Doing meetings online

Understanding variation in virtual workplace meetings

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This paper contributes to previous work on workplace registers by presenting an analysis of a corpus of virtual meetings. The Interactional Variation Online corpus is comprised of recordings of virtual meetings from four different organisations. This study describes how each organisation shares similar practices when engaging in virtual meetings and how variation emerges when each organisation is compared to the other three. Corpus results show how, to establish conclusions related to this register, it is necessary to consider the influence of variation across organisations, the chairing style of each meeting, the formality of each organisational culture and the level of participant engagement in each meeting.

Keywords: virtual workplace meetings, workplace discourse, register variation, corpus linguistics, interactional variation online corpus

1. Introduction

This paper explores variation across organisational and individual behaviours in the virtual workplace meeting, as evidenced by analyses of the Interactional Variation Online (IVO) corpus. In doing so, we characterise virtual meetings within the broader register of workplace discourse established by, among others, Koester (2010). Following the COVID-19 pandemic, the use of virtual meeting platforms (Zoom, Microsoft Teams, etc.) has become standard in workplace environments. Despite this ubiquity, we cannot assume that virtual and face-to-face interactions are the same in terms of communication norms. Indeed, it does not take a linguist to notice marked differences between face-to-face and virtually

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mediated interactions, both from a verbal and non-verbal perspective. Difficult turn-taking, prolonged silences, increased public self-consciousness when speaking, etc. are but a few examples of the differences that commonly occur across these contexts. Research being carried out on the Interactional Variation Online (IVO[1] – http://ivohub.com) project examines the online meeting context through corpus-based multi-modal analyses of virtual workplace communication to gain depth of insight into the potential barriers and carriers of effective multi-party talk in this context (O'Keeffe et al. 2024).

This paper contributes to our understanding of 'how meetings are done' and how institutional and individual identities are constructed in the virtual workplace meeting by investigating commonalities and differences across and within institutions who 'do meetings online'. We make the case for examining linguistic variation across and within institutions, meetings, and individuals to fully understand this discourse context. We examine meeting interactions in four different professional contexts (each corresponding to distinct discourse communities) focusing on the verbal and non-verbal practices for progressing through a meeting whilst exploring the role of a chair in constructing these practices.

We are interested in three research questions: Are there generic discursive characteristics of online meetings? What emerging commonalities and differences arise as a consequence of inter- and intra-institutional variables? Are there generic/unique practices that are used by participants to progress through an online meeting? We note that the insights provided in this paper are drawn from a limited sized dataset (the IVO corpus) and so conclusions should be understood within this context. As the focus of this paper is the examination of specific social contexts in a multimodal manner, this requires dense transcription, annotation and analysis that necessitates manual intervention.

Whilst previous research has examined in-person meetings in a range of contexts (e.g. healthcare, business and legal settings, see Handford 2010; Sarangi & Roberts 1999; Drew & Heritage 1992), this paper sets out to characterise some of the generic features of the virtual workplace meeting, with a view to exploring what an online meeting register might look like.

2. Video-Mediated Workplace Discourse

Previous studies on workplace discourse within register studies have focused on specific workplaces (e.g., medical contexts, see Pickering, Friginal & Staples 2016). This paper analyses virtual workplace discourse across various organisations to establish both common and contrasting features. In doing so, we argue that there are characteristics of virtual meetings that result from the technology through

which they are mediated, as well as salient features common to face-to-face meetings delivered by the same organisations.

Numerous studies on the effects of synchronous computer-mediated interactions (mainly video apps) exist from both before and after the COVID-19 pandemic. For example, Shin and Song (2011) examined the impact of virtuality on group cohesion and task performance. More recently, studies highlighted an acceptance and prevalence of multitasking (Bleakley, Rough, Edwards, Doyle, Dumbleton, Clark, Rintel, Wade & Cowan 2022) which is seen to occur more frequently in regular rather than once-off meetings (Cao, Lee, Iqbal, Czerwinski, Wong, Rintel, Hecht, Teevan & Yang 2021), with functionality such as text-based chat being used to engage in more social conversations or information seeking in parallel to video-mediated based dialogues (Sarkar, Rintel, Borowiec, Bergmann, Gillett, Bragg, Baym & Sellen 2021). However, many of these studies undertaken from an information science and/or a psychology perspective essentially focus on social information processing.

Studies examining face-to-face workplace interactions from a linguistic, and more specifically from a discourse analytic perspective, have been explored through various approaches (Sarangi & Roberts 1999; Handford 2010; Koester 2010; Drew & Sorjonen 2011), with a specific focus on the relational dimension of meetings (Holmes & Stubbe 2003; Mullany 2006; Holmes, Joe, Marra, Newton, Riddiford & Vine 2011), the enactment of professional identities and specific power dynamics. Institutional hierarchy, power and conflict are considered as core characteristics of professional registers specifically in the context of meetings (Holmes 2000; Handford 2010). Differences in cultural norms and practices (e.g. timekeeping procedures), institutional agendas (e.g. overall institutional aims), participant goals (what each member wants to gain from a meeting) and individual interactional styles (i.e., idiolect) all contribute to how the negotiation of power and hierarchy varies institutionally as well as within/across individual teams and projects.

Drew and Heritage (1992: 22) are often cited as defining institutional discourse as being distinct on the basis of three specific characteristics: "an orientation by at least one of the participants to some goal, task or identity"; "constraints on what one or both participants will treat as allowable contributions to the business at hand"; "inferential frameworks and procedures that are particular to specific institutional contexts". Heritage (1997) highlighted that workplace interactions often involve asymmetrical power relations, where one participant holds more institutional power due to their role and identity (e.g., the meeting chair typically symbolises such a configuration). These discourse identities are usually different from social identities, such as parents or siblings (Greatbatch & Dingwall 1998). Such characteristics make workplace discourse distinct from casual conversations or other types of more socially oriented discourse.

Holmes (2015) observed that growing interest in workplace discourse among linguists has led to diverse methodologies, analytical approaches and discourse types, as well as various tools and platforms (like emails and social networks), contributing to the broader concept of 'workplace communication ecology' (Turner, Qvarfordt, Biehl, Golovchinsky & Back 2010). As Berry (2006: 346) states, there is a paradoxical effect of the influence of technology on workplace communication as it "is becoming both easier and more difficult".

Virtual meetings constitute the latest element of this new ecology, representing contexts in which transactional and relational interaction play out in real time. Thus, meetings are both practical and social events "where the social production and reproduction of organisations occur" (Watson & Drew 2017: 316–17). The rules and norms of online meetings align to the existence of specific discourse communities, characterised by shared goals, values and discourse practises (Swales 2016). In these terms, communicative practices (appropriateness of topics, writing/speaking conventions, etc.) are assimilated, transmitted, and socially reproduced rather than taught by specific professional/disciplinary communities (Berkenkotter & Huckin 1995: 7). The activities and behaviours that are displayed in meetings contribute to how individuals present themselves as members of an organisation and meetings are where, as Tracy and Dimock (2004: 157) contend, "people define and do who they are as groups, organizations, and publics".

