodily orientation (Fig. 12) and her naming of the report (lines 19–20). After Dietmar’s confirmation (line 22), Marja initiates insert expansion (Schegloff, 2007, p. 97) by producing an intervening epistemic account, with which she makes the problem of not seeing the presentation explicit (lines 23–24). However, having turned his gaze to his laptop screen just seconds before, Dietmar does not seem to orient to Marja’s turn or to the need to recover the interactional space.

The following extract takes place a moment later, when Dietmar finally displays “having noticed” the problem, by visibly attending to it. He uses the shared visibility and availability of the other participants’ visual behaviors as a resource not only to initiate remedial action, but also to track the moment-by-moment development of their intersubjective understanding. After the previous extract, the situation has developed in such a way that Marja has given the floor to Noach and asked him whether he remembers a specific part of the report. Noach is in the process of explaining an example of the company’s logistical problems, when Dietmar suddenly displays a clear change-of-state, demonstrating that he has now noticed the trouble that went unnoticed by him earlier (line 2).



## Extract 3

1 Noach ^so we list events we look that who is the  
jaap ^>>--writes, hand on forehead-->

2 dietmar the: ~chooser of those events |so (.)  
~frowns, turns gaze to laptop-->

3 dietmar if ~#for instance~ we are picking up- we have  
fig ~runs hand quickly along side of laptop-  
#13

4 dietmar ~booked a carrier ~which u:h ~comes  
~adjusts laptop----taps Cisco Touch Panel--~puts hand on  
chin-->

5 noach +back to us and say |hey the (goods),  
+turns gaze downwards-->

6 dietmar are not ready for a ~#pick-up then,  
fig ~glances at Marja  
#14

7 noach +u:h then, (.) /so we  
screen 3 ->+turns gaze to Marja-->  
/the presentation appears

8 marja went to the \*premises  
\*turns gaze to screen 3-->

9 dietmar where goods were ~#not ready  
fig ~turns gaze to Marja-->  
#15

10 dietmar >then we listed< the events ~where  
->~turns gaze down-->

11 goods were not ready for a pick-up  
12 then \*users (suffer).  
marja ->\*turns gaze to screen 2-->

13 Marja °m|hm°

14 Noach ~was it some nervous  
dietmar ~turns gaze to Marja-->

15 jaap ^#mistake,  
fig ^turns gaze to screen 3-->  
#16

16 Noach but if for instance the carrier didn't pick up  
17 because we had no time then we say  
18 \*okay: \*goods not picked up  
marja \*looks at screen 3\*

19 dietmar ~u:h  
~turns gaze to Marja-->

20 Marja no time. in choosing carrier and gets then ( x ).  
21 |mhm  
22 (0.4)

23 Dietmar I just noticed that your faces were (wilt)  
24 for some of it because you couldn't  
25 see ~anything~  
dietmar ~points towards laptop~

26 Dietmar [so sor]ry  
27 Marja [\*yea:h] +that's i- I was-,  
marja \*turns gaze to screen 1, smiles-->  
noach +turns gaze to screen 3-->

28 Dietmar +it's a useful ^thing.  
noach +turns gaze to screen 1, smiles-->  
jaap ^turns gaze to screen 1, smiles-->

29 Marja yeah but I can read [fyour minds|  
30 Dietmar [were you also referring

31 Dietmar to ~that one~  
dietmar ~hand gesture towards laptop~

32 |right (.) that's what you |looked (.)  
33 ~uhm:~  
dietmar ~glances at laptop screen~

34 so (.) kind of that s- thirty seventy (.)  
35 that were the things that you were referring  
36 [to  
37 Marja [yeah yeah.

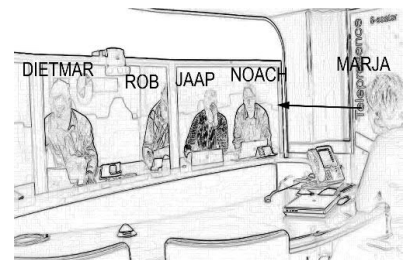


Figure 13. D hand on the side of laptop; M gaze to N.

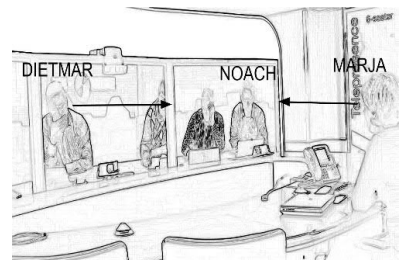


Figure 14. D glance at M; M gaze to N.

