Implicit Orders:
Documentary Genres and Organizational Practice

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Abstract

The paper explores the proposition that documentary genres implicitly order organizational activity; analysis of their role as tacit sorting devices can improve understanding of documentation and organizational practice. The author reviews recent work on communities of practice in organisations and discusses historical work on documentary genres and their role in capturing local or tacit knowledge. More recent work on documentary genres in the digital workplace is then addressed, and the place of the politics of classification in the construction of genres is discussed. The author analyzes case studies of new technology and changes in practice in a number of contexts, including current work on documentary genres in a small entreprise in the Scottish food and beverage sector. In this company, evolving documentary genres have allowed a recently automated sales team to adapt to a new order imposed by changes in external circumstances and the procurement of new technology. The paper concludes with a review of recent work on visualisation of social interactions, and its possible role in the rapid provision of templates for documentary genres in different domains.

The author speculates that representations (by visualization or other means) of documentary genres in organizational settings may serve as 'thumbprints' of groups at work that may provide rapid insight into the nature of work in a given domain. Such insight may be important in distributed cognition, where ad hoc project teams work online and at a distance from each other in the 'temporary organizations' that characterize work in many domains.

Introduction

The paper which follows presents a number of propositions that define documentary genres as categorizing devices, which may be used, when visualized or abstracted in other ways, to represent organizational activities. Genres may thus be worthy of attention as macro-level devices for the classification of documents. In recent years, there have been a number of calls for an extension of the focus of classification research attention: Soergel (1998), for example, has proposed an interactive interface structure for an inclusive classification scheme, and a recent ARIST review

of 'Socio-cognitive approaches to classification' (Jacob and Shaw 1999) offers a rationale for an extended research agenda. The paper by Bowker (the latest of a series of studies of medical classification (e.g. Bowker Timmermans and Star, 1995; Bowker and Star, 1997)) in a recent *Library Trends* special issue may serve as an exemplar of a broader approach: he anatomises the International Classification of Diseases (ICD and demonstrates how enlightening an analysis of practice can be if that analysis is based on the intersection of genre analysis (or, in Bowker's words 'stories of cutting up the world', which include formal genres like death certificates) and classification theory (Bowker, 1999).

Yates and Orlikowski, in their ground-breaking paper of 1992, define documentary genres broadly. They identify three characteristic elements: a recurrent situation, substance ('social motives...themes...topics'), and form (structural features, communication medium, and symbolism). Genres are enacted through rules which associate appropriate elements of form and substance with certain recurrent situations; to engage with a genre is to 'implicitly or explicitly draw on genre rules', and also to 'reinforce and sustain the legitimacy of those rules'. (p. 301, 302). Genres exist at different levels of abstraction, and will be defined differently 'in different cultures and at different times'. (p. 303) What is interesting about them is their dual status as 1) an articulation of what has emerged as appropriate behaviour (their role as a 'categorizing' device) and 2) as a prescription for activity in a community of practice (their role as a 'regulatory' device). Genres are thus, say Yates and Orlikowski, structurational devices.

In this paper, the use of the word 'orders' in the title attempts to capture the dual dimensions of 'categorize' and 'regulate', or 'ascription' and 'inscription' (Robinson, 1997) Within the theoretical framework of actor network theory, this duality has been recognized as a feature of all categorizing and classification systems: 'translation' (the acceptance of a common artefact or construction) happens by means of 'inscription' as artifacts embody the interests of those who engage with them. Such artefacts carry (as Star and Greisemer (1989) indicate) 'at every stage the traces of multiple viewpoints, translations and incomplete battles' (p. 413). These observations suggest that classification, a political resource, is central to the relationship between inscriptions, work practice and standards. By virtue of inscription, 'social' artifacts become political palimpsests, or 'political amber' (Grint et al, 1995). Suchman corroborates such points of view in her statement (1997) that 'categorization devices are devices of social control involving contests between others' claims to the territories inhabited by persons or activities and their own: they emerge from the politics of the group; they are adhered to for as long as they order the world in ways that accommodate the overall interests of the group' (p. 181). Robinson (1997) takes the theme of 'social ordering' further, and analyzes work processes (and, this paper would argue, genres which articulate processes) in terms of Latour's 'immutable mobile'; he concludes that processes are 'mutating' immutable mobiles, in a brave attempt to capture the coupling of emergent practice and recurring, yet evolving situations.