The role and activity of a chair is central to how professional discourse interacts in virtual meetings and is central to organisational production and reproduction. As we shall explore across different organisations,[1] the chair provides a structure to meetings, is responsible for progressing through an agenda, and for nominating participants to speak. The discourse of the chair, its dominance of the overall meeting discourse and how this shapes the register of virtual meetings will be examined within the IVO corpus which we now detail.

3. Data and methodology

The IVO corpus is a collection of 19 video and audio recorded virtual meetings held between July 2021 and July 2022. It contains over 16 hours of meetings, amounting to circa 168,000 words. Some of these meetings were provided to the IVO project by partner institutions and others are recordings of meetings that are in the public domain. For the former, consent was provided by each participant to use the recordings for research purposes and, for the latter, consent was given by each organisation for their research use. Although organisations remain

1. We use both terms 'organisations' and 'institutions' interchangeably.

identifiable (due to their being in the public domain), the names of participants and events were anonymised, as approved by the various ethics committees of the project universities. The recordings vary in length, number of participants, and meeting type. A sample of 15 recordings (13.5 hours, circa 140k words) of full meetings from four institutional contexts is used for the analysis in the current study, as detailed in Table 1. We refer to this sample as the 'IVO core meetings corpus'.[2] The IVO core meetings corpus includes municipal council meetings (DCC), a non-governmental organisation promoting arts (NCoL), an academic conference organising committee (TaLC) and a state-of-the-art software development company (Git). Some of these meetings are hybrid i.e. some participants are in the same location, these meeting codes are marked * in Table 1.

Table 1. Breakdown of the IVO core meetings corpus*

Partner code and number	Recording length HH:MM:SS	Words	Participants	Type
DCC1	1:50:05	20125	14+	committee meeting
DCC2	2:17:32	24123	22+	committee meeting
DCC3*	1:46:25	18570	20+	committee meeting
DCC4	1:56:03	19897	20+	committee meeting
NCoL1	0:34:19	5907	5	team meeting
NCoL2	0:48:46	8393	4	team meeting
NCoL3*	0:27:11	3707	6	team meeting
NCoL4*	0:37:15	6251	4	team meeting
TaLC1	0:41:07	7803	12	committee meeting
TaLC2	0:33:47	5912	14	committee meeting
TaLC3	0:21:51	4235	13	committee meeting
Git1	0:20:04	3481	10	team meeting
Git2	0:26:40	4906	4	team meeting
Git3	0:38:58	5886	20+	team meeting
Git4	0:16:56	2561	2	team meeting
Total	**13:36:59**	**141757**		

* In some cases, it is not possible to tell the exact number of call participants. At the time of recording, platforms such as Teams and Zoom, had a restriction on the number of participants visible at any one time. The numbers marked with + denote those where there was evidence on the recording to show that there was at least this given number of participants but it does not rule out the possibility that there may have been more. For this reason, we have not provided normalisation results here.

2. The full IVO dataset includes recordings that are not meetings, for instance interviews, training sessions and webinars. These are excluded from the 'IVO core meetings corpus' (this is referred to as 'non-meeting data' in Table 2).

As described above, this paper sets out to investigate commonalities and variation in practices in virtual communication across and within institutions. We first note variation in both the numbers of participants and the length of recordings and, therefore, word counts for each recording. We also note that by their very nature all virtual workplace meetings are mediated by technology and that, while essential, the technology is also subject to variation. All participants, at a minimum, need access a device connecting to a virtual room. The meeting is facilitated by a range of online platforms (e.g., Zoom, Teams), each providing both core and distinctive features (e.g., speaker views, backgrounds, chat functions, emojis). Technological infrastructure and quality vary from institution to institution (e.g., hardware spec, Wi-Fi signals). Competence with technology differs from person to person.

For multimodal data, orthographic transcription is required to capture speech and nonverbal interaction in both spoken audio and video recordings. While there is no agreed standard for transcription, shared practices are common across general spoken corpora (e.g., Cambridge and Nottingham Corpus of Discourse in English (CANCODE), Carter & McCarthy 2004, O'Keeffe & Adolphs 2008) and/or national corpora with spoken components (e.g., Spoken BNC2014, Love 2020). Since the "value" of spoken corpora is partly in revealing the "normal dysfluency" of speech (Biber, Johansson, Leech, Conrad & Finegan 1999: 1048), there is an emphasis on transcribing verbatim, i.e. without standardising the content, including elements of speech such as back channels, repetitions, hesitations, incomplete utterances and pauses. This approach was also taken by the IVO team, with an adapted version of the CANCODE conventions utilised (see https://ivohub.com/resources/).

As speech-to-text tools are now integrated directly into the main videoconferencing software used for meetings (e.g., Teams (https://teams.microsoft.com/) and Zoom (https://zoom.us)), a speech-to-text tool was used to generate 'first-pass' transcripts here for the representation of speech. Otter.ai (www.otter.ai) was used as it is the text-to-speech tool used by the Zoom platform and it provided effective turn separation, speaker identification and time alignment. It also offered ease of editing, a range of downloadable file options and generally increased the speed of transcription. It includes a file export option in SubRip (.srt) format which automatically introduces timestamps into transcriptions. This is essential for subsequent realignment with video in the multimodal corpus tool ELAN. After automated transcription, the final transcript was produced by manually checking, anonymising and annotating the audible speech and peripheral sounds. The Otter.ai transcription tool has a file export option in SubRip (.srt) format which includes timestamps in transcriptions. This is essential for subsequent realignment with video in the multimodal corpus tool ELAN.

Following this, to capture non-verbal behaviour in the data, the transcripts were manually coded with the aid of ELAN (https://archive.mpi.nl/tla/elan). ELAN enables the annotation and analysis of data across 'tiers' of information, supporting frame-based analyses of multiple modes of time series data, from audio and video data to sensor outputs (see Figure 6 for an example of the representation of the data using ELAN). This is a key function when examining different forms and functions of non-verbal communication. However, one should not underestimate the complex and time-consuming nature of this process. Multimodal analysis requires describing multiple modes in the data through an iterative process of transcription and annotation. This involves repeatedly watching and/or listening to video recordings, sometimes with sound only or video only, to transcribe speech and annotate both speech and non-verbal communication. This frequent iterative engagement with the data is crucial to promote close qualitative observation. We will see that this approach also needs to be implemented when examining the data as not all NVC cues can be annotated. For further detail on the process for identifying and annotating non-verbal behaviours in the data, see Knight et al. (2024). Annotated data can be exported from ELAN as tab-delimited text in .csv files for use in Microsoft Excel. This allows for a detailed view of frequencies and distribution of both verbal and non-verbal behaviours as well as their co-occurrence.

The transcribed corpus, coded according to institution, meeting and speaker ID, was searchable in Sketch Engine. For the purposes of our analyses, the IVO core meetings corpus was configured into subcorpora (see Table 3), which facilitated inter-institutional and intra-institutional level analyses so that comparison could be made across differing levels of specificity, i.e. at a whole corpus level, an institutional level, a meeting level, and at a participant level.

