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Scientific Conference Englishes
Epistemic and Language Community Variations

In many fields, English has now become the international *lingua franca* of communication. This shift in the status of English – from being the property of a homogeneous speech community and the vehicle for its national culture, to that of a globally shared means of communication – has given rise to a considerable body of critical literature, ranging from resistance to what is felt to be linguistic hegemony (e.g. Canagarajah 1999) to the defence of indigenised World Englishes in the outer circle (Kachru 1992), to, more recently, investigation of the specific characteristics of ELF in the expanding circle (Mauranen, this volume; Knapp & Meierkord 2002). One area where English is now well established as the global *lingua franca* is science. However, due perhaps to the still enduring legacy of the empiricist vision of science as universal truth, the implications of this shift for scientific communication have been largely ignored, as if science were curiously immune to the sources of cultural and linguistic variation so amply documented in other areas – as if only 'scientific English', and not 'scientific Englishes', existed.

This is understandable insofar as scientific genres are not the product of any single national speech community, but have developed in response to the epistemological and communicative needs of the disciplines. Indeed, it is widely recognized that irrespective of the text producer's native language, disciplinary needs and textual genres exert a strong normative influence in academic research communities on the realization of the discourse. This begs the question, however, whether the epistemic community, rather than the speech community, may not be an equally powerful source of variation in the way English is used for international scientific communication. In this light, the Englishes of science would be the result of the differing 'views of the world' (Hilgevoord 1994; see also Wood 1997) that scientific

disciplines, by the very nature of their objects of study and epistemologies, have formed. Not only ELF speakers of diverse linguistic origins, but also different disciplines, may be therefore marking the common code with their own distinctive imprint, but we are poorly informed at present as to the relative weight of these two forces: which identity is the stronger, the linguistic/speech identity, or the epistemic identity?

To attempt an answer to this question, a particularly interesting category of scientific genres to investigate is the scientific conference genres. International scientific conferences form a highly intercultural setting, where ELF interaction takes place among a wide range of speakers: monolingual native English, bi- or multi-lingual, and non-native speakers of English. In the various speech genres that the participants engage in at a conference – presentations, seminars, poster sessions … – the possibility of culture- or language-based variety is potentially much greater than in the case of written genres, due to the absence of any explicitly codified rules. Conference presentation proposals, for instance, are accepted by the scientific committee of the conference on the basis of their informational content and not on the presentation's conformity to any predefined linguistic or generic norm. This is not the case with written genres such as the research article (RA), where strong textual conventions and gate-keeping processes – which may tend to impose native-speaker norms on non-native scientists (Ammon 2000) – play an important role in smoothing out potential sources of variation. Conference participants, in contrast, have greater latitude to express their diverse academic and cultural traditions, and can also be expected to show greater variety in their use of spoken language than that found in the highly codified written language of the RA.

Participants share, however, a disciplinary identity, and come together at the conference with a common aim, in which the scientific research and not the language of communication is the main focus of interest. They have been socialised into a particular epistemic community, and need to take into account the expectations of the community they are addressing – its adequacy and acceptability criteria concerning argument structures and warrants, speaker ethos and stance (Hyland 2000) – in order to achieve the communicative goal of promoting their research to the peer audience.

Common to speakers of all linguistic and disciplinary origins, however, are the contextual features of the communicative event itself, which exert considerable constraints on the realization of the discourse. In recent work focussing on one particular conference genre, the scientific presentation, we have highlighted some of the distinctive features of this oral research genre through a comparison with an agnate research genre, the proceedings paper (Rowley-Jolivet & Carter-Thomas in press). We found that despite being operated by the same discourse community, involving the same participants and tackling basically the same ideational content, the change of mode – from writing to speech – and the specific contextual constraints of the live conference event play an extremely significant role (see following section). Conference presentations as a result display their own very particular configuration of features, in terms of rhetorical structure, semiotic resources, syntax and interpersonal relations. Though the 'rules' of the genre are unwritten, these cognitively and contextually induced constraints need to be discoursally managed by all presenters.

The picture we have so far built up of conference presentations has been based on a multi-disciplinary corpus involving speakers of various linguistic origins. By restricting the current analysis to only two specific language groups, in medicine and physics, we hope to be able to pinpoint the comparative weight both of disciplinary factors and possible cultural variations on the enactment of the conference presentation (CP) genre. Working in France, our own professional interest lies with French native speaker scientists and in helping them to perform effectively in this demanding communicative situation. To this end, a corpus of 40 video-recorded scientific conference presentations has been compiled, comprising two groups of speakers: native English speakers of English of both American and British origin, and French speakers of English, in two disciplines, physics and medicine, with 10 presentations in each of the 4 groups.[1]

[1] The two language groups are referred to in the rest of the article as ES (native English speakers) and FS (French speakers); the 4 sub-groups are referred to as EP (English speakers in physics), FP (French speakers in physics), EM (English speakers in medicine), and FM (French speakers in medicine). Details of the corpus can be found in the Appendix.