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The term 'orders' also invokes the work of Law (1994), who identifies four 'orders' in organizational work; documentary genres, as they embed domain practice, are most closely aligned with his 'administration mode' (where they are explicit), and 'vocational mode' (where they are implicit) of ordering. Albrechtsen's analysis of the development of classification and interface elements in a recent innovative database project in a Danish library, demonstrates how Law's schema may be applied to the discussion of genres. (Albrechtsen, 1999)

This paper explores the following propositions. Firstly, that documentary genres are, indeed, categorization, or ordering devices that direct people to lines of appropriate action, and to the modes of expression that support or (in the case of the virtual workplace) that articulate these actions. The documentary genre is a substitute or surrogate for an 'order' to act in an appropriate way; to those working within an established genre, its 'ordering' may well be implicit. Genres are not fixed: they emerge from practice, and are recognized and enacted by members of communities of practice (Dillon and Vaughan, 1998). For genres to be effective they have to be recognized as guides to behavior by the most simple minded of those who enact them (Bergquist and Ljungberg, 1999). Genres may also be described as heterotopic: though they emerge from local practice, they may exert influence beyond the locality in which they are produced. This influence at a distance, and across time, endows certain documentary genres with great power as coordination devices within organisations, and within industrial sectors, a point demonstrated in the case study by Hildreth and Kimble (1999) which is described below.

The second proposition states that where practice changes (as it does in cases where new technologies are introduced into an organization), new genres are likely to emerge as practitioners adapt to new circumstances and establish fresh routines. From this perspective, genres offer insight into tacit knowledge, acting as bridges between uncodified 'walk-arounds' and codified knowledge. In this role, they are highlighted in the 1998 paper by Nonaka and Konno which presents several annotated visualizations of the concept of 'Ba', or the space of knowledge creation in organisations, work which has had considerable influence on the design of document management systems at Xerox PARC. (Seely Brown, 1998). As an example of a turbulent environment, consider the world of electronic commerce, and a workplace characterized by computer mediated interaction, where text (a portmanteau term which may be defined in the digital workplace broadly as Yates and Sumner (1997) indicate) is all that is to hand. In this context, understanding of genres (inasmuch as they are implicit orders) will be an important condition for participation in the core activities that constitute in a given domain. (It must be noted that not all activity is articulated in documentary genres; indeed, in some situations, much communicative activity may involve discussion of what genre is appropriate to achieve which objective (Bergquist and Ljungberg, 1999).

The third proposition is more speculative, and is premised on a vision of a 'new organizational order', described by Zuboff, writing in 1995. She observes that the information economy demands the demise of traditional hierarchical corporation as the exemplar of organizational work. In its place, a network of small organizations, which are open in form, will draw competitive strength from the power of detail that is represented in the digital infrastructures that support them. Groups in this digital environment (what she describes as a 'new organizational order') must be able to rapidly configure resources and tactics in the interests of both change (when required) and consolidation. Much of what an analyst needs to know will be available in detail in digital documentation, held in intranets and extranets, which can offer insight into the change and consolidation process. The third proposition states that 1) documentary genres are a means by which rapid insight may be gained, and 2) that representations of genres (by visualisation or other meanslike documentary mark-up codes) can function as an ontology, that makes visible, and stabilizes, the workings of a virtual work domain (Vickery, 1997; Gruninger, 1997). Weinstein and Alloway's presentation (1997) of an ontology for literary genres is an example of the kind of thing that might be done.