Table 3. IVO subcorpora utilised for intra- and inter-institutional comparison

Subcorpus	% of the total data	Subcorpus	% of the total data
DCC	48.98	All meetings except DCC	35.32
GitLab	9.38	All meetings except GitLab	74.91
NCoL	15.16	All meetings except NCoL	69.14
Talc	10.78	All meetings except Talc	73.51
Non-meeting data*	15.70	All except non-meeting	84.30
DCC1	11.29	All DCC except DCC1	37.68
DCC2	14.02	All DCC except DCC2	34.96
DCC3	11.25	All DCC except DCC3	37.72
DCC4	12.41	All DCC except DCC4	36.56

Table 3. *(continued)*

Subcorpus	% of the total data	Subcorpus	% of the total data
Git1	2.04	All Git except Git1	7.34
Git2	2.63	All Git except Git2	6.76
Git3	3.30	All Git except Git3	6.08
Git4	1.41	All Git except Git4	7.97
NCoL1	3.60	All NCoL except NCoL1	11.56
NCoL2	5.10	All NCoL except NCoL2	10.06
NCoL3	2.67	All NCoL except NCoL3	12.48
NCoL4	3.79	All NCoL except NCoL4	11.36
Talc1	4.62	All Talc except Talc 1	6.16
Talc2	3.62	All Talc except Talc2	7.16
Talc3	2.54	All Talc except Talc3	8.25

* These are part of the 'Full IVO corpora are referred to above which includes these non-meeting data such as training sessions, interviews and webinars.

We begin by describing our macro-level observations from repeated engagement with all recordings, followed by quantitative comparisons within and across the four datasets. This helps analyse meeting structure, management, and participation in the IVO dataset.

4. Analysis of IVO Data

In terms of the analysis, we used an iteration of top-down and bottom-up corpus-based approaches. We observed results from the entire core-meetings corpus before focusing on individual organisations and meetings (top-down) and looked at the discourse of individuals within particular recordings before broadening out to sub-corpora of meetings and organisations (bottom-up). This helped us to get a sense of both overall patterns and salient features and the extent to which these were influenced by the behaviour of individuals.

Our methodological approach also combines a close reading of the corpus with the examination of data-driven values and frequencies. This dual method is first justified by the multimodal nature of our corpus; non-verbal items such as gestures not only align temporarily with specific speech acts, but they also share very specific semantic and pragmatic functions (Rühlemann 2023; Knight et al. 2024), which means both verbal and non-verbal items need to be analysed

concordantly. Secondly, we are looking at a small, specialised corpus. As a result, our observations and hypotheses are also informed by strong contextual variables. These qualitative insights are also explored through Sketch Engine to get a more quantitative 'aboutness' of the data. However, the frequencies obtained through Sketch Engine need to be interpreted with caution due to the small number of speakers included in the dataset. With such a small dataset, recurring patterns can be more indicative of idiolectal rather than discourse community features.

The analysis presented in this article is divided into 3 sub-sections, each section addressing a specific research question. The first research question concerns establishing whether there are generic variables that exist across all four organisations analysed. This question requires us to examine whether specific interactional patterns are preserved in a virtual environment, but also whether all organisations included in our corpus present similar strategies to cope with a cue-filtered environment. This was answered by observing and identifying each organisation's various moves/stages as well as looking at single and multi-word items that emerged as salient in the entire corpus. Results were then examined from each individual organisation to determine if these were dependent on organisational context or could be said to be consistent across all organisations in the dataset.

This inter-institutional comparison also allowed us to address the second research question concerned with what and how organisational culture/norms influence the discourse of online meetings and if different discourse communities are impacted in a similar fashion.

Finally, to answer the third question related to how individuals progress online meetings, we narrow in on specific items in corpus results (such as nomination terms) that are used, in particular, by the chair, to progress meetings and allocate turns.

4.1 The Structure of the Virtual Meeting

Aligned with our general methodology, the structure of the virtual meeting was analysed using a dual approach: a detailed observation of all videos to identify the main sequences and organisational steps followed by each institution, coupled with a textual analysis of the interactions within each sub-corpus.

Handford (2010) offers a description of the structure of face-to-face meetings, based on the analysis of a 1-million-word corpus of business English (CANBEC). This description offered a robust starting point for our manual analysis and coding of the structure of online meetings. Four members of the research team carried out the analysis and the results were cross-compared to establish the final meeting stages. We found that, as with face-to-face meetings (Handford 2010),

most meetings in the IVO corpus follow a consistent structure, as illustrated in Figure 1 (adapted from Handford 2010). This structure typically includes:

1. the premeeting preamble;
2. the 'official' meeting opening;
3. the core meeting phase of agenda discussion which follows a cyclical pattern starting with the assignment of an agenda item to a participant and ending with a transition to the next item; and
4. the closing stage.

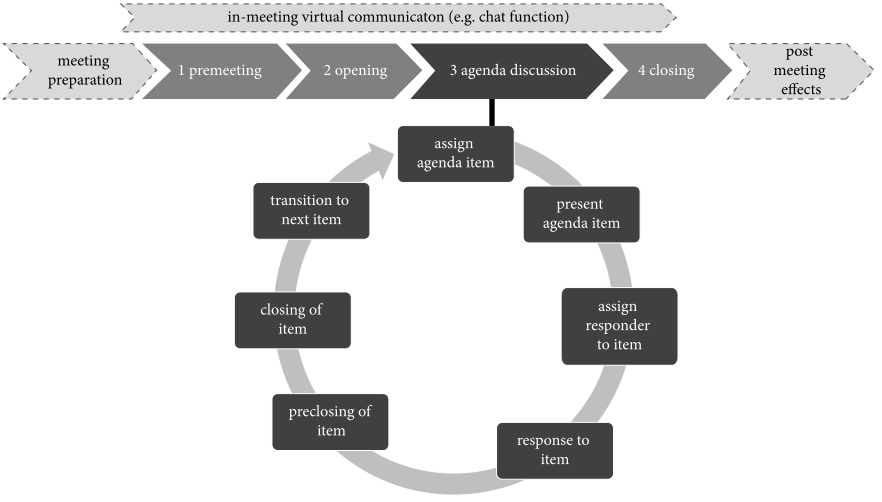

Figure 1. The main stages/moves in virtual meetings

These generic stages are evident not only through our sequential analysis but also through distinct linguistic routines, as illustrated in the following examples:

can everyone hear me, (opening/present agenda item)
right let's start, (opening)
let's move on to the next item (transition to next item), and *thanks [name] over to you*. (assign agenda item)

The identified stages can be found in all organisations and all meetings included in our corpus and typically align with Handford's (2010) stages for face-to-face meetings, thus reproducing typical face-to-face habits of professional communities.