The two aspects we will focus on are speakers' organisational and interactional strategies. A conference presentation is an extended monologue of informational discourse, with a logical hierarchical structure. It is also, however, interactional discourse, which takes place at a specific time and place, and before a live audience. We have chosen to study a certain number of features which embody these two aspects. It should however be borne in mind that in academic research discourse, which is both expository and persuasive, organisation and interaction are not distinct categories, but rather lie along a cline, with several areas of overlap between the two. The article is therefore organised so as to move from the 'organisational' to the 'interactional' pole, by examining, in successive sections, the overall structure of the talk, the move structure of the introductions, lexical metatext, speakers' pronoun choices, and finally interactive syntactic structures.

As a preliminary, we will briefly outline the contextual features which impact on both content organisation and audience interaction.

1. Contextual features of the CP genre

Four contextual and epistemological features appear particularly significant. The first is related to the specific epistemological role of the CP in the construction of disciplinary knowledge. Participants come to conferences to keep abreast with the research front, and expect speakers to present work-in-progress or "proto-claims" (Rowley-Jolivet 2002) with a high novelty value, rather than review established knowledge. This focus on novel claims, together with the often stringent time constraints imposed on speakers, results in a radical selection of the information that is included in the talk.

A second feature concerns the semiotic resources or affordances of the CP (Kress et al. 2000). A scientific conference talk is a multimodal genre in which a very large part of the content is transmitted by the visual channel. There are several reasons for the greatly enhanced role of visual communication in this genre. Slides or transparencies are continuously projected, enabling a large quantity of

information to be visualised rather than verbalised; many types of visuals (e.g. diagrams, graphs) allow faster mental processing of complex information than speech (Larkin & Simon 1987), a valuable advantage when time is limited; given the multi-linguistic background of both speakers and audience, visual language, a universal language in science, is potentially more reliable than natural language in the conference context, particularly in view of the high degree of visual literacy possessed by the esoteric audience; lastly, certain specifically visual strategies have been developed by different scientific disciplines for making meaning by exploiting semiotic possibilities of the CP genre that are not available in the RA (Rowley-Jolivet 2004).

The third contextual aspect is that the CP, even if semi-prepared and/or rehearsed, is a live event in real time. Scientific presenters seldom read aloud a conference paper, as can be the case in the humanities. It is rather the visual aids that act as prompts. Speakers thus have to adapt the high-density informational content of their talks to the constraints of on-line delivery by modifying their metatextual and syntactic behaviour accordingly.

Lastly, the CP is delivered to a live audience. Although there is no overt participation of the audience members during the presenter's monologue, their physical presence obliges speakers to set up different interpersonal relationships from those of their written texts, where a detached stance is expected in hard sciences. Pronoun choices obviously play a major role in creating rapport with listeners and in expressing the speaker's personal involvement in the research claim.

2. Overall visual structure of the talk

An overview of the organisation of the CP can be achieved by analysis of its visual structure, on the following grounds. First, as mentioned previously, much of the informational content in the CP is transmitted via the visual semiotic. Secondly, visual communication plays a crucial additional role in the scientific CP, that of materialising the structure of the talk for the audience, thereby contributing to the

textual metafunction of discourse management that can often only be done verbally in other fields or genres. This structural function is achieved thanks to the resources of temporal and spatial visual composition available in the CP. There is a close conjunctive relation between the speaker's verbal commentary and the accompanying visuals. As the talk progresses from introduction to method, then to results and conclusions, the visual material that is projected changes, since certain types of visuals are, for epistemological reasons, associated with the successive stages of the research process. The close correlation between the visual and verbal channels means expert readers of this visual language in the audience can chunk the flow of discourse, locate section boundaries, and track the logical argument of the talk largely from observation of the succession of visuals.

When the visual structure of the whole talk by the two speaker groups in each discipline was examined, no differences attributable to the presenter's linguistic origin could be detected. Major section boundaries, for example, are signalled in an identical way by both groups. The visual cue for the transition from the introduction (a textual slide) to the body of the talk, by both French and English physics speakers, is a diagram of the experimental set-up, and for both FS and ES in the medical oncology talks, tables of patient and tumor characteristics. The cue for the transition from results to the conclusion is visualised by the converse semiotic shift, from graphs or spectra in physics, and statistical tables in medicine, to a textual slide.

Moreover, the logical progression from one visual type to another over the whole talk in ES is mirrored by that in FS talks. In modelling talks by both FS and ES in physics, for example, one finds an unvarying argument structure composed of: text (the introduction), mathematical equations (input and assumptions of the model), computer-generated graphics (visualisation of the modelling domain and grid), schematic of the experimental set-up, followed by double sets of graphs (validation of the model by comparison with experimental results), and finally text (the conclusion).

There are, however, major disciplinary differences in visual structure. This is hardly surprising, for as Goodwin points out, "All vision is perspectival and lodged within endogenous communities of practice" (1994: 606). Not only is the periodicity of projection field-specific but also the acceptability of certain types of visuals. All

physics speakers show 40% fewer visuals than medical speakers, but their verbal commentary per slide is on average 40% longer. Medical speakers on occasion use trivial slides – cartoons or postcards – as segmentation devices in their talks, whereas physics talks contain only scientific representations with no mixing of visual registers.