Proposition One: 'Documentary genres are categorization, or ordering devices that direct people to lines of appropriate action, and to the modes of expression that support or articulate these actions'

Historically, certain genres of documentation, have functioned as the ghosts of offices past - codes of practice, articles of association, contracts, the inventory (the documentary equivalent of a coelacanth), records of property transfers, daybooks. Though such forms show local diversity, they are recognizable within epistemological trading zones (Berkenkotter, 1995) as performing or enacting similar functions; in other words, they function as codes of conduct. They are not totally fixed however; as new habits emerge and are endorsed by a community of practice, they in turn become encoded, and join the repertoire of knowledge of how to behave. Yates et al. (1997) provide details of this process at work in a study of a virtual 'teamroom'. Changes in practice may be responses to external constraints (changes in the law, changes in suppliers and or customers, changes in the way competitors do things), and they may themselves alter the external environment. The documents which encode them are to some extent open texts. These texts for social encoding ('genres') persist though strategists and decision-makers (managers) come and go, and have been the foundation for historical reconstructions of studies of major business systems: explorations of the development of accounting systems in the 18th and 19th and 20th centuries (Hoskin, 1990; Boland and Schultze, 1996) and Beniger's (1986) work on the control systems that characterize the late modern period are examples.

Pertinent to this paper, is work on the emergence of a high volume, modular system of office documentation designed for mass circulation in complex bureaucracies.

Yates (1989) has painstakingly charted the development of office documentation in the 19th century, and shown how 'classic' documentary genres embodied evolving bureaucratic practice, itself influenced by emerging office technologies like the typewriter, the vertical file and so on. Everyday practice recorded, made replicable, archivable and visible, amenable to control, enlarged the scope of centralized management, thereby increasing the efficacy of surveillance and the robustness of compliance with internal and external regulations. Yates' narrative supports the claim that what is important about these representations of everyday practice (which vary in their level of formalism) is not their truth value (a common discussion point in critiques of reductionist reporting trends in management), but their efficiency value: they lower the costs of many to many transactions in complex groups by compressing the 'situated learning' curve for participants in recurring activities. Robinson (1997) puts this in another way: "the embedded model in a common artefact - the characteristic of the artifact that constrains both the actions that can be taken and the types of meaningfulness that can be attributed to them - is not valuable because it 'represents'. It is valuable because it is a ground, reference point for and reflection of activity". (p. 266) A genre, which is a common artefact, embeds a model of how to proceed, and the persistence of well-established forms is a measure of how well they re-inforce practice. It takes a great deal of effort to establish novel 'process genres': Evindsson and Malone (1997) document in detail the effort required to introduce a new form of financial reporting, the 'Intellectual Capital Report', which has yet to establish itself as an industry standard.

'Genre repertoire' theory, developed by Orlikowski and Yates (1994), (building on work cited above) offers a seminal framework for the exploration of documentary genres. In a discussion of the fitness of certain 'communicative acts' (or genres) to individual objectives, they demonstrate how observance of rules (which embrace deference and prioritizing) in interactive environments sustains the effectiveness of these communicative acts: examples of office genres in their case study are the memo, the proposal, the dialogue and the ballot, all of which are reproduced in the new modality of e-mail. The process of establishing a genre repertoire, say Orlikowski and Yates, is "largely implicit, and rooted in member's prior experiences of working and interacting. Once established, a genre repertoire serves as a powerful social template for shaping, how, why and with what effort members of a community interact to get their work done". Genres are not static but can be reinforced and challenged and their content is indeterminate. As we have seen, Orlikowski and Yates invoke structuration theory, to explain that "the enactment of genres occurs through a process of structuring" and thus group members "are always negotiators, interpreting and improvising". It can be argued further that, like Grint's (1998) 'configurational' systems, genres may be seen as attractors, and each time a behavior is reproduced, or encoded in its corresponding document, the strength of the attractor is increased, as others perceive that the genre offers the path of least resistance: examples of this process of consolidation are helpdesk enquiries which develop into procedural guides, or benchmarks which emerge from best practice.

Some examples to support Proposition One

The process handbook may be analysed as an example of a genre which emerges from local practice (a 'categorizing' device), but is most effective when applied beyond its original locality, across groups and units (a 'regulatory' device). Texts for coordination have been the focus of attention for designers of digital environments for at least two decades. Some of the most complex articulations of coordination have been developed by Malone and his colleagues (Malone et al, 1997; Crowston, 1997). In addition to looking at coordination of points of view at the micro-level of the group, they have explored coordination devices (in the form of visible frameworks) for workflows at the level of the firm. One of the outcomes of this work is the prototype 'handbook of organizational processes', a *vade mecum* for organizational analysts which pulls together a multidisciplinary portfolio of tools, frameworks and taxonomies.