As part of this observation-hypothesis process, we also observed, in line with Angouri and Marra (2010), the central and defining role of the chair and the agenda in shaping turn-taking and turn allocation. Indeed, in nearly all interactions, it is the chair who orchestrates and enacts these transactional phases,

working through an agenda, signalling the progression and assigning turns to other participants (as discussed further in Section 4.1). Additionally, we identified recurring verbal and non-verbal routines, including waving and hand-raising, which play a significant role in stage-marking (see Section 4.2 for further details).

By way of a broad quantitative starting point on our observations, we also implemented a key multi-word unit analysis (referred to as 'key terms' within the keyword function of Sketch Engine) to get a more quantitative 'aboutness' of the data. Table 4, for example, lists the ten most frequent key multi-word units in the IVO corpus using the enTenTen corpus (52 billion words of internet texts) as a reference corpus. Some of the items reflect the terminology which is specific to some meeting topics (*query designer*) or relate to annotations for the use of technology in virtual meetings (*tech noise, screen scroll*). Nevertheless, of most interest to us are the non-technology-related key items (shaded). They are indeed frequent due to their usage by the chair.

Table 4. Top 10 key terms in IVO corpus with enTenTen as reference corpus

Rank	Key terms
1	anon_X*
2	tech noise
3	screen scroll
4	slide change
5	screen change
6	screen share
7	query designer
8	thanks councillor
9	i think
10	signal loss

* Key terms picked up anonymisation code anon_x as the most salient item. This includes anonymised names of speakers (e.g. anon_S035), places (e.g. anon_PL010) and events (e.g. anon_EV024)

As we discuss in Sections 4.2 and 4.3, the items *anon_x, thanks councillor* and *I think* in Table 4 indicate the high prevalence of meeting management strategies by the chair. *Anon* is the code used in the IVO transcripts for anonymising people's names, institutions, events, etc. Further analysis of this item shows that it is most used in instances of direct nomination by meeting chairs to manage turns (e.g. *anon* followed by speaker identifying number). The phrases *thanks councillor* (see concordances in Figure 2) and *I think* also play a role in turn meeting

management (see Section 4.3). We first explore the use of direct nomination in more detail when considering the role of the chair.

Figure 2. Concordances of *thanks councillor* used for turn management

4.2 Role of the Chair and Turn Allocation

We have established that one of the commonalities among most virtual meetings is the role of a chair as meeting manager and agenda driver. A key element of the role is to orchestrate the meeting, set the tone, follow established workplace cultures or institutional protocols, and be attentive to overall participation (Angouri & Marra 2010). The chair also has the power to influence the overall culture and dynamic of the meeting through imposing these institutional norms in ways that can be restrictive or enabling. A chair typically drives the movement through the meeting, allocating turns through the use of an agenda (ibid). This is illustrated in the iterative element of Figure 1 at Stage 3. This allocation of responsibility to the chair as turn manager is a key feature of workplace meetings, distinguishing their turn-taking from informal conversations where participants have agency over their own turns (Sacks, Schegloff & Jefferson 1974).

Aligned with Swales' concept of moves (1990, 2016), we note, in most institutions, recurring rhetorical patterns that help the chair establish the dynamic of the meeting. In studies employing Conversation Analysis, most notably in medical communication (e.g. Heritage & Maynard 2005; Robinson & Heritage 2014), the term 'phase' is used similarly to describe sections of interactions between doctors and patients which are characterised by salient terms and patterns. Variation can occur as a result of the chair's personal style, group power dynamic, or when chairs alternate between meetings, as discussed further below.

4.2.1 *Nomination in turn allocation*

Turn allocation in the IVO corpus is mostly performed by directly or indirectly nominating a participant to take a turn, i.e. using the participant's name (e.g., anon_S033). This accounts for the high ranking of *anon_x* in Table 4. Of 1,436 instances of *anon_x* in the IVO meeting data, 1,322 (92%) are instances of direct nomination (the remainder are anonymised institutions, events, etc.).

We note that the absence of directional gaze to select a speaker in the virtual environment makes explicit forms of nomination such as names essential. As Lerner (2003:179) outlines, gaze practices often explicitly demonstrate to coparticipants that an initiating action is being directed to a particular party, thus selecting them to speak next.

In addition, in the larger virtual meetings, unlike in face-to-face contexts, participants cannot always see each other because the screen or platform can only accommodate a limited number. In these contexts, the use of names becomes all the more important, as in the example:

It's [*anon*_S097] *up first, but I don't think she's on the call. Is* [*anon*_S097] *on the call? [silence] Okay, so* [*anon*_S097]'s *not on the call, let's move on.*

These examples are part of a larger movement towards explicitness that will be further demonstrated in 4.2.3.

4.2.2 *The chair, the floor, and linguistic routines*

To look further at how meeting chairs in the IVO data operate, we compare the percentage of speaking time they occupied in each meeting (Figure 3). These percentages are generated automatically as a feature of the transcription tool Otter.ai.

We note a high degree of variation, ranging from greater participation in the TaLC meetings (occupying between 55 to 66% of the meeting) to the lower participation in the DCC meetings (occupying between 10 to 16% of the meetings). The Git recordings have a value of zero in Figure 3 as they conduct meetings in a manner that does not have a clearly identifiable chair. Instead, they follow an agenda and the member responsible for each item takes the floor in turn without direct allocation from a chair. In these meetings, there appears to be an implicit understanding that turn-taking and turn order is linked to agenda items and that each agenda item has a lead participant who will speak to it.

The relatively low percentage of the DCC chair participation is accounted for by the fact that they mostly facilitate the meeting and agenda flow, with other participants contributing in the main with delivery of agenda items and other input such as updates or presentations within the meetings. On the other hand, the TaLC chair manages both the movement through an agenda, as well as often being

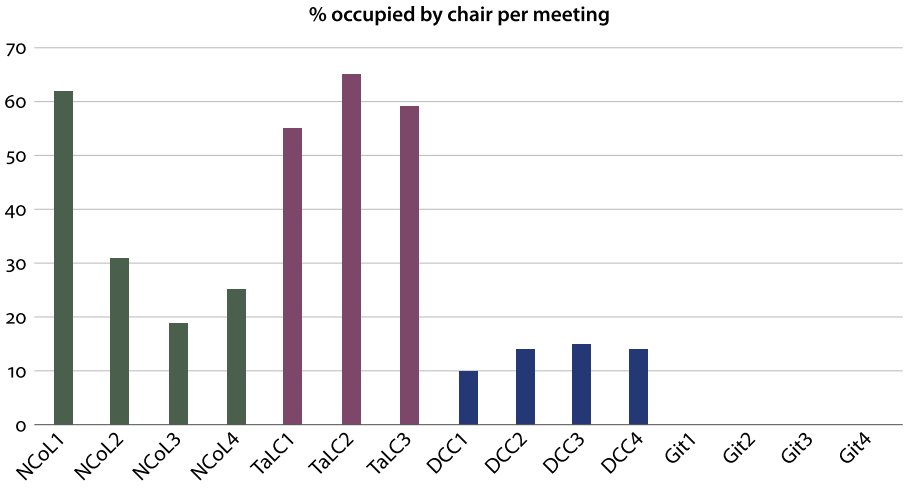

Figure 3. Percentage of meeting occupied by the chair in each meeting of the IVO core-meetings corpus