Each disciplinary field has developed its own professional vision to reflect its specific epistemological needs. As the types of data investigated, the methodology and acceptable warrants are different, the resources of visual composition are exploited in discipline-specific ways to create texture and cohesion, and to express logical relations. As a result, a talk in experimental physics by a French speaker follows the same visual pattern and overall structure as one by an English physicist, and a talk by a French and an American surgeon will likewise be visually very similar. It seems, therefore, that visual language in the epistemic communities of the natural sciences is truly a *lingua franca*, and that when the organisation of the CP is considered on this macro-level, the norms of the epistemic community very clearly transcend national cultural differences.

So far, only the global organisation of the scientific informational content has been considered. We will now look in more detail at the organisational features of the introductions. The introduction plays an important rhetorical and interpersonal role in positioning the research and establishing the credibility of the author (Swales 1990). It is however a notoriously difficult section to write and deliver (Burgess 2002; Shalom 2002). It therefore seemed to be a key section to examine for evidence of whether different speaker groups respond in different ways to this communicative challenge.

3. Move structure of the CP introductions

An analytical approach towards the rhetorical structure of introductions that has proved its robustness is move analysis (Swales 1990). In a previous study, we analysed the move structure of 44 CP introductions by NS scientists in various fields, comparing it not only

to the well-known Swalesian CARS model of the RA introduction, but also to two studies of spoken academic discourse – Dubois' (1980) analysis of biomedical conference presentations, and Thompson's (1994) analysis of lecture introductions. This comparison enabled us to draw up a move model of the CP introduction by native English speakers, shown in Figure 1. A full description of this model is presented elsewhere (Rowley-Jolivet & Carter-Thomas forthcoming), so only the main features which distinguish CP introductions from those of the RA will be pointed out here. This move model has then been applied to the CP introductions in the present corpus, to detect whether the two speaker groups, and the two disciplines, structure their introductions in a similar manner.

A. Setting Up the Framework			
Interpersonal framework		1a	Listener orientation
	and/or	1b	Acknowledgements
Discourse framework		2a	Announce Topic
	and/or	2b	Outline Structure / Indicate Scope
B. Contextualising the Topic			
		1a	Conference context
	and/or	1b	General research context
C. Research Rationale			
Motivation		1a	Problems / Gaps / counter-claims
	and/or	1b	Relevance / Centrality / Need
	and/or	1c	Continuation of previous work
Response		2a	Question-raising / Hypotheses
	and/or	2b	Preview results or solutions
		3	Outline research goal

Fig. 1. Move model for scientific conference presentation introductions

Three main moves were identified in the initial model: *Setting up the framework*, *Contextualising the topic*, and *Research rationale*, with sub-moves or steps within each. Move A, *Setting up the interpersonal and discourse framework*, shows the greatest divergences with the CARS model of the RA, and is very much motivated by the enunciative context of the CP. The presence of a live audience creates the need for direct contact between speakers and audience, achieved by the *Listener orientation* step, which includes opening remarks addressed by the speaker to the audience, chairperson or conference organisers, thanking them, greeting them

and generally making contact. The second recurrent step in Move A is verbal and/or visual *Acknowledgement* of co-authors, collaborators or funding agencies: as the talk is delivered by a single speaker but the research reported is usually the result of collaborative effort, speakers acknowledge their co-researchers at the outset of the talk (rather than at the end as in the RA). This step, which can be considered as a politeness strategy, also contributes to creating an image of speaker modesty. The two text-oriented components in Move A, *Announcing the topic* and *Outlining structure and scope* are also motivated by the communicative context, in that the cognitive constraints on the real-time processing of information can make it useful to give the audience explicit signalling of the topic and organisation of the talk.

Some of the prominent features of article introductions are either downplayed or absent altogether in the CP introduction. This is particularly clear in Move B, *Contextualising the topic*. Instead of contextualising the research by a literature review, which would place a heavy processing burden on the audience, verbal references to publications and background knowledge are sparse and generally non-specific. This is what we have termed *General research context*. Instead, speakers frequently allude to the C*onference context*, situating their topic by referring to other events at the conference itself – what one could call the participants' local epistemology.

A further marked difference with the RA is found in Move C, *Research rationale*. Given the time constraints, and the specific epistemological purpose of the CP genre, speakers concentrate on the novelty value of their work: although CP introductions display the same rhetorical 'funnel effect' as the RA, moving from the general to the particular, this movement is much more rapid in the spoken genre, consisting mainly in a clear statement of the motivation for the research rather than elaborate positioning to create, and then occupy, a research niche. Moreover, the motivation is sometimes followed by a preliminary announcement of the main results, in order to highlight from the outset the research contribution of the talk.