The process handbook may be seen as a member of a documentary set: re-engineering texts, which, when offered online and used as a lever for organization, may be treated as digital genres. (They are described as 'cookbooks' by Crowston, 1997) As Boland and Schultze (1995), and Grint et al. (1995) demonstrate, process engineering documents are political levers, 'inscriptions' in the terminology of the previous section: they have been attacked for their injustice (they represent only a partial view of the firm) and for their myopia - the resulting organization, like any monoculture, will be as vulnerable as any other system that has sustained loss of diversity. In many cases, business process re-engineering (BPR) texts are templates for 'starting over' in altered circumstances in the most immediately cost effective way. As genres, process handbooks are clearly categorizing devices (too narrow in the eyes of critics), and regulatory devices (to the point of inhibition, from the critics' point of view).

Monteiro and Hansett's (1995) study of EDI in the Norwegian health sector provides a specific illustration of a process protocol and the politics underlying its introduction. In constructing the case they have drawn on Latour's Actor Network Theory, as it 'supports an inquiry which traces the social process of negotiating, redefining, and appropriating interests back and forth between an articulate, explicit form where the are inscribed within a technical artefact'. They show how different interest groups (pharmacists, GPs, the government agency) jostled to have the EDI initiative implemented in ways which would favor their own position. As they observe, to build one's own advantage into a social genre is to increase one's power base: inscriptions (and the power base they reflect) become stronger as the network of those who are involved expands: the broader the alliance, the stronger the inscription; but a broad alliance may also dilute the power of inscription.

At the micro-organizational level, Bergquist and Ljungberg have been engaged for a number of years on a longitudinal study of a large Swedish manufacturing firm; and of the role of documentary genres at different eras in the firm's history. They have analysed in detail the firm's e-mail system, introduced some years ago. The

discussion of what constitutes a genre is an interesting feature of this work, as the authors exclude informal conversation from the genre portfolio. One week's worth of one employee's e-mail was analysed by means of a grid, with three columns: 'genre/category'; 'internal'; 'external'. Behind each of the genres identified in the e-mail lay a number of communication moves or 'pure conversation' which elicited information on what circumstances were appropriate to what genre. The authors concluded that genre is a 'fruitful concept for how communication enacts organization'; that 'many of the most interesting genres are related to project work in some form or another', and that genres are 'dynamic and living phenomena' as there is much discussion and negotiation of their use. Genres in this case study both 'order' core activities, and 'regulate' them by means of legitimising dialogue. Bergquist and Ljungberg state that some of the genres identified in e-mail may be more suited to enactment on an intranet, an organizational medium to be explored in a further phase of their study.

Proposition Two: 'Where practice changes (as it does in cases where new technologies are introduced into an organization), new genres are likely to emerge as practitioners adapt to new circumstances and establish fresh routines'

In thinking about Proposition Two, the reader may envisage the position of a novice to a particular team in a virtual or networked environment, who has to rapidly orient herself or himself to the group's ways of working. The status of novice may result from a number of combinations of circumstances: same activities, new conditions (introduction of new technology or change of job); new activities, new conditions (change of job; migration to a new project); new activities, same conditions (shift of responsibilities) and so on. In virtual environments, where interactions and activities are embodied in texts, those who understand the language game of a particular project domain (to use Blair's (1992) terminology) will adapt to and work most effectively with new conditions. In the world of digital documents, language games may be instantiated in digital genres, which, as is suggested above, are self-organizing and implicit regulators of group expectations and activity. Learning how all of this works will be an important part of an induction or apprenticeship process. In formulating Proposition Two, the author has drawn work on communities of practice and legitimate peripheral communication by Lave and Wenger (1991) and Seely Brown and Duguid (1993), which offers insight into the nature of apprenticeship, and the transfer of tacit knowledge (in other works, the migration of know-how). This particular 'situated learning' framework proved to be helpful in the empirical study of remote reference work described below.