responsible for the provision of information and updates throughout the meetings. However, despite the comparatively low percentage of speech by DCC chairs (Figure 3), the items on the keyword and key term frequencies (see Section 4.3, Tables 5 and 6) across all meetings are most often delivered by the chair regardless of whether they have a low percentage of speaking time. For example, as we discuss in Section 4.3 and as Table 6 illustrates, the most frequently occurring 3–5 n-grams, such as *in relation to, in terms of* and *thank you very much* are often-repeated phrases by the DCC chairs to refer to agenda items and progress the meeting. The spoken input of the chair across all meetings has a strong influence on the items which emerge in the overall management of the meeting but also are salient for each organisation. This echoes the finding of Angouri and Marra (2010) that there seem to be generalisable features across meeting contexts which make meetings recognisable to participants, underscoring the significance of the chair's role which both shapes and is shaped within the virtual meeting context. We return to this in greater detail below.

Returning to the meeting structure (Figure 1), we find that high frequency use of nomination occurs at transition points when moving from one agenda item to another, or through phases within the agenda discussion stage. These create clear turn relevant places (see Sacks et al. 1974) where a next speaker is identified. Figure 4 illustrates some of the nominating routines that chairs commonly use to facilitate meeting management.

First up we've got [name]
I'll go to [name]
First [name], then [name]
[name] You have the floor, over to you [project name] [name] would you like to give us an update on [project name]
Do you want to come/jump/pop in there/in on that [name]
Let's move on to [project name]
Next up [name/project name] okay next [name/project name]
Thank you very much appreciated [name] the next item
Thanks very much [name], [name]
I have another hand [name]
You have your hand up [name] do you want to come back in [name] is your hand still up

Figure 4. Spoken routines of meeting chairs in managing turn allocation

4.2.3 *Non-verbal routines: 'hand(s)' and waves*

As already illustrated through instances of direct nomination, the need for explicitness appears to be characteristic of the online meeting. The physical space is not shared, and behaviours need greater contextualisation. This is seen both verbally and non-verbally. For example, there is an increase in backchannelling head nods (see Knight et al. 2024) and in the use of hand-raising (see Figure 5 for use of *hand* in turn allocation).

In virtual platforms, the 'hand' can refer to a participant raising their hand to speak or the use of a virtual hand emoji. The word 'hand' occurs 60 times in the core meeting corpus; 38 of these refer to hands raised as floor requests. A raised hand with the palm facing forward (real or virtual) is understood to be a request to take the floor directed towards the chair. It occurs both as a response to the floor having been opened by the chair or as an unsolicited request to speak at a turn relevant place. The concordances in Figure 5 show the chair noting and/or responding to the gesture (both real and virtual).

In addition to the use of hand gestures to access the floor, a commonality across institutions and meetings in the IVO corpus is waving at the opening and closing phases of the meeting proper. It occurs before and after the main business of the meeting, when participants enter the virtual room and just before leaving, marking Stages 1 and 4 in Figure 1. In the virtual meeting context, as evidenced in the IVO corpus, waves are particularly frequent as a greeting at the beginning of the meeting and a salutation at the end, performing a relational function. They also occur when someone joins a meeting late. When there is a turn ongoing, a wave can be an acknowledgement and show of collegiality (from the

great to see you back in the [anon_pl43] as well um is there any	**hands**	[pause] up for questions comments
to to all of us [anon_$038] did you want to come in there is your	**hand**	up <s038> 10:37 uh yeah chair yea
w saw you come in there councillor [anon_$037] you have your	**hand**	up do you want to come back in</s0
r [anon_$041] and then councillor [anon_$042] and if any other	**hands**	come up in the interim but [anon_$0
s 16:33 okay thank you uh i'm i've only one more	**hand**	showing councillor [anon_$082] so i'm gonna take
which we are to agree today hopefully i see one	**hand**	showing uh councillor [anon_$125] you come in o
ormal well formatted document uh i have another	**hand**	councillor [anon_$081] and i also have councillor
uncillor [anon_$082] but i think [anon_$082] your	**hand**	is up from the previous uh item 32:33 it is indeed
that's it 35:00 thanks [anon_$124] i've two more	**hands**	showing uh councillor [anon_$087] and councillor

Figure 5. Concordance examples of the use of *hand*(*s*)

latecomer and other attendees) while not interrupting the turn. Across the institutions in the data, waving frequently occurs without any verbalisation, as well as co-occurring with leave-taking items such as *goodbye, see ya, take care*. For instance, see Figure 6 where the chair says *ah enjoy the rest of your day* in the closing of the meeting and the tiered transcript (from ELAN) indicates that there is simultaneous waving by participants in the meeting.

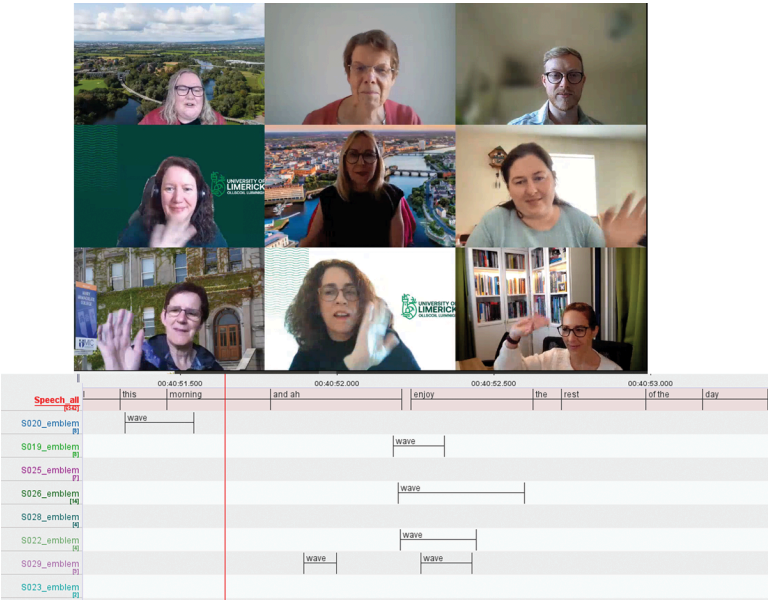

Figure 6. Screenshot illustrating meeting closing waves

We now look at the IVO core data in terms of institutional differences. In the section which follows, we will explore both consistency within each institution

and variation between institutions, demonstrating the complex and multifaceted nature of the virtual meeting context.

4.3 Inter-institutional Variation

To compare across institutions, we first look at keywords within our subcorpora (see Table 3). We use the remainder of the corpus as a reference corpus to establish keywords (Table 5), before doing the same for key phrases (Table 6). This approach, employed by Baker, Brookes and Evans (2019) and Fitzgerald (2023) reveals what is unique to each organisation and the terminology that sets each apart.