When the 40 introductions of the present corpus were analysed in the light of this move structure, we found that all speakers, regardless of native origin, show an awareness of genre and basically adopt this format, adapting their introductions to the contextual constraints and purpose of the CP. The FS introductions, in particular,

followed this move model closely, almost linearly, with few examples of the recursivity which sometimes occurred in the ES introductions, where a speaker will mention a problem or gap in knowledge, then refer to some shared background knowledge, before returning to the gap. From this point of view the FS introductions can be considered as more straightforward. They were as a result considerably shorter than those by ES (FS: 5280 w., ES: 8780 w.) and contained on average slightly fewer moves (FS: 6; ES: 7).

Some differences in rhetorical structure were observed nonetheless between FS and ES introductions. *Listener orientation* in the FS talks was often minimal, reduced to a formulaic expression of thanks or brief greeting, whereas some ES speakers used the opening section of the talk to engage in a considerable amount of interactional work, recounting an anecdote, making humorous remarks, or creating solidarity with the audience, as in the following example:

> (1) I bring you greetings from Rhode Island *[visual on screen depicts a yacht]*. We used to have the Americas Cup here but they took it away from us several years ago and we're now trying to get it back. I don't think we can get it back honestly, we might have to buy it or something of this sort, but anyway I bring you greetings and it's a pleasure for me to be at this conference, I feel privileged to have been invited. (EP)

Whether this difference between the two speaker groups should be attributed to different cultural norms or to a more general trend is a moot point. Several recent studies have discerned a global move towards a more conversational style in institutional texts (Gotti this volume). In the data analysed here, however, this is characteristic mainly of anglo-american speakers. Another difference is the comparative rarity, in FS introductions, of the *conference context* step (3 occ.), which featured prominently in ES talks (12 occ.). Unlike their ES colleagues, the French speakers made less reference to this local epistemology, indicating perhaps that the participation of French researchers at international conferences is somewhat more peripheral than that of their British or American colleagues, making them more reluctant to express such direct, personal intertextuality. While the size of the corpus means that both these variations could be due to individual speaker idiosyncrasies, there is nevertheless some evidence

that the more interactional aspects of the introduction (*Listener orientation*, *Conference context*) are less present in FS talks.

There were, however, some significant disciplinary differences between speakers. The signalling of the structure or scope of the presentation, which was present in the great majority of the 20 physics presentations, occurred in visual or verbal form in only two medical talks (1 FS, 1 ES). We would attribute this to the very conventional structure of medical talks, which enables the speaker to dispense with explicit structural metadiscourse in the introduction and to rely on audience expectations of schematic structure. (Dahl, in press, makes a similar observation about research articles in medicine). Similarly acknowledgements, found in 80% of the physics talks, occur in only 3 medical talks, indicative perhaps of the less collaborative nature of medical research, at least in the field of oncology examined.

In summary, it appears that despite the absence of any explicitly codified textual conventions for CP introductions, the constraints of the genre lead to a considerable degree of convergence, but that both the disciplinary and language community of the speaker may also exert a certain influence on move structure.

In the following three sections we will compare some of the verbal strategies used by speakers throughout their talks to organise the high-level informational content and to guide listeners. The strategies at issue are forms of metatext or discourse reflexivity (Mauranen 2001) used in a macro-organising capacity and which can display a more or less audience-oriented or interactional bent. The first strategy considered is that of lexical discourse markers (Schiffrin 2001) serving primarily to bracket segments of talk and signal topic shifts.

4. Lexical discourse markers

Our initial search for lexical discourse markers in the CP corpus covered a very wide spectrum of markers. An important question raised by the designers of the MICASE corpus (Swales & Malczewski

2001) is whether academic speaking is more like conversation than like academic writing. We therefore included not only typically conversational items such as *anyway, I mean, like*, but also much more formal expressions, typical of the RA, such as *nonetheless, hence, furthermore*. Our findings show that all the speakers, regardless of disciplinary or linguistic origin, made very minimal use of the two extremes. We therefore focussed on only those markers occurring with a sufficiently high frequency in this genre: *okay, well, however, again, now* and *so* (see Table 1). There are however both some striking disciplinary and linguistic differences in the use of these six markers.

	okay	*well*	*however*	*again*	*now*	*so*	Total
EP	18	20	8	14	46	70	176 (7)[2]
FP	12	6	0	0	4	92	114 (7.1)
EM	1	6	23	44	54	16	144 (5.8)
FM	0	8	15	9[1]	5	10	47 (2.9)
Total	31	40	46	67	109	188	481

Table 1. Occurrences of lexical discourse markers.
[1] all by one speaker. [2] ratio per 1000 words of running text

Of the six markers examined the only one used with any regularity by the French speakers (and only in physics) is *so*. The other five are used three times more frequently per 1000 words by ES than FS (4.2 per 1000 w. cf. to 1.4). Previous research (Thompson 2003) has shown that an appropriate use of such markers in lectures can play an important role in understanding and recall (particularly with an international audience) and one can wonder whether their comparative absence in the FS talks may not also therefore impact negatively on the processing of the CP.