Some examples to support Proposition Two

Situated learning draws on the "ordinary, everyday, finely detailed methodic practices of participants to an activity in specific settings" (Fleming, 1994, p. 525) and learning, in this context, means being able to participate appropriately in the

settings ... "where the subject or discipline is being done" (op cit, p. 526). In the context of this paper, compliance with the documentary genres at play in a given domain, will constitute 'appropriate behaviour'. In a project to design a remote reference service in a distributed online library environment, the author and her colleagues combined insights from situated learning with work on digital genres to design a prototype 'collaborative' service (Procter et al 1998; Davenport and Procter, 1997). The reference interview was taken as one of several genres which constitute the repertoire of 'reference work', each defined by appropriate rules which emerge in the working practice of a given institution, and a 'genre repertoire' framework was the basis of the design of the pilot remote reference service. The team drew heavily on the work noted above of Yates, Orlikowski and Rennecker (1997) on 'genre systems' within established communities, characterised by "an interrelated sequence of genres enacted by members of a particular community ... composed of a well-coordinated set of communicative moves that together accomplish an interaction ... the system as a whole, as well as the individual genres constituting the system, can be said to have a socially recognized purpose and common characteristics of form" (op cit, p. 51). In the case of the classic library reference interview, the 'community' was taken as that of patrons and professionals, the communicative 'moves' (the team invoked Fidel's (1985) work here) were the phases of the on-line reference interview , the 'interaction' is the shared search, and the purpose and form are the provision of information within the institution of the library.

Users derive their own heuristics to cope with the search space, which will conform, more or less, with the practices recommended by experts associated with the design and exploitation of that space. Recommended practice will also be articulated in such documentation as IR system help screens and manuals, though a user may choose to proceed on the basis of experience gained with other systems, or discussed with a peer or colleague. This suggests that user-generated genre systems (FAQs, for example) which are often alternatives to the 'classic' reference 'set' may be brought into play. The author and her colleagues suggested that (in addition to analysing the phases of a search and turn-taking) an approach using genre analysis may assist researchers and designers of systems to support reference consultations between librarians and remote users to capture salient features of the reference collaboration.

Several other studies of digital genres (analyses of discussion lists, newsgroups, FAQs, home pages) do indeed suggest that genres may function as adaptation devices at the micro-organizational level. Crowston and Williams (1997) offer an analysis of web pages and the genres that they envelop; comparable findings have emerged in an empirical study by Dillon and his colleagues (1999). Drawing on the genre repertoire work of Orlikowski and Yates (op. cit.), Crowston and Williams show how genres may be nested or embedded. A case in point is discussion lists (a 'surface' genre) within which FAQs (an 'embedded' genre) emerge. Where FAQs persist as guides to action, they become encoded practice, an 'independent genre', which may be more or less long-lived as practice becomes self-evident. From this perspective, Ackerman's 'Answer Garden' (Ackerman and MacDonald, 1996) may

be seen as an extended repertoire based on the 'helpdesk' genre, which bundles a number of other genres: the FAQ, e mail, and the full reference interview in response to an escalating reference need. It may be further suggested that bookmarks may be seen as another case of a 'layered' genre with the potential for extension: on the surface the file is a resource locator; with manipulation, further genres may emerge - a citation map, for example, which can allow a 'stranger' to fast track into the group's social network, or allow a 'resident' of the virtual neighbourhood to check the changing configuration of that network.

Yates and Sumner (1997) offer two case studies which support the proposition that genres act as a stabilizer that counteracts centripetal and centrifugal tension in groups mediated by CMC. (Their development of the 'stability/transformation' theme is extensive and eloquent). In the first study, they use techniques from conversation analysis to show how micro genres emerge in CMC communication (in this case, a discussion list); the CMC revealed a complex interplay of speech and written genres (some of them signalled by typographic devices (the standard netiquette icons). The second case is a study of a cross-disciplinary design project, and the re-working of what are called here 'translation' and 'coordination' genres by one of the designers, in a response to a less than optimal previous genre repertoire: 'As the community recognized common breakdowns in the design process, they improved their representations to overcome these breakdowns. The outcome was a progression towards well-defined design representations that made explicit significant objects and their relationships'. Hildreth and Kimble (1999) describe the development of an online planning document (an amalgam of multiple 'soft knowledge' inputs from different teams) in a transcontinental team. They describe the document a 'boundary object with a difference' since it 'bounded' internal differences (national and cultural) and acted as a 'collaborative catalyst'. (p. 23) Though the planning document would be most fully interpreted by an 'old-timer' who would be more attuned to the 'knowledge of previous generations' embedded in the artefact, Hildreth and Kimble endorse its potential in situated learning.