Table 5. Top ten keywords from each organisation with the remainder of the corpus as a reference (raw figures)*

DCC		Git		NCoL		TaLC	
Keyword	**Freq**	**Keyword**	**Freq**	**Keyword**	**Freq**	**Keyword**	**Freq**
councillor	364	Dashboard	68	anon_ev5	15	conference	78
Slide	119	Filter	27	writer	15	registration	48
Motion	104	Widget	26	anon_ev6	13	anon_fn61	14
Park	92	Mr	24	anon_pr5	13	plenary	11
Housing	89	Cache	24	anon_pr4	12	publisher	9
anon_inst91	86	Workflow	18	facilitator	12	dinner	9
anon_inst86	79	Demo	15	anon_ev4	10	early bird	9
Council	55	anon_inst1589	14	illustration	9	scheduling	7
Unit	45	Maintainer	14	anon_inst19	8	anon_fn62	7
regeneration	45	Bulk	14	mailchimp	7	convener	6

* Note: the anon_ terms are those which have been anonymised by transcribers. The codes used are inst for institution, ev for event, pr for project and fn for first name.

In Table 5, column 1, the city council meetings (DCC), we find that the addressing of councillors by their honorific title emerges as key, as well as *slide* which is linked to the use of slides to deliver reports, and *motion* relating to the passing of motions and discussions regarding parks, housing and (city) regeneration. The Git list is dominated by technical terminology that is specific to the industry (*dashboard, filter, widget*, etc.) while the NCoL keywords show a strong salience of discussion of the various literary events and projects (*writer, facilitator*, etc.) that are within their remit to organise. The TaLC keywords reflect the

purpose of the meetings of this conference organising group, with conference registration, plenaries, and publishers all topics of discussion (*conference, early bird, scheduling*, etc.). These findings are concordant with expected patterns of language use and the communication goals of the various discourse communities represented in the corpus.

We next consider the variation in linguistic patterns across the four institutions using n-gram frequency lists to determine variation at a multi-word unit level. Table 6 lists the ten most frequent 3, 4 and 5-word n-grams in the corpus. The shaded items are those that are unique in the top 10 of each organisation. This table exemplifies some level of similarity across the corpus. However, there is also a high degree of internal variation.

Table 6. Top 10 most frequent 3–5-word n-grams in the IVO core corpus by institution (per 100,000 words)

Rank	DCC		Git		NCoL		TaLC	
	Item	Freq	Item	Freq	Item	Freq	Item	Freq
1	in relation to	136.1	i don't	145.2	i don't	199.0	i don't	85.7
2	in terms of	113.3	we don't	88.2	don't know	157.3	in terms of	81.2
3	thank you very	80.5	don't have	77.8	i don't know	134.8	you want to	81.2
4	you very much	78.5	we need to	72.6	i think that	112.4	things like that	81.2
5	thank you very much	78.5	in terms of	72.6	i think it	93.1	in the background	72.2
6	a lot of	75.5	i feel like	72.6	at the moment	89.9	and things like	72.2
7	thanks very much	73.5	the query designer	67.4	and i think	83.5	and things like that	72.2
8	um you know	57.6	we have a	57.0	yeah i think	64.2	i think we	58.7
9	i don't	56.6	don't know	57.0	in terms of	64.2	as well so	58.7
10	i think that	51.7	one of the	57.0	so i think	51.4	the end of	58.7

Unshaded items are those that are common across 2–4 subcorpora. These include the deictic item *in terms of* which is common to all four subcorpora and is used to focus or point forwards or backwards to agenda items or topics. This three-word item is also found to be highly frequent in face-to-face meetings (Handford 2010), as well as in our dataset, as illustrated below:

> *we're planning to keep the workshops free in terms of registration other than maybe a small cost for uh lunch for anybody who wants to avail of that option.* [TaLC1]

I don't know is also frequently used across institutions. Handford (2010) also identified this phrase as a high frequency item in face-to-face meetings, functioning as a hedge. The most frequent collocate of *I don't know* in the IVO data is *if*. This again aligns with Handford's findings that the pattern *I don't know if* is frequently used in business meetings in order to hedge (*And you know, what, I don't know if it's a good idea that we'd be discussing this um in public* [DCC2]). *I think that* also appears in two of the institutions, DCC and NCoL. This can signal practices such as offering an opinion, disagreeing, and hedging (Handford 2010). (*I think that's a really good idea.* [NCoL4]).

In terms of what is unique to individual institutions, we note that in the DCC subcorpus, transitions between agenda items and responses to agenda items are often marked by the use of politeness markers with *thank/s*, consistent with formal communicative contexts (Atkinson 1992). This accounts for many of the high-frequency items (*thank you very, you very much, thank you very much, thanks very much*). We note that thanking, along with the use of honorifics (*councillor*, Table 5) point to the formality and positive politeness that is central to this subcorpus, and which is not evident in the other three datasets. In DCC data, the chair frequently thanks participants for their contribution before moving on (*Thanks very much, [anon_$106]. [pause] that's a really useful update …* [DCC4]) and speakers, once nominated to take the floor, frequently thank the chair at the beginning of their turn (*Thank you chair and just to support this motion, and I just think as well that, you know…* [DCC3]).

The Git organisation, as an international technology company, conducts meetings to address collaborative tasks. This accounts for multiple instances of *we + verb* items found in the sub-corpus (e.g., *we don't, we need to, we have a*). As Handford (2010) noted *we need to* is frequently used in face-to-face meetings to downtone the force of a request or command. In addition, industry-specific (often opaque) terminology stands out in this context (e.g., the *query designer*). Participants in the NCoL data appear to tend to hedge contributions and suggestions with epistemic modal expressions using the mental-process verb *think*. This finding is consistent with the context of these meetings where there is a lot of

collaborative discussion around events (e.g., *uh i think it's a really important thing to be supporting* [NCoL01]).

Much of the salient items in TaLC are accounted for by the chair, who is consistent across all recordings in the corpus. The prominence of *things like that* is due to the chair's use of this term, which was also found to be frequent in face-to-face meetings (Handford 2010). This item is used as a vague category marker and is indicative of a high degree of shared knowledge (O'Keeffee, McCarthy & Carter 2007) within this conference organising committee. For example, the chair in TaLC says… *we were contacted by a person who said that they would send us brochures and things like that but they wouldn't man a stand [TaLC01]*. The vague category marker *brochures and things like that* has to be understood as a prototype within the group and this is indicative of implicit shared knowledge. The phrase *things like that* is used 18 times in the TaLC subcorpus but only 4 times in NCoL and twice in DCC and Git suggesting a high degree of shared (and concentrated) knowledge within the TaLC data.

As we have seen thus far, comparing across the IVO data across institutions brings to light some commonalities and some differences. Although this is not the purpose of this paper, some of these findings align with expected discourse communities' specificities (e.g. DCC's high level of formality, etc. typical of institutional discourse).