The ES groups frequently employ *again* as a retrospective marker to link the current and the preceding discourse, thus creating cohesion:

> (2) and again as you can see, the black curve is without RF energy coupling (EP)

French speakers (with the exception of a single speaker in medicine) do not however exploit *again* in this discursive capacity and employ it

only with its referential meaning of 'doing something a second time'. *Now* shows an identical pattern. It is used frequently by ES speakers as a boundary marker to indicate that the speaker is moving on to the next stage of his argument, as in the following example:

(3) Now, we'll focus first on the liver… (EM)

The FS groups, however, overwhelmingly use *now* only in its temporal meaning, not in its discursive function. Among the FS speakers the form-function pairing in relation to these two items would seem therefore to be restricted to one basic use, lending support to a more general tendency also observed by Mauranen among ELF speakers (cf. Mauranen this volume). The marker *well* is less frequent overall in the CP context, undoubtedly because of its main function as a response indicator in dialogue. In its discursive function, however, it is nonetheless employed more frequently by the ES groups, indicating perhaps the more interactional tenor of their talks.

The other discourse markers display more discipline-specific variations. The word *okay* is used with the same frequency by both English and French physics speakers, but is practically absent in medicine – perhaps because it is felt to be too offhand or colloquial for a topic such as oncology. The use of *so* as a discourse marker is also much more common in physics. In addition, unlike all the other markers examined, *so* is used much more heavily by FS than by ES physics speakers. We feel that this is due in part to the influence of the French particle *donc*, which is encountered very frequently in French academic prose. The word is however sprinkled so liberally throughout certain FS talks that it proved to be very difficult for us as analysts to disentangle its pragmatic from its logical functions, and it may have been equally hard for the audience to grasp its precise meaning. The last marker examined, *however*, in contrast, is rare in physics but much more common in medicine, in both FS & ES talks, indicating that the frequency with which certain discourse markers are used depends on the goals and research procedures of the discipline: *so* may be more common in physics because of the possibility in this field of constructing a tight logical chain of procedures and argument, whereas the presence of *however* in medicine is indicative of the importance of balancing pros and cons, and of observing anomalies.

In addition to these 'classical' discourse-organising markers, one also finds in certain ES talks some much more idiomatic expressions which fulfil the same function, such as:

(4) Now if we want to change gears a minute (EM)

While this type of metatext will be easily recognized as such by the native English speakers, it could be counter-productive in the international conference setting, as many members of the audience will not understand its discourse function.

5. Pronoun choices

The next aspect we will address is the interpersonal relations set up by the allocation of speaker and addressee roles through the use of *I, you*, and *we*. As pointed out in section 1 above, the constraints of delivering and processing speech in real time mean that the complex noun groups used as syntactic subjects in the RA are problematic for both speakers and audience. They also create much greater impersonality and distance between the participants. All speakers take this into consideration, and one finds on average 46% of clauses overall with a pronoun subject and 34% of clauses with first and second person pronouns, compared to 11% and 5% respectively in a corpus of proceedings articles also analysed. Despite these similarities in the speakers' management of these cognitive and interpersonal and features, when one takes a closer look at the functions fulfilled by the three pronouns *I, you*, and *we*, some interesting discipline and language origin-related differences appear (see Table 3).

A first clear difference is that FS in each discipline use *I* overall only half as frequently as ES. In the FS talks, speakers' expression of discourse intentions and of their involvement in the interpretation of their findings are particularly more muted. This confirms the results of Vassileva (2002), who likewise found Bulgarian conference speakers much more reluctant to use *I* than native English presenters. The roles that the speakers allocate to themselves when using *I*, however, are

more related to their epistemic rather than their language background. Speakers in physics see themselves as playing primarily an organisational role, with discourse management accounting for 72% of occurrences, confirming our previous observations about explicit discourse structuring in physics, as in the following example:

> (5) First I will describe the experimental setup and the numerical model, then I will discuss light distribution of those gas gap [sic] and I will finish with the kinetic of gas emissions. (FP)

This speaker role is much less marked in medicine, where only 40% of occurrences of *I* are used for discourse structuring. In contrast, medical speakers allocate themselves the role of evaluator, frequently using *I*, often with the verb *think*, to express personal opinions (Webber in press). This function represents 34% in medicine, compared to only 14% in physics. It appears that though all speakers interact with the audience, in physics this interaction is more on the level of the ideational content (structuring the scientific information), whereas in medicine it is on the interpersonal level, resulting in different disciplinary stances towards the text and the audience.

		EP	FP	EM	FM	Aver.
Occurrences (per 1000 words)	*I*	8.6	4.7	11.4	6.8	7.2
	you	18.3	8	10	6.2	11.3
	we	19.6	25	25.3	17.5	18.4
Functions & Values (%)	*I*- discourse management	72		40		
	I - evaluation	14		34		
	You -personal	27	55	45	85	
	You -impersonal	73	45	55	15	
	We - discourse management	18.4		9.6		
	We - indefinite	10.5	15	11	20.7	

Table 2. 1st and 2nd person pronouns in the scientific conference presentation.