The following 'digital genre' scenario is not explicitly presented as such by its author (Romano, 1998). It is a description of GSweb, a web version of a complex groupware system with 'over 10 years' of development history behind it. A predecessor product designed by the group, Groupsystems, was based on standard genres for decision-making (brainstorming, ranking, voting), supplemented over the years, by dialogue boxes, and e-mail, and other relevant digital genres. The GSweb prototype develops the idea of a collaborative portfolio further, combining tools that 'categorize and converge' on key issues ('translation' tools, in other words) with tools that can offer a 'process overview' ('coordination'). The principal representation device is the folder, nested and structured and accessed in windows sequences. In addition, GSweb, like its predecessor GroupSystems, provides 'tools for thought' - 'categorizer',' outliner', 'commenter' and 'vote'. Categorizer may be agent-based. The structures and representations offered by GSweb may greatly facilitate observations of genres at work: 'folders' might represent genres, and a tool

like categorizer, might function as a 'genre' generator. 'Group outliner', might produce an ontology for any given group whose work is embodied in the GSweb application.

Proposition Three: 'documentary genres are a means by which rapid insight into organizational activity may be gained, and representations of genres can function as an ontology, that makes visible, and stabilizes, the workings of a virtual work domain'

Erickson (1996) in his discussion of an analytic framework based on genre theory for on-line discourse suggests a focus on:

•communicative purpose of the discourse
•nature of the discourse community
•regularities of form and content of the communication, and the underlying expectation and conventions
•the properties of the recurrent situations in which the genre is employed, including the institutional, technological, and social forces that give rise to the regularities of the discourse.

He further suggests that digital genres provide a 'fast track' for those who wish to understand genres at work, partly because the material is more readily accessible than that painstakingly compiled by observers of the traditional workplace. In the concluding section of this paper, the genres as insight theme is taken further by means of the claim that genres, like other records of social interactions, may be summarised/metonymised in visual surrogates.

Some examples to support Proposition Three
There is some empirical work that may be cited in support of the proposition. Toms and Campbell (1999), demonstrate, that readers of academic texts can recognise genres on the basis of stylistic features ('thumbnails', as distinct from 'thumbprints'). Though their descriptions of genres as 'interface metaphors' may be contested (do genres work in the same way as metaphors?), they do suggest that, as genres are ordering devices, and as readers know how to behave when faced with a given example, genres should be considered as elements in classification systems. Dillon and his colleagues (Vaughan and Dillon, 1998; Dillon and Gushrowski, 1999) have also demonstrated that readers know where they are and what to do in the presence of genres, in a number of laboratory studies which exposed subjects to academic texts, and to home pages on the web. In the work of both the Indiana and Dalhousie groups, participants had already been to some extent 'schooled' in the appropriate mode of behaviour, and could clearly recognise when 'pieces' were out of place. To some extent, Erickson's four focal points have already been addressed in these cases.

To test proposition three, a number of conditions must be met. We need to establish criteria to identify sets of documentary genres, perhaps by borrowing from taxonomies for infrastructure, like that offered by Star and Ruhleder [1994]. In addition, a set of practices must be identified that clearly function as genres (because digital behavior is shaped by them), and that are agreed to be genres by those who enact them, without prompting, which would prejudice membership of the set and simply produce a set of research artifacts. A lexicon must be found that is informative, hospitable and distinctive: the vocabulary developed by Akrich and Latour [1992] for Actor Network Theory, may serve as an example. An ambitious attempt to provide a fully justified taxonomic framework from scratch to analyse genres in organizations is described in a recent paper by Tyrvainen and Paivarinta (1999), in a study of a Finnish 'hi-tech' products company. The study has provided a realistic assessment of the resource requirements for an Electronic Document Management System (EDMS) based on genre analysis which embraces the multiple expertises of practitioners, domain experts, organization designers, IS specialists, and which must handle:

- heterogeneity among document genres now and in the future
- variations between document genres within a genre system
- variations between observers
- the fact that no single observer is able to comprehend all the document genres in the organization.