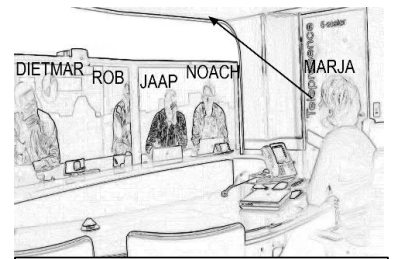


Figure 15. N gaze to M; M gaze to screen 3.



Figure 16. J gaze to screen 3.

The first part of the extract features Noach's multiunit turn, a long account relating to the procedures through which delivery processes are implemented (lines 1–22). During this, remedial work to solve the technical problem and make it visible takes place. Rob and Jaap are both engaged with writing when Dietmar, who has been looking straight ahead, suddenly frowns and thus visibly orients to something being wrong (line 2; Kaukomaa et al., 2014; cf. Kääntä, 2014). Then, concurrently with Noach's turn (line 3), Dietmar turns his gaze to his screen and runs his right hand rapidly along the side of the laptop (Fig. 13). While one cannot tell what has led to Dietmar's noticing, during the subsequent lines, he adjusts the position of his laptop and taps on the Cisco Touch Panel located on his upper right-hand side, behind the laptop. He then puts his hand on his chin while continuing to gaze at the laptop screen. With these bodily actions, Dietmar makes his access to the trouble-source relevant, namely the fact of him being the only one who can control the devices and correct the visual barrier (c.f. Greiffenhagen & Watson, 2009, p. 77). As Noach continues (lines 5–6), Dietmar glances briefly in Marja's direction, potentially to see whether the others have gained access to the presentation yet (Fig. 14). Soon after this, the view on screen 3 changes. Marja reacts to this by turning her gaze to screen 3 (line 8). While the others are still focused on Noach's turn, Dietmar again turns his gaze again to Marja, who is still looking at screen 3 (Fig. 15).

Concurrently with Noach's utterance, which projects the end of his extended turn (line 12), Marja reorients herself in the interactional space and, as the recipient of Noach's turn, produces an acknowledgement, "mhm". When Noach continues with a sequence-expanding statement, "was it some nervous mistake" (lines 14–15), Dietmar turns to look at Marja once again, after which Jaap also ceases writing and displays his orientation to the changed screen view in his local space (Fig. 16). At this moment, co-orientation to the initial focus point of the meeting activity is re-established and Dietmar's actions for the recovery of the interactional space become acknowledged. After Noach has produced a turn-initial marker, "uh", and then finally completes his turn (line 20), Marja responds via "mhm" (line 21). A short pause ensues, offering Dietmar the opportunity to launch an intervening side sequence in which he comments on his noticing the trouble, namely his having noticed the co-participants' disconcerted facial expressions at some point (lines 23–25). He then apologises partly in overlap with Marja's humorous account (lines 26–27). It is only after this that Noach finally turns to look at screen 3 and smiles, thereby retrospectively orienting to the problem-solving sequence. As a result of the noticing-related episode, the participants engage in a moment of community building, as also displayed in the two adjacent humorous comments from Dietmar and Marja (lines 28–29). Dietmar then brings the topic back on track by asking Marja whether the point about "seventy-thirty" (line 34), the topic mentioned before and now visible on the screen(s), is what Marja was referring to earlier (in Extract 2).

This subsection has investigated an instance in which trouble in seeing the current presenter's materials leads to first modifying and then recovering the interactional space. In the first extract, minimal visual cues, such as gaze, body movement and disconcerted facial expressions, are used by other-than-current-speakers to display their having noticed stance in sequentially disjunctive positions. Although the trouble-relevant trajectory is collectively brought into interactional focus, the current speaker (Dietmar) fails to notice the problem himself. Furthermore, this leads to a liminal state in which the problem is neither verbalised nor fixed. In the second extract, Dietmar finally displays having noticed the problem and initiates remedial action to achieve the recovery of the interactional space. The extracts indicate that there might be a preference for letting the person who is considered accountable for the trouble to do the noticing themselves, even if sequentially suitable places to initiate repair occur (see Schegloff, 2007, p. 87).