The second personal pronoun *you* was found to have two values: personal *you*, referring to the live audience that the speaker is addressing, and impersonal or generic *you*, referring to the typical scientific researcher. From the disciplinary standpoint, we can again note the greater direct interaction in medicine overall where 60% of the occurrences of *you* are interpersonal, referring to the live audience.

In physics, on the other hand, *you* is cast in the rather disembodied role of a thinking entity or typical researcher, with 66% of occurrences overall referring to an impersonal *you:*

> (6) this could be quite problematic if you have etch rates variations and you combine that with non-uniformity (EP)

One also finds again that *you*, like *I*, is overall used much less by FS than by ES, resulting in less frequent and less direct speaker-audience interaction. This would seem to be linked primarily to the fact that FS speakers make scant use of the impersonal *you* in comparison with their English colleagues in the same field. We feel this may be due to the different values of the English *you* and the French *vous*. In French, *vous* is essentially only used for direct (personal) address, whereas the generic value of *you* can be expressed by the pronoun *on*.

The plural pronoun *we* is more widely used than *I* by all speakers and can take on multiple values. All speakers make frequent use of the exclusive *we* to refer to the research work carried out with their collaborators, and also in an inclusive sense to refer to the live communicative context. As with *I,* one finds again that physics speakers cast themselves plus the audience more frequently in the role of discourse organisers than medical speakers do. Language differences are also however noticeable. FS recourse to the plural pronoun compensates to some extent for their lesser use of the *I* perspective, notably amongst the French physics speakers. In addition, *we* in its generic value, referring to the discourse community, is found more frequently among the FS groups, who no doubt use generic *we* in preference to *you* for the language-related reasons outlined above.

6. Interactive syntactic choices

The greater degree of interactivity shown in pronoun choices is also reflected in the use of a more conversational syntax. In much the same way as with the lexical discourse markers previously examined, shifts

in mood choice and particular syntactic choices can be exploited in an interactive discourse managing capacity (Camiciottoli 2004). The distribution of the syntax-related features is presented in Table 2.

	EP	FP	EM	FM	Total
'Interactive' syntax					
Rhetorical Questions	19	12	16	12	59
Conditionals[1]	22	4	23	2	51
Let imperative	20	3	3	0	26
Wh-clefts	68	4	19	4	95
Total	129	23	61	18	231
'Impersonal' syntax					
Extraposition	17	23	11	41	92
% passive clauses	6%	13%	8%	13 .5%	

Table 3. Syntactic choices in the scientific conference presentation.
[1] Only those occurrences which play a discourse-structuring role are included.

In the CP monologue, recourse to rhetorical questions, for example, can be considered as an overt indication of interactivity. All speakers make frequent use of this mood shift with a practically identical frequency of 7.5 rhetorical questions per 10000 words for all groups. They are also used in similar places and for similar functions: frequently in the introduction when giving the motivation for the research, and in the body of the talk to signal a major section shift or rhetorical move:

(7) Now, what are the results, the overall results? For the clinical response, we have complete response (FM)

This can be contrasted with their much lesser use in analogue written texts. Hyland (2002), in a study of rhetorical questions across different RA disciplines, found only 1.3 per 10,000 words in 'hard' fields similar to those of our corpus. The behaviour of all the speakers on this point is therefore remarkably similar and indicates their awareness of the greater degree of overt interactivity that is required in the CP.

Other syntactic features examined however showed some important distributional differences among the four speaker groups. On the disciplinary level, interactive syntactic choices are globally more predominant in the physics talks than in those of the medical

speakers. This is perhaps linked to the very conventional format of medical talks already remarked upon, enabling speakers to dispense more easily with discourse signalling metatext. It is however on the speaker-origin level that differences are particularly striking, with FS speakers making only very minimal use of the structures examined. Conditionals, for example, can play an important discursive role in the CP, fulfilling two major discourse functions. Firstly they enable the speaker to signal a topic shift, acting as a type of flag or preface to a new topic or sub-topic (Rilling 1996):

(8) OK, if I can turn now to particle beam deposition. (EP)

The audience are given advance warning of a change of direction and have a few seconds to orient themselves towards this shift before the new ideational content. Secondly conditionals can also be used as an attenuated imperative to politely direct the audience's attention towards the projection of a new visual:

(9) Now if we look at the average ion flux for the main etch step, what's particularly striking here is that… (EP)

The French speakers in our sample however rarely exploit the conditional in either of these capacities. On the contrary, they reserve this structure almost exclusively for its logical function, as in scientific writing: If condition X is fulfilled, then result Y. They seem unfamiliar with its discursive function, in much the same way as they were with some of the lexical discourse markers, such as *now* and *again*. In other words, only one form-function pairing of the structure is used and its potential pragmatic function is not exploited.

With regard to the use of the imperative, which can also be considered a marked mood choice in this genre, there are very few examples of the bald imperative in either the FS or ES talks. Both groups undoubtedly feel such direct orders to be inappropriate when addressed to an audience of peers. There are however in the data some examples of the *let* imperative: *let me* or *let's*.