In addition, a set of visualizations or representations must be provided (analogous to those discussed in Weinstein and Alloway, (1997); Karlgren and Straszheim, (1997)) that would act as a 'fast inscription' and allow participants in workgroups to quickly exploit the power of a genotype. Technologies exist which support the spaces where such data may be captured (IRCs, newsgroups, and electronic meeting systems); and recent work has demonstrated that interfaces based on visualisations of interaction analysis can offer rapid insight into the group process. Examples may be found in the work of Donath on the visualisation of threads in online conversations (Donath et al, 1999; Viegas and Donath, 1999), visualisations of turn-taking in the work of, among others, Millen and Dray (1999); recent work by Erickson and his colleagues on participation in conversation circles (1999), and, in a slightly different context, by Wexelblat (1999) which allow 'individual-in-a-group' profiles to be drawn and matched. It might be argued that some of these interactions, e.g. a 'thread' in a newsgroup are themselves a digital genres. It must be noted that the programming implications of a visual analysis of online interaction are not trivial.

An alternative mechanism for rapid representation may be offered by mark-up language. Kircz suggests (1998) that SGML might be the basis of new modes of retrieval; and recent work by Bishop (1999) suggests that xtml/xsl may offer further opportunities.

A current case study: do the propositions hold up?

Firm B is a small independent Scottish brewery, with a long tradition of producing cask-conditioned ales, and the case study is concerned with the sales team (currently twelve individuals) and its office documentation and recent automation history. In the past five years, the firm has undergone a number of changes, partly structural (a management buy-out and a stock market flotation) and partly technological (automation in the industrial sector has driven local developments in Firm B). In recent months, the author has held a number of 'informal' conversations with M., a key informant, on the topics of organizational change and technology implementation. M. is the only woman manager in Firm B: she manages the sales force team, and runs the directors' office team. In terms of the management of office documentation and technology projects, she is a key link between the practitioners (the salesmen) and the strategic level of the firm. M. has no formal qualification in management and systems administration: her work is based on 'strong personal skills in prioritizing and organizing, and years of working with project teams in male-dominated industries like construction and engineering'.

When M. joined the firm in 1994, documentation management was non-existent, with data collected by means of a minimum set of 'forms' ('off-the-shelf' Kalamazoo stationery) being submitted in a haphazard way as and when the salesmen had time. Neither the salesforce or the office was pressed to ensure that information on the forms was complete, or that forms went to the appropriate recipients for processing. For the purposes of planning and analysis, much of the information on the forms was barely exploitable. According to M., the forms did not reflect local practice; as 'standard office supply issue', they recorded a set of details designed to fit a general sales model. (In terms of the definition of 'documentary genres' in this paper, the forms hardly qualified) M. set herself the initial task of understanding and analyzing local sales activities, and devised within six months, a large handbook, the 'Modus Operandi' (referred to as 'MO' in the text which follows).

'MO' pulls together all the documentation that is necessary for each sales person to do his or her job, structured in four sections 'personal', 'technical', 'financial' and 'other'. The personal section consists of material like call sheets, weekly summaries, and 'salesforce evaluation forms'. 'Technical' forms relate largely to installation and chilling equipment: a key sheet is 'Taps In Taps Out', or 'TITO'. 'Financial' contains forms which capture details of individual accounts, discounts, and forms relating to bank loans and credit facilities. Firm B, in many cases, bundles its business into 'beer and financial services'; a key sheet in this section is the Moving Annual Total report (for each product line), or 'MAT'. The 'Other' section contains forms from external trading partners: an Anheuser Busch form for the installation of signage is an example. The 'MO' handbook is the foundation of induction for new recruits to the sales team: a one-day in-house session is followed by two weeks 'practical' on the road with the Sales Director. The 'MO' is, says M., 'infinitely extensible and adaptable'. The standard forms have been replaced over the years with customized data collection sheets, and new genres have been added. Now that the firm is

independent, for example, the directors need to collect competitive intelligence and there is a section on many of the forms in the MO for 'observation and comment', that is sent, via M., to the Directors, but can also be shared across the sales-team. In terms of this paper, the 'MO' in its current shape is both a genre in itself (it categorizes activities related to local practice and regulates practice), and a compendium of sub-genres.