However, any one of the items on Tables 5 and 6 can be further examined within each subcorpus and in doing so can show internal variation. For example, the most frequent item on Table 6 from the DCC subcorpus, *in relation to*, is not evenly distributed across the four meetings in IVO (all of which were all chaired by different people): 45 occurrences in DCC1; 14 in DCC2; 32 in DCC3; and 46 in DCC4. This kind of intra-institutional variation will now be explored.

4.4 Intra-institutional Variation

Returning to our observation in Figure 4, we noted routinised uses of language at turn transitions when the chair was creating a turn relevant place and nominating the next speaker. When we examine some of these more closely, they bring to light some of the internal variation within subcorpora that is a function of individual speaker variation. For example, we noted the use of *Do you want to come/jump/pop in there/in on that [name]?* At a macro-level, this metaphoric use of language is specific to virtual meetings (for example in the Cambridge and Nottingham Business English Corpus (Handford 2010), *come in* is used only 8.24 times per million words compared with 365 times per million words in the IVO data). As Figure 7 illustrates, the use of (*do/did you want to*) *come in on* (*this/that*) facilitates an invitation to enter a metaphoric virtual space when used by the chair.

at clarification [anon_$038] [anon_$034] do you want to	come in	on on anything else 11:17 um yeah maybe
de so maybe [anon_$036] or [anon_$045] might want to	come in	on that but we have engaged and are enga
n to the next motion 1:26:13 sorry chair chair could i just	come in	on a point of information please 1:26:16 go
t's just one point i will make it briefly uh i wasn't going to	come in	on this but i was sent it was forwarded on t
nd [anon_$089] 18:20 okay [anon_$089] do you want to	come in	on any of that first 18:23 um just the couple
/ i see one hand showing uh councillor [anon_$125] you	come in	on that please <s125> 31:38 yeah thanks a
ants and uh there will be a timeline i ask [anon_$124] to	come in	on that piece please 33:34 ![unclear]/! toda
[anon_$033]'s area [pause] probably as well 1:43:15 i'll	come in	on that chair [signal loss] yeah look the qui
narch+ 59:43 =chair 59:43 +yes 59:43 chair can i= can i	come in	on that 59:45 yeah just can i just finish 59:4
s well so that was different [anon_$027] did you want to	come in	on that <s027> 34:06 uh yes uh just a mem
um yeah we'll have a think [anon_$025] did you want to	come in	on that <s027> 37:50 ![unclear]/!+ 37:50 +r
in the next couple of days [anon_$020] did you want to	come in	on that 2:04 um am i imagining or did the th
ess more of those will be coming in yeah do you want to	come in	on that [anon_$025]= 14:59 =yeah ju= just

Figure 7. Concordance lines of *come in* from the IVO core meetings corpus

It can also be used, though less frequently, to seek a turn-at-talk (e.g., *I'll come in on that chair* [DCC3]). However, when we look its use within institutions, we find the metaphoric phrases that are used by the chair to manage turn allocation vary. For example, as mentioned, the four DCC meetings are chaired by different people. Chair of DCC1 uses *come in* as a turn management routine 6 times; DCC2 chair uses it 8 times, DCC3 chair uses it 10 times while DCC4 chair uses it just 3 times. As Figure 8, illustrates, DCC4 chair appears to favour *pop in* not least of all when the chair wants to make a contribution (e.g., *I'd like to pop in myself*).

ise] thanks [anon_$097] um if there's nothing else i might	pop in	myself as well uh with with just a query cos i i s
nd just to clar= clarify one final point if you don't mind me	popping in	um the [pause] the extension of of the [pause]
then on to [anon_$101] um [anon_$100] do you want to	pop in	[pause] 45:44 yeah thanks very much thanks [
8 thanks very much we've got [anon_$103] and i'd like to	pop in	myself and then [anon_$097] [anon_$103] <s1
t your hand up uh and then [anon_$097] and then i might	pop in	myself <s102> 1:12:38 yeah it's it's it's not a it'
thanks [breath in] um yeah yeah if there's no one else on	pop in	quickly and then we can we can go back to yo
n after</s090><s090>1:43:16 uh if you wouldn't mind just	popping in	now and then then we'll go back and and finish

Figure 8. Concordance lines of *pop in* from the IVO core meetings corpus DCC4 meeting

The hedged nature of *pop in* is of note here alongside the highly hedged co-text (e.g., *if you don't mind me popping in; I'd just like to pop in; then I might pop in*, etc.) and may be indicative of the fact that the speaker is aware of their privilege as chair, and not wanting to take advantage of the role.

Further analysing the DCC subcorpus in terms of intra-variation, we next look at the Top 20 n-grams across the four meetings (Table 7):

Table 7. Top 20 3- and 4-grams for each DCC meeting

DCC1	DCC2	DCC3	DCC4
in relation to	in terms of	in terms of	in relation to
a lot of	thank you very	thank you very	thanks very much
and i suppose	you very much	thank you very much	in terms of
um you know	and i think	you very much	you know what
that we have	thank you very much	in relation to	i do n't
some of the	a lot of	i think that	what i mean
relation to the	thanks very much	i think it	know what i
in relation to the	at the moment	going to be	you know what i mean
um i suppose	i think that	a number of	know what i mean
with regards to	um you know	i think we	you know what i
um and i	i do n't	okay thank you	in relation to the
just to say	the skate park	um you know	relation to the
you know that	thank you councillor	relation to the	a lot of
uh i suppose	a little bit	in relation to the	thank you very
one of the	in relation to	at the moment	loss of sound
i do n't	i think it	thank you councillor	you very much
i suppose the	very much for	terms of reference	it would be
and i think	i think the	long term leasing	that we have
uh you know	i think we	and i think	you want to

As we mentioned above, the deictic item, *in relation to*, is not evenly distributed across the four DCC meetings. Table 7 sheds more light on this across the four meeting chairs. DCC1 data shows a preference for *in relation to* when bringing focus to a point; DCC2 favours *in terms of*; DCC3 shows both *in terms of* and *in relation to* use frequently, as does DCC4.

Table 7 also further substantiates on our earlier point that positive politeness appeared to be part of the formality of the DCC meetings. It shows that the four chairs express gratitude to differing degrees, with n-grams relating to thanking not showing up in the top 20 for the chair of DCC1. For DCC2, on the other hand, thanking seems to be very frequent as it is to a lesser degree for the chairs of DCC3 and 4 meetings.