(10) Let's have a look… Let me show you a schematic of… Let me summarize….

Such expressions also serve as attention markers, preparing the audience for new incoming information. The *let* imperative is however used almost exclusively by the ES speakers. In the case of the singular imperative form, this absence in the FS group talks is perhaps due to some interference from French where a literal translation of *let me* (*permettez-moi de vous montrer*) would sound rather pompous. However all this begs the question as to what the FS speaker groups use as attention-getting devices. It would seem in fact that the FS groups do not make use of these preparatory signals, and in the case of new visual information, will simply say: *you see here* or *this is a diagram of* etc. As a result the audience may very well be less well-prepared for the incoming information.

The points raised here may be related to what has been termed the more 'reader-responsible' (Hinds 1987) character of the French language as opposed to more 'writer-responsible' ones such as English where the onus is on the text producer – rather than the receiver – to make explicit the intended meaning. Riley (this volume) in his analysis of French service encounters also notes that the French service providers expect the interlocutor to be reactive – placing the onus for the success of the exchange on the receiver (see also Dahl in press). Another hypothesis however would be to link this absence of preparatory signals in the FS discourse to more general concerns relating to ELF fluency. According to House (2002), in an investigation of ELF conversational interaction, NNS in general use fewer signals to support their main illocutionary intent, hence use far fewer preparatory strategies, resulting in what she terms a lack of lubrication or pragmatic fluency in conversational exchanges (p. 256).

Another interactive syntactic structure likewise little employed by the FS groups is the pseudo-cleft or *Wh*-cleft. Pseudo-clefts enable the discourse to be segmented into two distinct parts, giving the audience advance warning before the presentation of new information in the second part of the clause. Presenting something new is, as previously mentioned, an important epistemological feature of conference presentations, and pseudo-clefts are one of the grammatical means available to speakers for specifically signalling and previewing the salience or novelty of their research claims:

(11) Now what we found is that these little dots here indicate a boundary (EP)

(12) I think what this really means is that they have a high chance of recurring in the loco-regional area (EM)

As well as fulfilling this important segmenting and previewing role, the pseudo-cleft can be also be considered as an implicit dialogic strategy. A *Wh*-word can also obviously be used as an interrogative pronoun and in all *Wh*-clefts, there would seem to be an underlying presupposed question that either the audience is likely to ask at that stage, or that the researchers asked themselves: *What did you find? What does this really mean?*

In previous research (Carter-Thomas & Rowley-Jolivet 2001) we've found that whilst pseudo-cleft structures are highly productive in the CP they are practically non-existent in scientific writing. Such a structure could undoubtedly appear over-emphatic and perhaps even patronising in the written context. It is therefore striking that there are also very few occurrences of pseudo-clefts in the oral presentations of either of our FS groups (only 8 occurrences against 87 by English speakers). The equivalent of English *Wh*-clefts exists in French and fulfils similar functions (Roubaud 2000). It may be that the French speakers are influenced here by written scientific discourse conventions (the genre they undoubtedly know best) which here exert a negative influence. The absence of *Wh*-clefts and of other attention markers not only perhaps makes the FS presentations more difficult for the audience to process but in the specific case of the *Wh*-cleft almost undoubtedly also leads to a certain rhetorical weakness, as by not using such a device the FS groups are missing an opportunity to emphasise the novelty and originality of the research.

The lesser degree of syntactic interactivity in the FS talks can also be observed when comparing the traces of written syntax between the two speaker-origin groups. The switch from a written to a more spoken syntax seems globally to be a feature of all the scientific presentations examined here, in that all speakers make much less use of characteristic features of the RA such as the passive. Note however that that FS do not switch as radically here as the English speakers – whereas one finds around 34% of passive clauses in the RA (Martinez 2001), in ES conference presentations there are only 7%, as against 13% in the FS talks. Extraposition, another prominent feature of written scientific discourse, is likewise used considerably more by the

French groups than by the English speakers. In the RA extraposition is often used as a hedging device, as would also seem to be the case in the FS presentations:

(13) it is important to note that this method gives one value of the electronic temperature for each argon line used (FP)

In the live conference talk, however, ES speakers generally favour a more direct engagement (*We know, we can, I believe etc).* The influence of the written mode in FS presentations is also very evident in the quasi-absence of contractions in their talks. The only contracted form prevalent in the FS talks is that of the third impersonal pronoun (*it's*), leading to the impression of a much less conversational style.

7. Conclusion

The results presented above show that, irrespective of the speaker's discipline or language origin, the contextual constraints of the genre itself result in a certain convergence of features among all groups of speakers. All presenters show awareness of the specific enunciative conditions and epistemological role of the CP, and adjust the move structure of their introductions accordingly. Likewise, they all exploit the semiotic affordances of the genre, relying heavily on visual communication to present their research to the multilingual audience. One also observes, to a greater or lesser degree, recourse to different metatextual and syntactic choices from those of the RA, in order to manage the constraints of real-time processing and the different interpersonal relationships of the live conference setting.