Two years ago, the firm decided to automate the sales team, and hired an IS manager from a major Scottish brewer to implement the project; his expertise is in accounting and financial systems. To cut costs, an off-the-shelf application called RepTrack was chosen as the vehicle, and a number of 'minimum spec' PCs were acquired, which do not support the current vision of what is required. Neither the salesforce nor M. were consulted in the procurement process, and there was no systematic specification of user requirements. Initial attempts to implement the system with a small pilot force were stressful, with 'pilots' working till late night (after 55 hours on the road) attempting unsuccessfully to download and upload data in unfamiliar formats. In terms of this paper, the pilot team were being asked to comply with two different docmentation systems: one (a 'genre' system which made sense in terms of practice (the paper work which each member of the team continued to complete a part of the routine of work), and one which was not embedded in meaningful practice and outcomes. One of the pilot team observed that RepTrack did not seem to have been designed for the brewing trade, and that it matched the administrative needs of Firm B, but not the needs of the salesmen. (There is clearly an 'inscription' history here, which can be explored in the e-mail surrounding the RepTrack implementation).

In January 1999, M. was put in charge of general office training, and she made sure that 'laptop training' for the sales force was included in her remit. (At present, the connection from laptop to HQ requires fixed lines, and most of the sales-team work from home on this; however, their suggestions that the Firm should pay the bills have led to an investigation of mobile links from the field). The sales team were introduced to e-mail, and standard applications like MS Word, (a major shift in responsibility in terms of the traditional division of activity) and the training was used as an opportunity to 'computerise' some of the MO material: call sheets, 'TITOs', and 'MATs'. The standard forms are accessed from a drop down menu linked to the e-mail implementation (a design feature proposed by one of the RepTrack 'pilots'), and salesmen can now send certain forms direct from home to the appropriate office at HQ, with copies to M. in her capacity as documentation manager.

This 'work-around' the unsatisfactory RepTrack implementation appears to work well: by March, all members of the salesteam were using e-mail, and successfully handling transactions using three key genres: call sheets, TITOs and MATs. Several of the sales-team have not only embraced responsibility for an additional genre - business correspondence - but describe themselves as empowered by the ability to produce literate and well-presented letters. M. is assisted by two 'champions' from

the RepTrack pilot team, who help to train their peers, and field 'helpdesk' enquiries on and from the road. In terms of Proposition Two, new technology has impacted on practice, where practice has emerged from practitioners' routines. The transfer of tasks and responsibilities, for example, is in the interests of all of the stakeholders involved: it suits M. that forms should go directly to appropriate administrative staff, and that the salesforce should do their own 'typing'; it suits the sales force that they know a form has arrived at a point where it will be acted on, and that they can provide documentation to clients on the field and cut the time of transactions. The success of the laptop training programme has persuaded the Directors that the RepTrack implementation should be re-thought, and that the salesforce and M must be co-designers of the revised implementation.

The author asked M. for comments on a 'genre analysis' interpretation of her five years' experience with Firm B as documentation manager. M. agreed that the MO handbook could be described in terms of Proposition One, as it categorizes activity and regulates it, while remaining flexible. She could see that Proposition Two, that new technology changes practice and that new genres may emerge, could be supported by an analysis of the automation project. M. felt that Proposition Three was premature in the context of Firm B, though, as the communication, computing and media demands of Firm B develop, a comprehensive integrated electronic document management system might well emerge, and, in that context, representations of genres might be useful in providing profiles or mosaics of the financial services packages designed for individual clients, for example.

Conclusion: classification research and genre analysis

The author would like the workshop to consider ways in which genre analysis may be included in an agenda for classification research. The agenda might include specific items (how might visualisation of genres benefit from insights into image classfication, for example?) and a more general exploration of genres as infrastructural objects. In the recent *Library Trends* special issue on classification, Albrechtesen and Jacob (1999) observe that 'Established approaches to classification research and development appear to suffer from a fear of touching the real thing - the social worlds constituting an information system and the collective conditions for knowledge production'. Studies of genres, the articulations of procedures at work, do indeed capture the 'real thing', or in Robinson's (1997) words, 'as real as it gets'.

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Washington, D.C., 31 October 1999   Davenport

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