Table 8 offers further analysis of the meetings, showing the key 3 and 4 n-grams (using the key phrase function in Sketch Engine, where the remaining three meetings used as a reference corpus). While Table 7 suggests that the chair

of DCC1 does not engage in thanking routines, they are in fact using the Irish language form *go raibh maith agat (thank you very much)* (see items 4 and 5 in Table 8) instead. This again points to positive politeness where the Irish language thanking form marks the formal and highly institutional nature of the meeting (as a function of local government).[3]

Table 8. Top 10 3 and 4-grams from each of the DCC recordings with the remaining three DCC meetings as a reference (raw frequencies)

	DCC1	Freq	DCC2	Freq	DCC3	Freq	DCC4	Freq
1	the draft plan	9	the skate park	16	long term leasing	12	loss of sound	14
2	of the office	6	sport and physical	7	in regard to	5	don't mind	9
3	will continue to	5	to engage with	7	the traveller accommodation	5	if you do	7
4	raibh maith agat	6	and physical activity	7	you think that	5	you don't mind	7
5	go raibh maith agat	6	arts and culture	7	of long term	5	if you don't	7
6	all of which	5	sport and physical activity	6	do you think that	5	the water quality	5
7	development of the	5	of the councillors	5	damp and mould	4	hand up there	5
8	we have written	5	n't able to	5	it depends on	4	got your hand up	5
9	um as regards	5	young people and	5	stage one approval	4	water quality model	5
10	want to come back	4	um uh i	5	the special committee	4	got your hand	5

3. Irish is officially the first language of Ireland and the Irish Language Act 2021 legislates on the obligations of public bodies to promote the use of Irish language for official purposes.

The key phrases in Table 8 more generally show intra-variation in both meeting content and meeting management across the four DCC meetings. Most items relate to differing agenda items across the meetings of the council (e.g., *draft plan* (DCC1), *skate park* (DCC2), *traveller accommodation* (DCC3), *water quality* (DCC4), etc.). In addition to these content items and those performing the function of thanking (in Irish), we analysed the remaining top 10 items in terms of function (see Table 9). The examples in Table 9 also point to negative politeness in general with evidence of hedging very prevalent.

Table 9. Summary of functions of n-grams in Table 8 (not including thanking and agenda-related items)

Meeting	Function	Item(s)
DCC1	Reference (pointing back or forward within the meeting)	*All of which, um as regards*
	Turn/meeting management	*Will continue to, what to come back to*
DCC2	Reporting	*[we were] n't able to*
	Reference (pointing to councillors)	[*some/the role/the support*] *of the councillors*
DCC3	Reference (pointing back or forward within the meeting)	*In regard to,*
	Expressing ideas	[*do*] *you think that, it depends on*
DCC4	Technical issue	*loss of sound*
	Requests	*If you don't mind flicking on one slide please*
	Turn/meeting management	*You got your hand up there, you had your hand up there*

Tables 7, 8 and 9 collectively illustrate that while there is functional commonality, individuals vary in their degree and expression of these. These results underscore the importance of looking at internal variation.

5. Conclusion

This paper has qualitatively and quantitatively examined a corpus of virtual workplace meetings to understand this relatively new or newly widespread register. Qualitative insights first allowed for the identification of stages within the meeting, and we were able to conclude that there is a replication of the stages found

in face-to-face meetings as identified in Handford's (2010) study of the CANBEC corpus. However, while we have also observed a structural parallel in terms of what constitutes a meeting, close analysis brings to light variation relative to each institution.

Across institutions, we first observed common behavioural and spoken practices and routines such as explicit reference and nomination practises (for example, reference to *hand*). The need for explicitness in particular has emerged as a defining feature of virtual meetings (especially in nomination and reference to agenda items). Whether explicitness takes place through specific instances of spoken nominations or through the use of specific non-verbal practices (e.g. hand raising), it undeniably constitutes a significant recurring feature in the IVO corpus and therefore could be considered as a typical video-mediated feature. Indeed, it appears that all speakers, regardless of their belonging to a given discourse community, resort to similar strategies in order to cope with a cue-filtered environment.

When we looked in greater detail within institutions or discourse communities, we observed intra-variational features that ultimately pointed towards different chairing styles (e.g. differing degrees of deixis through reference or differing degrees of positive and negative politeness). The salient items in our quantitative analysis were largely attributed to the chair of the meeting. We posit that the meeting chair holds more power in the virtual meeting because it is more challenging for any participant to take the floor and so the discourse of the chair has a defining role in the virtual meeting.

Now, we turn to how to fit virtual meetings into a register framework. Figure 9 situates the register of virtual meetings within the superordinate register of workplace discourse and is defined by the discourse of individual institutions, which is, in turn, influenced by the discourse of individuals (mostly the chair).

To exemplify the structure presented in Figure 9, let's take a city council meeting. It is situated within *workplace discourse* in the broadest sense. A *virtual meeting* of a city council is a subtype of meeting, which has its structure as discussed above. It is also subject to discreet *organisational variation* that aligns with cultural norms and so one virtual city council meeting cannot be assumed to be identical to any other city's council meeting. Within any corpus of meetings, there will be *individual variation* relative to participants, topics and other constraints. We posit, for example, that different chairs, even within the same organisation, contribute to intra-organisational level variation. The consideration of individual variation is crucial to the description and analysis of a relatively small corpus such as the IVO corpus. This is especially true in a context in which one individual (in this case, the chair) is often more dominant than other participants. As such, we situate this individual variation within organisational variation in Figure 9, as it is

Figure 9. Situating the register of virtual meetings

likely to influence results for each organisation, which, in turn may determine our sense of virtual meeting discourse within workplace discourse.

Our iterative corpus analysis has led to an understanding of the importance of a focus on inter- and intra-variation to reach a full description of the characteristics of the virtual meeting as a register. By analysing the corpus at different levels of granularity via sub-corpora, we have seen that each organisation/institution in the corpus, as well as each individual, has discursive characteristics. Whether these characteristics fully align or not with face-to-face practices in specific institutions remains to be determined. Nonetheless, this paper supports arguments made by Biber and Egbert (2023) that a description of a register should acknowledge both typical features and internal variation.

Finally, this paper contributes to often-neglected role that non-verbal communication plays in managing turns in workplace meetings and marks a methodological shift in workplace meeting discourse. We demonstrated, however, that analysing non-verbal cues (NVCs) is a challenging and time-consuming endeavour. Primarily, the complexity of this research lies in constructing a corpus that effectively captures NVCs, enabling the identification of the discursive functions revealed by these cues. Whilst the usage of a camera in virtual meetings facilitates such efforts, the restricted frame within which participants are recorded limits

the ability to document all embodied activities comprehensively. Future projects could for example integrate cameras and devices such as eye-tracking headsets in face-to-face meetings settings to more thoroughly account for such important turn management behaviour such as gaze direction. However, a close observation and reading of the videos and audio-descriptions will be indispensable both in terms of corpus design and analysis.

Another significant challenge is the extensive range of NVCs requiring annotation and examination. Thus far, our analysis has focused primarily on back channelling and emblematic gestures. However, these represent only a small subset of non-verbal communication. Additional categories, such as metaphorical gestures, gaze, spatial movements, and others, also warrant a more thorough investigation. This certainly represents a limitation of our project, as it is the interplay of all NVCs that must be examined to fully grasp communicative subtleties. Nevertheless, our findings underscore that multimodal corpora, although small by nature, offer a rich and long-lasting repository of information, providing opportunities for numerous additional studies.

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