We have also noted throughout the study, however, many differences between the four speaker groups. To understand these differences, the question asked at the outset of this study was whether the epistemic or the language community had the greater impact on the speaker's enactment of the CP genre. This question, we would argue, has different answers, depending on which aspect of the discourse is considered. This is shown diagrammatically in Figure 2.

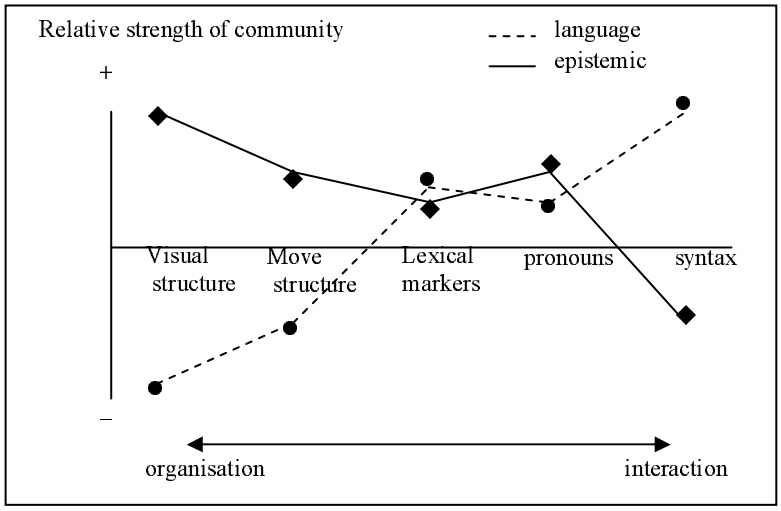


Fig. 2. Epistemic and language community influence in the CP

At the organisational pole of the cline, when only the global structure and visual organisation of the informational content is considered, the speaker's epistemic community has an overriding influence, leading to major differences in the visual structure of talks in the two disciplines studied, physics and medicine. As one does a more fine-grained investigation of the introductions by move analysis, although epistemic community influences are still present, variations due to speakers' language origins begin to appear. We attribute this to the dual role of the introduction: speakers need both to prepare the audience for the structure and content of the talk in ways judged acceptable by their disciplinary community – providing much more explicit structural information in physics than in medicine, for example – but also to establish a certain type of rapport with their audience, which in the case of the ES presenters is more interactive, and in the case of FS speakers, more formal or distant.

When the use of lexical discourse markers is considered, the relative weight of the two variables changes, and the lines cross. Though some disciplinary specificities are observed (in the use of *so* and *however*, for example), the language behaviour of the speakers

begins to align according to language rather than epistemic community criteria, with FS speakers exploiting much less the pragmatic, as opposed to the referential, meanings of the lexical items used as discourse-structuring markers in speech.

The lines cross once again however when we come to examine pronoun choices and the allocation of speaker and addressee roles. Both epistemic and language community factors influence the frequency and functions of the three personal pronouns *I, you* and *we*. The speaker's personal engagement – taking responsibility both for discourse organisation and for evaluation through the use of *I* – is appreciably more marked in ES but more muted in FS, where a collective *we* is preferred. Some differences may also be due to the different values that certain pronouns (e.g. *you* compared to *vous*) have in the speakers' respective languages. The epistemic influence is arguably however more prominent here, with medical and physics speakers adopting rather different stances towards the content and audience. Speakers in physics cast themselves more in the role of discourse organisers, and attribute to their addressees the ideational role of the typical researcher, whereas in medicine, presenters have a more evaluative role and interact with their addressees on a more interpersonal level.

Finally, in the use of certain syntactic structures in context, one finds a complex interweaving of generic, epistemic and language factors. All speakers in the CP genre show a marked switch in voice (fewer passives, more pronoun subjects than in the RA), and one encounters again more frequent and explicit discourse-structuring in physics than in medicine. However, language differences appear to outweigh disciplinary variations. The ES groups make much greater use of structures that give rhetorical salience to their claim and create a certain interactivity (*Wh*-clefts, conditionals, *let* imperatives), thus guiding the audience more closely in their interpretation of the research presented.

It seems clear that there are indeed scientific 'Englishes' in the conference presentation. While the epistemic community exerts a strong normalising influence on speakers of all nationalities, resulting in marked disciplinary differences among presentations, this oral research genre also allows language groups other than native English

speakers a latitude they may not have in the RA for marking the discourse with their specific linguistic identity.

Appendix I : Corpus

The corpus comprises presentations given at the following conferences:

1. First International Symposium on Conservative Treatment in Oncology, 17-19 June 1993, Lyon.
2. First Annual European-American Conference on Gastrointestinal Oncology : Cancers of the Lower Gastrointestinal Tract, 22-24 Sept. 1994, Bordeaux.
3. Euro Electromagnetics. International Symposium on Electromagnetic Environments and Consequences. May 30 – June 4, 1994, Bordeaux.
4. 15th International Symposium on Plasma Chemistry (ISPC 15). Orléans, 9-13 July 2001.

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