## **6. Concluding discussion**

This study has investigated noticing-prefaced recoveries of the interactional space in a video-mediated business meeting. Noticing has been treated as action-in-conversation that singles out a feature in the physical and sequential environment that has not, up to that point in the interaction, been considered relevant (Schegloff, 2007, p. 219). The article has focused on particular moments when conduct has become sequentially incoherent, i.e. when there has been a fracture in the interactional ecology, owing to either an auditory or a visual barrier, and one or several parties' orientation to a shared focus point has thereby been compromised. The two instances analysed highlight the recovery of interactional space as an emergent and collective accomplishment in which embodied noticing plays an important role. The analysis shows that while noticing are made available through video by intensified bodily-visual practices, they are not immediately attended to in the moment. This manifests the complexities of the video-mediated setting and its potential consequences for the organisation of (inter)action.

In the present Cisco Telepresence, the participants draw on a variety of verbal and bodily-visual resources to coordinate their actions, both sequentially and spatially. The analysis of the first instance (Subsection 5.1) illustrates how trouble in being heard compromises the participation of one party and is then recognised and solved in a non-intrusive way by one participant. The recovery of the interactional space involves embodied practices, including locating the trouble-source via gaze and remedying the situation by corrective body movement and making technological adjustments, i.e. unmuting the microphone (cf. Arminen & Auvinen, 2016). In the second case (Subsection 5.2), trouble is experienced in the form of the co-participant's presentation being visible. The other-than-current speakers use gaze and facial expressions to display their having-noticed stance,

after which they accomplish a new liminal-state configuration of the shared interactional space. Although the current speaker seems to perceive the long silences as “trouble flags” (Ruhleder & Jordan, 2001a), he does not at first notice the trouble source. Both instances show how, although disregarded in the moment by the current speaker, trouble-relevant noticings occasion a shift in co-orientation, which has consequences for the way the interactional space is renegotiated. In addition, in neither case is noticing followed by a verbal initiation of repair, indicating the participants’ preference for implicit ways of making someone accountable for technology-related trouble. Here, unlike in mundane face-to-face interactions (see Helisten, 2019), noticings do not lead to a suspending of the main activity; instead, the emergent remedial work is managed as a parallel activity along with the meeting talk. It may be argued that this indicates some level of preference for maintaining progressivity over (re)establishing intersubjectivity. However, more evidence is needed to substantiate this view.

This study has shown that space-making is a multilayered and constantly evolving achievement that involves not only *multiple spatialities* but also the ability to make sense of co-participants’ orientations to them on a moment-by-moment basis (see Mondada, 2011). The enhanced, video-mediated environment of Cisco Telepresence, in which everyone can see each other in life-sized representations, seems on the one hand to facilitate meaning-making via embodied conduct, and on the other hand, to present challenges for the production and interpretation of actions. This is due to the complexity of the situation, namely having to monitor the sequential positioning of relevant verbal and embodied actions in various locations, as displayed on several screens in the different meeting rooms. Overall, in this respect, the participants manage their orientation to each other and the agenda screen (screen 3) smoothly. However, as shown in Extracts 2 and 3, treating subtle noticings as relevant in the interaction and identifying the exact moment when the need to recover interactional space occurs can be difficult. This requires skillful use of the technology in question, but also understanding of the ways in which one’s own actions shape and are shaped by the sequential, material and technological environment (see e.g. Hjulstad, 2016; Hutchby, 2001, 2014). In addition, to solve the troubles relating to auditory and visual barriers, one must have access to controls for the sound or the visuals, and recognise that there is a problem that needs to be fixed.

This study presents initial insights into the process of recovering the interactional space in video-mediated interaction by focusing on a specific organisational context. There is a need for more research drawing on larger data sets that illustrate the practices of space-making in different settings, and for further understanding of coordinated actions as key to the smooth running of technology-mediated meetings. The findings can yet be applied by practitioners and IT

designers aiming at improving workplace communications across physical distances.

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## Appendix. Transcription conventions

,	intonation is continuing
.	intonation is final
↑	rising intonation
↓	falling intonation
=	latched utterances
[ ]	overlapping talk
tha-	a cut-off word
<u>what</u>	word emphasis
>what<	speech pace that is quicker than the surrounding talk
<what>	speech pace that is slower than the surrounding talk
°what°	speech that is quieter than the surrounding talk
WHAT	speech that is louder than the surrounding talk
£what£	smiley voice
wh(h)a(h)t	laughingly uttered word
(what)	uncertain hearings

( x )	unrecognizable or confidential item
(.)	micro pause, less than 0.2 seconds
(0.5)	silences timed in tenths of a second
((gazes))	transcriber's comments
#	location of the figure in relation to talk and non-verbal action
*-- >	gesture or action described continue across subsequent lines
---- >*	gesture or action described continue until the same symbol is reached
*-- >>	gesture or action described continue until and after excerpt's end
l.9	gesture or action described continue until the line mentioned

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